



## COPPER SHEARBOLT CONNECTORS

### #2 AWG COMPACT TO 1000 KCMIL CONCENTRIC

#### KEY FEATURES

- Heavy-duty design made of high strength, copper alloy
- Compact and smooth body design
- Provides long service life under normal operating conditions with reserve capacity for emergency loading conditions
- Compatible with Raychem heat-shrink and cold applied splices providing an engineered system with years of trouble-free performance

TE Connectivity's (TE) new line of Copper ShearBolt connectors are range taking, mechanical connectors that will accommodate a wide range of copper cables from #2 AWG compact stranded to 1000 kcmil concentric stranded. The primary application is for underground splices up to 35 kV.

The tool required is a standard ratchet wrench with a hexagonal socket. The design incorporates shear head bolts, which ensures that the correct torque is applied to each bolt. Also, this method of installation reduces worker strain compared to a manual compression tool requiring significant force to operate.

A holding tool is recommended to avoid core bending of conductors and can be ordered from TE (#IT-1000-019). TE's cordless impact wrench (#T25446-000) can also be used to install the connector. This convenient and quick tool has been tested and qualified to install ShearBolt connectors.

The connector is supplied with two copper inserts assembled into the connector body to center small conductor sizes. For larger sizes, inserts are not required and are easily removed with a standard screwdriver. Please see the installation table on back for details.

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## Copper Shearbolt Connectors



Copper ShearBolt connectors have an impermeable oil block for connecting paper-insulated cables. An oxide-inhibiting joint compound is factory-applied in the barrel of the connector to provide low initial contact resistance, seal out air and moisture, prevent oxidation, and maintain a reliable connection.



Copper Shearbolt connector installed on EPR insulated 4/0 kcmil 15 kV cable

FEATURE	ADVANTAGE	BENEFIT
Hexagonal shear head bolts	Installs with simple ratchet-type socket wrench	One connector for multiple cable sizes reduces inventory and prevents accidental use of the wrong connector
Torque-controlled shear head bolts	Sheared head gives positive indication of correct installation	Low contact resistance gives superior electrical performance
Solid center stop	Ensures proper conductor position and enables transitions between different conductor types (ex. PILC and XLPE)	Eliminates oil leakage
Centering inserts for small diameter conductors	Properly positions small conductors for proper connection	Minimizes voltage stresses at transition from connector body to cable insulation
Knurled inner bore	Unique profile breaks through conductor oxides and grips conductor strands	Generates low contact resistance and increases pullout rating
Installs easily in confined areas	No special tools or dies required	Provides consistent installation torque without special tools producing a more reliable connection

### PRODUCT SELECTION INFORMATION: IN INCHES (mm)

Description	Part Number	Conductor Range	Conductor OD Range	Connector Length	Connector OD
CSBS-2-250	CU6629-000	#2 AWG compact to 250 kcmil concentric	0.268 - 0.575 (6.8 - 14.6)	3.2 (81)	1.05 (26.7)
CSBS-2/OC-500C	E20628-000	2/0 AWG compact to 500 kcmil compact	0.376 - 0.736 (9.6 - 18.7)	4.0 (102)	1.20 (30.5)
CSBS-2/0-500-CPR	CU1218-000	2/0 AWG compact to 500 kcmil compressed	0.376 - 0.790 (9.5 - 20.1)	4.0 (102)	1.30 (33.0)
CSBS-300C-750C	310084-000	300 kcmil compact to 750 kcmil compact	0.570 - 0.945 (14.5 - 24.0)	5.0 (127)	1.45 (36.8)
CSBS-300-750	ED2175-000	300 kcmil compact to 750 kcmil concentric	0.570 - 0.998 (14.5 - 25.3)	5.0 (127)	1.50 (38.1)
CSBS-500-1000	ED2183-000	500 kcmil compact to 1000 kcmil concentric	0.736 - 1.152 (18.7 - 29.3)	7.0 (178)	1.75 (44.5)

Copper ShearBolt connectors use 4, (or 6 for the CSBS 500-1000 connector), bronze alloy shear head bolts, 2 (or 3) on each side of the center stop. A torque wrench is not required. The tool required is either a standard ratchet or an impact wrench, both with a hexagonal socket. Please see installation information in chart below.

### INSTALLATION INFORMATION

Description	Instruction Sheet	Test Reports	Socket Size	Application Guide
CSBS 2-250	408-10327	502-47407	1/2"	Remove inserts for cable sizes equal to or greater than 4/0 AWG compressed
CSBS-2/OC-500C	408-10327	502-47265	11/16"	Remove inserts for cable sizes equal to or greater than 300 kcmil compact
CSBS-2/0-500-CPR	408-10327	502-47265	11/16"	Remove inserts for cable sizes equal to or greater than 350 kcmil compressed
CSBS-300C-750	408-10327	502-47257, 502-47260	3/4"	Remove inserts for cable sizes equal to or greater than 500 kcmil compact
CSBS-300-750	408-10327	502-47260	3/4"	Remove inserts for cable sizes equal to or greater than 600 kcmil compressed
CSBS-500-1000	408-10327	502-47386	3/4"	Remove inserts for cable sizes greater than 750 kcmil concentric

Please contact your TE Connectivity representative for conductor sizes or types not listed in this data sheet. Please request Data Sheet # 3-1773453-0 for our Cordless Impact Wrench.

An oxide-inhibiting joint compound is factory-applied in the barrel of the connector to provide low initial contact resistance, seal out air and moisture, prevent oxidation/corrosion, and maintain a reliable connection for the life of the installation. The connectors have been electrically tested to the class A requirements of ANSI C119.4 and mechanically rated at a pull out force of 1670 lbs for #2 AWG to 250 kcmil, 2300 lbs for the 2/0 AWG to 500 kcmil version, 3000 lbs for the 300 kcmil to 750 kcmil version, and 3800 lbs for the 500 kcmil to 1000 kcmil version. Engineering Test Reports are available upon request.

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## ALUMINUM SHEARBOLT SPLICE CONNECTORS

### #2 AWG COMPACT TO 1000 kcmil CONCENTRIC

#### KEY FEATURES

- Heavy-duty design made of high strength, tin-plated aluminum alloy
- Compact and smooth body design
- Dual rated for aluminum and copper conductors
- Provides long service life under normal operating conditions with reserve capacity for emergency loading conditions
- Compatible with Raychem heat-shrink and cold applied splices providing an engineered system with years of trouble-free performance

TE Connectivity's (TE) new line of Aluminum ShearBolt connectors are range taking mechanical connectors. Just five solid center stop connectors will accommodate a wide range of aluminum and copper conductors from #2 AWG compact stranded to 1000 kcmil concentric stranded Class B. The primary application of Aluminum ShearBolt connectors is for underground splices up to 35 kV. ShearBolt connectors are ideally suited for aluminum to aluminum, aluminum to copper and copper to copper applications making them the universal connector solution. Please refer to test report matrix on back. The only tool required to install the connector is a standard ratchet wrench with the appropriate sized hexagonal sockets. The connector design incorporates shear head bolts, which ensures that the correct torque is applied to each bolt and consequently the optimal contact force is generated to minimize connection resistance. A holding tool is recommended to avoid core bending of conductors and can be ordered from TE (#IT-1000-019). The TE cordless impact wrench (#T25446-000) can also be used to install the connector. This convenient and quick tool has been tested and qualified to install ShearBolt connectors. The solid center stop (available on all sizes) inside the connector ensures proper conductor positioning and eliminates oil leakage when connecting oil impregnated conductors.

**Customers can count on consistent, high quality products, driven by TE's proven innovation and backed by our extraordinary customer support.**

# Aluminum ShearBolt Connectors



FEATURE	ADVANTAGE	BENEFIT
<b>Wide application range</b>	Only five solid center stop connectors needed to accommodate all cable sizes from #2 AWG compact strand to 1,000 kcmil concentric stranded	Reduces inventory and prevents accidental use of the wrong connector
<b>Hexagonal shear head bolts</b>	Installs with simple ratchet-type socket wrench	Installs easily and quickly in confined areas
<b>No crimp tooling or dies required</b>	Installs easily using readily available tools	Ease of installation. Installation tool is no longer a source of failure. Reduces tool and die inventory, maintenance and cost
<b>Torque-controlled shear head bolts</b>	Sheared head gives positive indication of correct installation	Low contact resistance gives superior electrical performance
<b>Centering inserts for small diameter conductors</b>	Properly positions small conductors for proper connection	Minimizes voltage stresses at transition from connector body to cable insulation
<b>Knurled inner bore</b>	Unique profile breaks through conductor oxides and grips conductor strands	Generates low contact resistance and increases pullout rating
<b>Solid center stop</b>	Eliminates oil leakage and insures proper conductor position	Accommodates transition applications from polymeric to oil impregnated conductors

## PRODUCT SELECTION GUIDE: DIMENSIONS IN INCHES (mm)

Description	Part Number	Conductor Range	Conductor OD Range	Connector Length	Connector OD	Remove Insert for Conductor Size Greater Than	Stop
ASBS-2-3/0	CL8618-000	2 AWG compact to 3/0 AWG concentric	.268 - .470 (6.8 - 11.9)	2.56 (65)	.94 (24)	1/0 AWG compact	Disc
ASBS-2-3/0-S	1974178-1	2 AWG compact to 3/0 AWG concentric	.268 - .470 (6.8 - 11.9)	2.56 (65)	.94 (24)	1/0 AWG compact	Solid
ASBS-2-350	694472-000	2 AWG compact to 350 kcmil concentric	.268 - .681 (6.8 - 17.3)	3.94 (100)	1.22 (31)	4/0 AWG concentric	Solid
ASBS-3/0-500	CL8619-000	3/0 AWG compact to 500 kcmil concentric	.423 - .813 (10.7 - 20.6)	4.9 (125)	1.34 (34)	300 kcmil concentric	Disc
ASBS-3/0-500-S	CU2713-000	3/0 AWG compact to 500 kcmil concentric	.423 - .813 (10.7 - 20.6)	4.9 (125)	1.34 (34)	300 kcmil concentric	Solid
ASBS-500-750	E89931-000	500 kcmil compact to 750 kcmil concentric	.736 - .998 (18.7 - 25.3)	5.9 (150)	1.52 (38.6)	600 kcmil compact	Solid
ASBS-350-750	CL7947-000	350 kcmil compact to 750 kcmil concentric	.616 - .998 (15.6 - 25.3)	6.7 (170)	1.67 (42.5)	600 kcmil compact	Solid
ASBS-600-1000	C68131-000	600 kcmil compact to 1000 kcmil concentric	.813 - 1.152 (20.6 - 29.2)	8.0 (203)	1.75 (44.5)	750 kcmil concentric	Solid

Two removable inserts in the connector body centralize smaller conductor sizes. For larger size conductors inserts are not required and are easily removed with a standard screwdriver. The connectors have been electrically tested to the class A requirements of ANSI C119.4 and exceed the mechanical requirements of a Class 3 connector by a large margin of safety. ShearBolt connectors are designed to be compatible with TE's Raychem cable accessories and insulation products. For other applications, please consult the manufacturer's installation instructions for compatibility.

## INSTALLATION INFORMATION

Description	Installation Instruction Number	Socket Size (in.)	Test Reports	Conductor Combination
ASBS-2-3/0	408-8990	1/2	Note 1	Note 1
ASBS-2-3/0-S	408-10429	1/2	Note 1	Note 1
ASBS-2-350	408-8990	11/16	502-47292 (I) 502-47300 (I) 502-47340 (I)	4/0 Cu to 350 kcmil AAC 350 kcmil AAC to 350 kcmil AAC 350 kcmil Cu to 350 kcmil Cu
ASBS-3/0-500	408-8990	3/4	502-47331 (I) 502-47331 (I)	500 kcmil AAC to 500 kcmil AAC 500 kcmil Cu to 500 kcmil Cu
ASBS-3/0-500-S	408-10429	3/4	502-47331 (I) 502-47331 (I)	500 kcmil AAC to 500 kcmil AAC 500 kcmil Cu to 500 kcmil Cu
ASBS-350-750	408-8990	7/8	502-47329 (I)	750 kcmil AAC to 750 kcmil AAC
ASBS-500-750	408-8990	3/4	502-47288 (I) 502-47294 (I) 502-47357 (I)	500 kcmil Cu to 750 kcmil AAC 750 kcmil AAC to 750 kcmil AAC 750 kcmil AAC strandfill to 750 kcmil AAC strandfill
ASBS-600-1000	408-8990	7/8	502-47289 (I) 502-47344 (I) 502-47305 (I)	750 kcmil Cu to 1000 kcmil AAC 1000 kcmil Cu to 1000 kcmil Cu 1000 kcmil AAC to 1000 kcmil AAC

Note 1: This part number was not tested, as ANSI C119.4 allows a smaller size connector of the same design to be added without additional testing.

Aluminum ShearBolt connector installed on EPR insulated 350 kcmil 15kV cable



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## ALUMINUM SHEARBOLT TERMINAL (ASBT) #2 AWG COMPACT TO 1000 KCMIL CONCENTRIC

### KEY FEATURES

- Heavy-duty design made of high strength, tin-plated aluminum alloy
- Compact and smooth body design
- Dual rated for aluminum and copper conductors
- Provides long service life under normal operating conditions with reserve capacity for emergency loading conditions
- TE now offers a series of Shearbolt Terminals that are UL Listed & CSA Certified

TE Connectivity's (TE) new line of Aluminum ShearBolt Terminals (ASBT) are range-taking mechanical connectors that will accommodate a conductor range from #2 compact to 1000 kcmil concentric, stranded Class B. The primary application of the ASBT is for power cable terminations, both underground and above ground at voltages up to 35 kV.

The ASBT is ideally suited for making aluminum or copper cable connections to flat bar or equipment pads equipped with 2-hole NEMA spacing. The terminal is manufactured from seamless, high conductivity aluminum designed for heavy-duty utility applications. The bore of the connector body has a unique grooved surface to enhance electrical contact and minimize resistance at the interface between the terminal and the conductor. The cable entry area is chamfered inside to provide easy cable insertion.

The terminal design incorporates shear head bolts, which ensures that the correct torque is applied to each bolt and consequently the optimal contact force is generated to minimize connection resistance. The primary tool required to install the connector is a standard ratchet wrench with the appropriate hexagonal sockets. A holding tool is recommended to avoid core bending of conductors and can be ordered (#IT-1000-019).

**Customers can count on consistent, high quality products, driven by TE's proven innovation and backed by our extraordinary customer support.**

## Aluminum ShearBolt Terminal

TE's Aluminum ShearBolt Terminals are designed to be compatible with most of TE's Raychem cable accessories and insulation products providing an engineered system with years of trouble free performance.



FEATURE	ADVANTAGE	BENEFIT
<b>Wide Application Range</b>	Only three connectors needed to accommodate all cable sizes from #2 AWG compact strand to 1,000 kcmil stranded in both aluminum and copper	Reduces inventory and prevents accidental use of the wrong connector
<b>Hexagonal shear head bolts</b>	Installs with simple ratchet-type socket wrench or TE cordless impact wrench	Installs easily and quickly in confined areas
<b>No crimp tooling or dies required</b>	Installs easily using readily available tools	Ease of installation. Installation tool is no longer a source of failure. Reduces tool and die inventory, maintenance and cost
<b>2-hole NEMA pad</b>	Connects conductor ranges to a flat surface (or between any conductor from the range to a flat pad)	Ideal for aluminum or copper cable connections to flat bar or equipment pads equipped with 2-hole NEMA spacing
<b>Torque-controlled shear head bolts</b>	Sheared head gives positive indication of correct installation	Low contact resistance gives superior electrical performance
<b>Centering inserts for small diameter conductors</b>	Properly positions small conductors for proper connection	Minimizes voltage stresses at transition from connector body to cable insulation
<b>Knurled inner bore on connector and insert</b>	Unique profile breaks through conductor oxides and grips conductor strands	Generates low contact resistance and increases pullout rating

Please request Data Sheet # 3-1773453-0 for our Cordless Impact Wrench.

Qualification of terminals includes results based on testing shearbolt splice connectors which represents a more stringent test configuration.

PRODUCT SELECTION INFORMATION: DIMENSIONS IN INCHES (mm)									
Description	Part Number	Length	OD	Number of Bolts	Socket Size	Conductor Range	Strip Length	Conductor OD Range	Remove Insert for Conductor Size Greater Than
<b>ASBT-2-350</b>	CM9694-000	5.9 (150)	1.22 (31)	2	11/16 (17)	2 AWG compact to 350 kcmil concentric	1 3/4 (44)	.268 - .681 (6.8 - 17.3)	4/0 AWG concentric [.528 (13.4) conductor dia.]
<b>ASBT-350-750</b>	CM9695-000	7.4 (188)	1.67 (42.5)	3	7/8 (22)	350 kcmil compact to 750 kcmil concentric	3 1/8 (79)	.616 - .998 (15.6 - 25.3)	600 kcmil compact [.813 (20.6) conductor dia.]
<b>ASBT-600-1000</b>	CM9696-000	7.7 (196)	1.75 (44.4)	3	7/8 (22)	600 kcmil compact to 1000 kcmil concentric	3 3/4 (95)	.813 - 1.152 (20.6 - 29.2)	750 kcmil stranded [.998 (25.3) conductor dia.]

ENGINEERING TEST INFORMATION		
Description	Test Reports	Conductor
<b>ASBT-2-350</b>	N/A	See below conductors for ASBS-2-350 test reports
<b>ASBT-350-750</b>	N/A	See below conductor for ASBS-350-750 test report
<b>ASBT-600-1000</b>	502-47363, REV O 502-47370	1000 kcmil AAC 1000 kcmil Cu
<b>ASBS-2-350</b>	502-47292 (I) REV. A 502-47300 (I) REV. A 502-47340 (I) REV. O	4/0 Cu to 350 kcmil AAC 350 kcmil AAC to 350 kcmil AAC 350 kcmil Cu to 350 kcmil Cu
<b>ASBS-350-750</b>	502-47329 (I) REV. A	750 kcmil AAC to 750 kcmil AAC
<b>ASBS-600-1000</b>	502-47289 (I) REV. B 502-47344 (I) REV. O 502-47305 (I) REV. A	750 kcmil Cu to 1000 kcmil AAC 1000 kcmil Cu to 1000 kcmil Cu 1000 kcmil AAC to 1000 kcmil AAC

The TE cordless impact wrench (#T25446-000) can also be used to install the connector and eliminates the need for the holding tool.

This convenient and quick cordless impact wrench has been tested and qualified to install ShearBolt connectors. To extend the range of each connector, an aluminum insert is assembled into the connector body, which centers the smaller conductor sizes in the barrel of the connector. For larger sizes the insert is not required and is easily removed with a standard screwdriver. An oxide-inhibiting joint compound is factory applied in the connector barrel to maintain a reliable connection for the life of the installation. The insert also has a unique grooved surface to enhance electrical contact, while minimizing resistance at the interface between the insert and the conductor. The connectors have been electrically tested to the Class A requirements of ANSI C119.4 and exceed the mechanical requirements of a class 3 connector by a large margin of safety. The existing ASBS (Aluminum ShearBolt Splice) connector Engineering Test Reports are applicable since the barrel end of the ASBT exactly replicates the design criteria of the ASBS. Test reports are listed below. ShearBolt connectors are designed to be compatible with most TE's Raychem cable accessories and insulation products. Please consult your local TE sales representative for applicable products. For other applications, please consult the manufacturer's installation instructions for compatibility. Now available TE offers a series of Shearbolt Terminals that are UL Listed & CSA Certified. Contact TE for more information.

For a complete list of Raychem Cable Accessories please visit our web site, <http://energy.te.com>

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