

Deadbreak Apparatus Connectors

600 A 35 kV Class Deadbreak Accessories, Tools, Replacement Parts

GENERAL

The Cooper Power Systems 600 A, 35 kV Class Deadbreak Accessories are used to connect and assemble 600 A products. When assembled to mating apparatus, deadbreak accessories provide fully shielded, submersible connections that meet all the requirements of IEEE Std 386™ standard – “Separable Insulated Connector Systems”. They are made of high quality molded epoxy or peroxide cured EPDM rubber to provide excellent electrical, thermal and mechanical reliability. All have 5/8" – 11 UNC 2B aluminum threads that meet IEEE Std 386™ standard requirements for 600 A separable connections. Optional all copper components are also available.

INTERCHANGEABILITY

All Cooper Power Systems 600 A deadbreak connector components conform to the electrical, mechanical and dimensional requirements of IEEE Std 386™ standard. In addition they are designed to be interchangeable with those currently available from other manufacturers also meeting the requirements of this standard.

PRODUCTION TESTS

Tests are conducted in accordance with IEEE Std 386™ standard.

- AC 60 Hz 1 Minute Withstand – 50 kV
- Minimum Corona Voltage Level – 26 kV

Tests are conducted in accordance with Cooper Power Systems requirements.

- Physical Inspection
- Periodic Dissection
- Periodic X-ray Analysis

TABLE 1
Voltage Ratings and Characteristics

Description	kV
Standard Voltage Class	35
Maximum Rating Phase-to-Ground	21.1
AC 60 Hz 1 Minute Withstand	50
DC 15 Minute Withstand	103
BIL and Full Wave Crest	150
Minimum Corona Voltage Level	26

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

THREADED STUD

The threaded stud is used to connect reducing well plugs, deadbreak tap plugs, connecting plugs, and insulating plugs to other components or to apparatus bushings.



Figure 1.
Threaded Stud made of aluminum or optional copper.

INSULATING PLUG

A one-inch socket and torque wrench are required to tighten the insulating plug into a de-energized deadbreak connector and mating apparatus. Refer to Installation Instruction Sheet S600-50-2 for details.

Capacitive Test Point allows circuit testing without disturbing the bolted connection. The one-inch hex head allows easy assembly to the connector and mating apparatus.

Semiconducting peroxide cured EPDM Rubber Cap fits over the test point for a waterproof seal and deadfront shielding.



Figure 2.
Insulating Plug with EPDM rubber cap.

TABLE 2
Current Ratings and Characteristics

Description	Amperes
Continuous	600 A rms
24 Hour Overload	1,000 A rms
Short Time	40,000 A rms symmetrical for 0.20 s 27,000 A rms symmetrical for 4.0 s

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

CONNECTING PLUG

A 5/16" Hex wrench is used to tighten the connecting plug into a de-energized deadbreak connector or mating apparatus. Refer to Installation Instruction Sheet S600-50-2 for details.

Semiconducting coating provides continuity with semiconducting shield of peroxide cured EPDM rubber of mating parts.

Versatile design can be used for connecting two or more 600 A deadbreak connectors or, with a bushing extender, to ease cable training by increasing the distance between an apparatus front plate and 600 A connector.



Figure 3.
Connecting Plug shown with stud.

CABLE TRAINING TOOL

The HT120 cable training tool warms cable insulation, making it pliable and easily trainable. The tool is used for training cable in switchgear, vaults or on riser poles. It is available in 1, 2 or 3 tape options.



Figure 4.
HT120 Cable Training Tool.

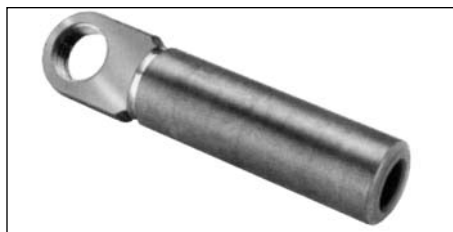


Figure 5.
Compression Connector.

COMPRESSION CONNECTOR

Compression connectors are available in all aluminum or friction welded Coppertop designs, with threaded and unthreaded holes. See Tables 3 and 4 for proper application. All connectors have aluminum crimp barrels and are designed for use with either aluminum or copper conductors.

TABLE 3
Applications

Deadbreak Connector Systems	15/16 in. – 9 Threaded Coppertop	11/16 in. Unthreaded Aluminum	11/16 in. Unthreaded Coppertop
PUSH-OP	✓		
T-OP II	✓		
Bol-T	✓	✓*	✓

* Connector furnished with "Standard" Bol-T kits.

ORDERING INFORMATION

Compression Connectors

TABLE 4
Replacement Parts

Conductor Size				Catalog Number		
Concentric or Compressed		Compact or Solid		15/16 in. – 9 Threaded Coppertop	11/16 in. Unthreaded Aluminum	11/16 in. Unthreaded Coppertop
AWG or kcmil	mm ²	mm ²	AWG or kcmil			
2	–	–	1	CC6C11T	CC6A11U	CC6C11U
1	–	–	1/0	CC6C12T	CC6A12U	CC6C12U
1/0	50	70	2/0	CC6C13T	CC6A13U	CC6C13U
2/0	70	–	3/0	CC6C14T	CC6A14U	CC6C14U
3/0	–	95	4/0	CC6C15T	CC6A15U	CC6C15U
4/0	95	120	250	CC6C16T	CC6A16U	CC6C16U
250	120	–	300	CC6C17T	CC6A17U	CC6C17U
300	150	–	350	CC6C18T	CC6A18U	CC6C18U
350	–	185	400	CC6C19T	CC6A19U	CC6C19U
400	185	–	450	CC6C20T	CC6A20U	CC6C20U
450	–	240	500 ^a	CC6C21T	CC6A21U	CC6C21U
500	240	300	600	CC6C22T	CC6A22U	CC6C22U
600	300	–	700	CC6C23T	CC6A23U	CC6C23U
650 ^b	–	–	750 ^c	CC6C24T	CC6A24U	CC6C24U
750 ^d	400	–	900	CC6C25T	CC6A25U	CC6C25U
900	–	500	1000	CC6C26T	CC6A26U	CC6C26U
1000	500	–	–	CC6C27T	CC6A27U	CC6C27U
1250	630	–	–	CC6C28T	CC6A28U	CC6C28U

^a Also accepts 550 kcmil compact conductor.

^b Also accepts 700 kcmil compressed conductor.

^c Also accepts 800 kcmil compact conductor.

^d Also accepts 700 kcmil concentric conductor.

ORDERING INFORMATION

Cable Adapter

To order cable adapters, refer to Table 5. These cable adapters are for use on the Bol-T, T-OP II, and PUSH-OP connection systems.

Determine the cable diameter over the high-voltage insulation and specify the catalog number using Table 5. Insulation diameter must fall within the range of the appropriate cable adapter as cable diameter can vary ± 0.030 ".

Example: To order a cable adapter of 1.200 inches, determine the cable diameter range as follows:

$$1.200 - 0.030 = 1.170 \text{ minimum diameter}$$

$$1.200 + 0.030 = 1.230 \text{ maximum diameter}$$

Therefore, specify **CA635J**.

CABLE ADAPTER

Molded cable adapter is available in sizes to fit cables from 0.875" to 1.965" in diameter (22.2 to 49.9 mm). Molded of high quality peroxide cured insulation and semiconductive rubber to provide stress relief for terminated cable. Refer to Table 5.



Figure 6.
Cable Adapter.

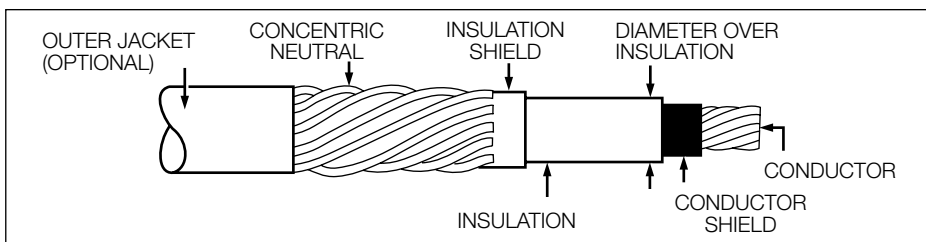


Figure 7.
Cable cutaway showing conductor and insulation layers.

TABLE 5
Cable Adapter

Insulation Diameter		Catalog Number
Inches	Millimeters	
0.875 - 0.985	22.2 - 25.0	CA635D
0.930 - 1.040	23.6 - 26.4	CA635E
0.980 - 1.115	24.9 - 28.3	CA635F
1.040 - 1.175	26.4 - 29.8	CA635G
1.095 - 1.240	27.8 - 31.5	CA635H
1.160 - 1.305	29.5 - 33.1	CA635J
1.220 - 1.375	31.0 - 34.9	CA635K
1.285 - 1.395	32.5 - 35.4	CA635L
1.355 - 1.520	34.4 - 38.6	CA635M
1.485 - 1.595	37.7 - 40.5	CA635N
1.530 - 1.640	38.9 - 41.7	CA635P
1.575 - 1.685	40.0 - 42.8	CA635Q
1.665 - 1.785	42.3 - 45.3	CA635R
1.755 - 1.875	44.6 - 47.9	CA635S
1.845 - 1.965	46.8 - 49.9	CA635T
1.960 - 2.210	49.8 - 56.1	CA635U

T-BODY

Molded T-Body adapts to all cable sizes and provides a deadfront shielded connection.



Figure 8.
Molded Rubber T-Body.

ORDERING INFORMATION

To order Cooper Power Systems 600 A, 35 kV Class Deadbreak Tools Accessories, refer to Table 6.



Figure 9.
Catalog Number OTTQ635
The combination Operating and Test/Torque Tool is used with a hotstick to test for circuit de-energization and to install and remove a 35 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 10.
Catalog Number TQHD635
The Installation Torque Tool is required to ensure proper torque when installing a 35 kV Class bushing adapter to a 600 A bushing interface. It is precision calibrated and shotgun stick operable.

TABLE 6
600 A, 35 kV Deadbreak Bol-T Tools and Accessories

Description	Catalog Number
Aluminum Insulating Plug with Cap and AL. Stud* (Figure 2)	DIP635AS
Aluminum Insulating Plug with Cap, without Stud	DIP635A
Copper Insulating Plug with Cap and Cu. Stud*	DIP635CS
Copper Insulating Plug with Cap, without Stud	DIP635C
Cap only	DIPCAP
T-Body with Capacitive Test Point (Figure 8)	DT635T
T-Body without Test Point	DT635
Threaded Copper Stud (Figure 1)	STUD635-C
Threaded Aluminum Stud	STUD635-A
Aluminum Connecting Plug with AL. Stud* (Figure 3)	DCP635AS
Aluminum Connecting Plug without Stud	DCP635A
Copper Connecting Plug with Cu. Copper Stud*	DCP635CS
Copper Connecting Plug without Copper Stud	DCP635C
Cable Training Tool (Figure 4)	
1 Tape option	HT1201
2 Tape option	HT1202
3 Tape option	HT1203
Operating Test Torque Tool (Figure 9)	OTTQ635
Installation/Torque Tool (Figure 10)	TQHD635
T-Wrench (Figure 11)	TWRENCH
Operating and Test Tool (Figure 12)	OT635
5/16" Hexshaft with 3/8" Socket Drive Tool	HD635

* Stud comes loose in kit, add "P" to part number for factory installation.



Figure 11.
Catalog Number TWRENCH
The T-Wrench is used to remove the alignment tool from the LRTP after assembly into a compression connector.



Figure 12.
Catalog Number OT635
The Operating and Testing Tool is used with a hotstick to test for circuit de-energization and to install and remove a 35 kV Class LRTP equipped connector from an apparatus tap. The standard tool is equipped with a molded EPDM rubber cap to ensure tool seating.