Deadbreak Connectors
Catalog Data
CA650006EN

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Supersedes 600-66 July 2014

COOPER POWER SERIES

600 A 35 kV class deadbreak accessories, tools, and replacement parts

General

Eaton's Cooper Power™ series 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™-2006 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™-2006 standard requirements for 600 A separable connections. Optional all copper components are also available.

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Interchangeability

All Eaton's Cooper Power series 600 A deadbreak connector components conform to the electrical, mechanical and dimensional requirements of IEEE Std 386™-2006 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™-2006 standard.

- ac 60 Hz 1 Minute Withstand
  - 50 kV/70 kV
- Minimum Corona Voltage Level
  - 26 kV

Tests are conducted in accordance with Eaton 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 150 kV BIL Class 200 kV BIL Class	 50 70
DC 15 Minute Withstand	103
BIL and Full Wave Crest	150/200
Minimum Corona Voltage Level	26

Voltage ratings and characteristics are in accordance with IEEE Std 386™-2006 standard.

Table 2. Current Ratings and Characteristics

Description	Amperes
Continuous	600 A rms
4 Hour Overload	 900 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™-2006 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.

Insulating Plug, available at 200 kV BIL

Figure 2. Insulating Plug with EPDM rubber cap.

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 collar 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.

Connecting plug available at 200 kV BIL

Figure 3. Connecting plug shown with stud.

Compression connector

Compression connectors are available in all aluminum or friction welded coppertop designs, aluminum with unthreaded holes, and coppertop with either threaded or 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.

Figure 4. Compression Connector.

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™		✓	✓
BT-TAP™		✓	✓

Ordering information

Shear bolt connector (optional)

Bolted cable lug is fitted with stepless bolts, which shear off when optimum contact force has been reached. Provides electrical continuity for copper and aluminum conductors while eliminating need for dies and compression tools. Available in unthreaded aluminum for Eaton's Cooper Power series BOL-T™ and BT-TAP™ connector applications only. See Table 5.

Figure 5. Shear bolt connector.

Table 4. Compression Connector

Conductor Size				Catalog Number		
Concentric or Compressed		Compact or Solid				
AWG or kcmil	mm^2	mm^2	AWG or kcmil	15/16 in. – 9 Threaded Coppertop	11/16 in. Unthreaded Aluminum	11/16 in. Unthreaded Coppertop
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

Table 5. Shear Bolt Connector

Conductor Size						
			Stranded & Compressed			
Concentric	Compressed	Compact	min	max	Shear Bolt Conductor Code	Catalog Number
AWG or Kcmil			mm^2	mm^2		
3/0	3/0	3/0	95	150	**S1**	CDT630SB150
4/0	4/0	4/0				
250	250	250				
-	-	350				
350	350	-	185	300	**S3**	CDT630SB300
500	500	500				
600	600	600				
-	-	700				
700	700	-	400		**S4**	CDT630SB400
750	750	750				
-	800	800				
-	-	900				
800	-	-	500	630	**S6**	CDT1250SB630
900	900	-				
1000	1000	1000				
1100	1100	-				
1200	1200	-				
1250	1250	-				
1300	1300	-	800		**S8**	CDT1250SB800
1400	1400	-				
1500	1500	-				

Cable adapter

The molded cable adapter is available in sizes to fit cables from 0.875" to 2.36" in diameter (22.2 to 49.9 mm). Molded of high quality peroxide EPDM cured insulation and semiconductive rubber to provide stress relief for terminated cable. Refer to Table 6.

Figure 6. Cable adapter.

Ordering information

Cable adapter

To order cable adapters, refer to Table 6. These cable adapters are for use on the BOL-T, BT-TAP, T-OP™ II, and PUSH-OP™ connector systems.

Determine the cable diameter over the high-voltage insulation and specify the catalog number using Table 6. 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 minimum diameter

1.200 +0.030 = 1.230 maximum diameter

Table 6. Cable Adapter

Insulation Diameter		
Inches	**Millimeters**	**Catalog Number**
0.875 - 0.985	22.2 - 25.0	CA635D/CA638D
0.930 - 1.040	23.6 - 26.4	CA635E/CA638E
0.980 - 1.115	24.9 - 28.3	CA635F/CA638F
1.040 - 1.175	26.4 - 29.8	CA635G/CA638G
1.095 - 1.240	27.8 - 31.5	CA635H/CA638H
1.160 - 1.305	29.5 - 33.1	CA635J/CA638J
1.220 - 1.375	31.0 - 34.9	CA635K/CA638K
1.285 - 1.395	32.5 - 35.4	CA635L/CA638L
1.355 - 1.520	34.4 - 38.6	CA635M/CA638M
1.485 - 1.595	37.7 - 40.5	CA635N/CA638N
1.530 - 1.640	38.9 - 41.7	CA635P/CA638P
1.575 - 1.685	40.0 - 42.8	CA635Q/CA638Q
1.665 - 1.785	42.3 - 45.3	CA635R/CA638R
1.755 - 1.875	44.6 - 47.9	CA635S/CA638S
1.845 - 1.965	46.8 - 49.9	CA635T/CA638T
1.960 - 2.210	49.8 - 56.1	CA635U/CA638U
2.100 - 2.360	53.3 - 59.4	CA635V/CA638V

Therefore, specify **CA635J** for 150 kV BIL, **CA638J** for 200 kV BIL.

T-body

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

T-body also available at 200 kV BIL

Figure 7. Molded rubber T-body.

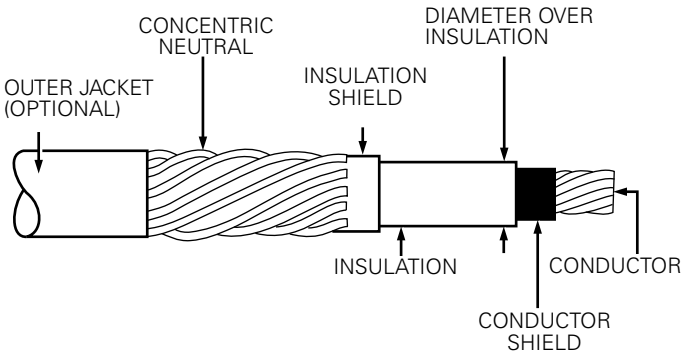

Figure 8. Cable cutaway showing conductor and insulation layers.

Ordering information

To order 600 A, 35 kV Class deadbreak tools accessories, refer to Table 7.

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 hotstick operable.

Figure 11. 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.

Figure 12. Catalog Number TWRENCH

The T-wrench is used to remove the alignment tool from the LRTP after assembly into a compression connector.

Table 7. 600 A, 35 kV Deadbreak BOL-T Tools and Accessories

	Catalog Number	
Description	**150 kV BIL**	**200 kV BIL**
Aluminum Insulating Plug with Cap and AL. Stud* (Figure 1)	DIP635AS	DIP638AS
Aluminum Insulating Plug with Cap, without Stud	DIP635A	DIP638A
Copper Insulating Plug with Cap and Cu. Stud*	DIP635CS	DIP638CS
Copper Insulating Plug with Cap, without Stud	DIP635C	DIP638C
Cap only	DIPCAP	DIPCAP
T-body with Capacitive Test Point (Figure 7)	DT635T	DT638T
T-body without Test Point	DT635	DT638
Threaded Copper Stud (Figure 1)	STUD635-C	STUD635-C
Threaded Aluminum Stud	STUD635-A	STUD635-A
Aluminum Connecting Plug with AL. Stud* (Figure 3)	DCP635AS	DCP638AS
Aluminum Connecting Plug without Stud	DCP635A	DCP638A
Copper Connecting Plug with Cu. Copper Stud*	DCP635CS	DCP638CS
Copper Connecting Plug without Copper Stud	DCP635C	DCP638C
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	
$5/16$" Hex Shaft with $3/8$" Socket Drive Tool	HD635	

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

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