**General**

The Cooper Power Systems 600 A, 25 kV Class T-OP II Deadbreak Connector is used to terminate high voltage underground cable to transformers, switches, switchgear and other apparatus. It is fully shielded, submersible and meets the requirements of IEEE Std 386™ standard — “Separable Insulated Connector Systems”.

The 200 A three-phase rated loadbreak interface provides a means for obtaining a live test, visible ground and visible break using a hotstick. It also provides a convenient location for a M.O.V.E. arrester or grounding elbow.

Cooper Power Systems offers an exclusive optional capacitive test point similar to test points on 200 A elbow connectors. This allows use of Type “TPR” Series Fault Indicators.

T-OP II connectors are designed for use on solid dielectric cable (XLPE or EPR) with extruded semi-conducting shields and concentric neutral, with or without a jacket. Installation on jacketed concentric neutral cable may require additional sealing material. Adapters are available for terminating tape shield and drain wire jacketed cable (see sections 600-70 and 600-75).

**Installation**

The T-body is assembled onto prepared cable with a threaded copper top compression connector and using a T-Wrench, the loadbreak reducing tap plug is threaded into the connector. The short end of a special copper alloy stud, provided with the kit, is torqued onto a de-energized 600 A bushing. The assembled housing is then connected to the apparatus bushing using an O&T tool (with cap) and an installation torque tool.

The T-OP II connector’s unique captured rotating nut provides ease of removal of the T-OP II connector system from the apparatus bushing. (See Table 3 for information on tools.) Refer to Installation Instruction Sheet S600-12-3 for details.

**Production Tests**

Tests are conducted in accordance with IEEE Std 386™ standard.
- **AC 60 Hz 1 Minute Withstand**
  - 40 kV
- **Minimum Partial Discharge Extinction Voltage**
  - 19 kV

Tests are conducted in accordance with Cooper Power Systems requirements.
- Physical Inspection
- Periodic Dissection
- Periodic Fluoroscopic Analysis

**Table 1 Voltage Ratings and Characteristics**

<table>
<thead>
<tr>
<th>Description</th>
<th>kV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Voltage Class</td>
<td>25</td>
</tr>
<tr>
<td>Maximum Rating Phase-to-Phase</td>
<td>26.3</td>
</tr>
<tr>
<td>(loadbreak reducing tap plug only)</td>
<td></td>
</tr>
<tr>
<td>Maximum Rating Phase-to-Ground</td>
<td>15.2</td>
</tr>
<tr>
<td>AC 60 Hz 1 Minute Withstand</td>
<td>40</td>
</tr>
<tr>
<td>DC 15 Minute Withstand</td>
<td>78</td>
</tr>
<tr>
<td>BIL and Full Wave Crest</td>
<td>125</td>
</tr>
<tr>
<td>Minimum Partial Discharge Extinction Voltage</td>
<td>19</td>
</tr>
</tbody>
</table>

Voltage ratings and characteristics are in accordance with IEEE Std 386™ standard.

**Table 2 Current Ratings and Characteristics**

<table>
<thead>
<tr>
<th>Description</th>
<th>Amperes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>600 A Interface</strong></td>
<td></td>
</tr>
<tr>
<td>Continuous</td>
<td>600 A rms</td>
</tr>
<tr>
<td>24 Hour Short Time</td>
<td>1,000 A rms</td>
</tr>
<tr>
<td>Overload Short Time</td>
<td>40,000 A rms symmetrical for 0.20 s</td>
</tr>
<tr>
<td>Fault Closure</td>
<td>27,000 A rms symmetrical for 4.0 s</td>
</tr>
<tr>
<td><strong>200 A Interface</strong></td>
<td></td>
</tr>
<tr>
<td>Continuous Swarching</td>
<td>200 A rms</td>
</tr>
<tr>
<td>10 operations at 200 rms at 26.3 kV phase-to-phase</td>
<td>10,000 A rms symmetrical at 26.3 kV phase-to-phase after 10 switching operations for 0.17 s</td>
</tr>
<tr>
<td>Short Time</td>
<td>10,000 A rms symmetrical for 0.17 s</td>
</tr>
<tr>
<td>3,500 A rms symmetrical for 3.0 s</td>
<td></td>
</tr>
</tbody>
</table>

*Note: System design and protection must recognize the ratings of 200 A interface.*
OPTIOnal FeaTUreS

Protective Cap
200 A Insulated Protective Cap fits over loadbreak reducing tap plug for deadfront shielding.

Capacitive Test Point
Capacitive Test Point on molded T-body, with snap-on cap, provides a place to mount TPR series fault indicators.

Figure 2.
Cutaway drawing illustrates design features.

Figure 3.
T-OP II profile and stacking dim. from Figure 11A of IEEE Std 386™ standard.
Each T-OP II Connector kit contains:
- Molded Rubber T-body
- Loadbreak Reducing Tap Plug
- Cable Adapter
- Coppertop Compression Connector
- Copper Alloy Stud
- Silicone Lubricant
- Installation Instruction Sheet

**Catalog Number Selection**

Use the following procedure to develop the correct part number for the desired T-OP II kit, based on cable size, conductor size and desired options.

**Step 1** – Determine the cable's diameter over the electrical insulation as shown in Figure 4 (including tolerances). Then identify a cable range from Table 3 that brackets the minimum and maximum insulation diameters. Select the correct CABLE RANGE CODE.

**Step 2** – Identify the conductor size and type in Table 4 and select the CONDUCTOR CODE from the far right column.

**Step 3** – For a T-OP II kit with a capacitive test point and protective cap, order:

**Example**: Select a T-OP II kit without a capacitive test point, with a protective cap for a 250 mcm compressed cable with a nominal insulation diameter of 1.16".

**Step 1** – Nominal diameter over the insulation is 1.16" ± 0.030" minimum diameter = 1.16 - .030 = 1.13" maximum diameter = 1.16 + .030 = 1.19"

From Table 3 identify the cable range 1.13" - 1.19" and select the “EE” Cable Range Code.

**Step 2** – The conductor size is a 250 mcm compressed. From Table 4, under the column “Concentric or Compressed,” identify 250 mcm and select the “17” conductor code.

**Step 3** – Order catalog number:

**TP625EE17C**.
To order replacement parts and tools, refer to Table 5.
To order replacement compression connectors and cable adapters for a T-OP II Connector System, see section 600-26 “Deadbreak Accessories, Tools and Replacement Parts.”

Figure 5.
Catalog Number STUD-T
The Copper Alloy Stud with its extended length allows for threading into the connector prior to mating the bushing and terminator interfaces. Blunt start threads on the stud help eliminate cross-threading. Stud threads into an industry standard 600 A bushing.

Figure 6.
Catalog Number TWRENCH
The T-Wrench is used to install the Loadbreak Reducing Tap Plug into the compression connector and T-body.

Figure 7.
Catalog Number TQHD625
The Torque Tool is required to check the torque of a 25 kV Class T-OP II deadbreak connector or bushing adapter when it is installed on a 600 A bushing interface. It is precision calibrated and shotgun stick operable.

Figure 8.
Catalog Number OTTQ625
The combination Operating and Test/Torque Tool is used with a hotstick to test for circuit de-energization and to install and remove a 25 kV Class LRTP equipped connector from an apparatus tap. The standard tool is equipped with a molded EPDM rubber cap and torque limiter to allow proper tool seating and gripping of the T-OP II connector. It also ensures that the connector has been properly torqued into the mating bushing.

Figure 9.
Catalog Number HD625
5/16" Hex shaft with 3/8" socket drive tool.