

3M™ Mechanical Shearbolt Connectors, QCI Series

Data Sheet

August 2010

Description	3M™ Mechanical Shearbolt Connectors, QCI Series are designed to cover a wide range of conductor sizes from 2 AWG to 1000 kcmil. This shearbolt connector design provides excellent performance and features not found in many other shearbolt connectors. No dies are needed for installation: following cable preparation, simply slide the connector over the conductor and tighten the bolts until they shear. The QCI connectors are designed to connect either aluminum or copper conductors. The connectors are tin plated to resist corrosion. Individual sizes cover ranges from 2 AWG–250 kcmil, 1/0 AWG– 350 kcmil, 4/0 AWG–600 kcmil, 350–750 kcmil and 500–1000 kcmil.
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Connector Contents	Each connector includes the following materials:
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- Connector w/centering rings, if needed
- Foil pad
- Instruction sheet

Features	<ul style="list-style-type: none">• Greater contact force versus standard shearbolt connectors• Contact disk (friction plate) on the bolt end prevents damage to the conductor, providing increased contact force and will not damage the fine strand conductor• Bolts are continuous shearing, thus no filing is needed, bolts shear below the connector surface• No special tools needed• Meets or exceeds the requirements of ANSI C119.4• Sized for American wire gauge conductor• Tapered ends allow for smooth splice body transition from the connector to the cable• Centering rings are provided for smaller conductors• Designed to fit 3M Cold Shrink Splices QS-III
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Applications	<ul style="list-style-type: none">• To connect aluminum and/or copper conductors from 2 AWG through 1000kcmil (MCM)• For low and medium voltage up to 46kV, (contact 3M for 69kV and higher voltage applications, we offer splice kits that utilize shearbolt connectors specifically designed for these voltage classes)
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QCI Connector Selection Table

QCI	Conductor Size Range AWG/kcmil	Connector O.D. Inches (mm)	Connector Length Inches (mm)	Connector I.D. Inches (mm)
QCI 2-250	2-250	1.10 (28)	4.41 (112)	0.64 (16,3)
QCI 1/0-350	1/0-350	1.30 (33)	5.12 (130)	0.78 (20,0)
QCI 4/0-600	4/0-600	1.50 (38)	5.75 (146)	0.94 (24,0)
QCI 350-750	350-750	1.65 (42)	6.93 (176)	1.02 (26,0)
QCI 500-1000	500-1000	2.05 (52)	7.83 (199)	1.22 (31,0)

Note: These connectors are designed to be used with 3M Splice Kits QS-III. For non-3M splices, contact the splice manufacturer before installing the connector to determine proper sizing.

QCI	QS-III-IJ Integrated Splice Kit**	QS-III Standard Splice Kit**
QCI 2-250	5415A-IJ, 5456A-IJ	5415A, 5456A
QCI 1/0-350	5467A-IJ	5467A
QCI 4/0-600	5416A-IJ, 5457A-IJ	5416A, 5457A
QCI 350-750	5417A-IJ, *5468A-IJ	5417A, *5468A
QCI 500-1000	5418A-IJ, 5458A-IJ, *5468A-IJ	5418A, 5458A, *5468A

*The 5468A splice is sized to cover 35 kV 350 kcmil to 1000 kcmil. Therefore, 2 shearbolt connectors are required to cover the range.

**Installer should verify that both cables are within the Insulation O.D. Range of the splice kit before using any given QCI connector.

Typical Properties

Not for specifications. Values are typical, not to be considered minimum or maximum. Properties measured at room temperature 73°F (23°C) unless otherwise stated.

The 3M™ Mechanical Shearbolt Connectors, QCI Series aluminum /copper connectors can be used on cables with an operating temperature of 221°F (105°C) and an emergency overload rating of 284°F (140°C). The QCI connectors pass the requirements of ANSI C119.4-2004. The current rating of these connectors meets or exceeds the current rating of the conductor size for which it is intended.

Electrical Property Test Method - ANSI C119.4-2004	Requirement	Results
Current Cycle Test - Class A @ 284°F (140°C) Conductor	Thermal Stability Resistance Stability	Pass Pass
Mechanical Pullout Test - Class 2 Partial Tension		Pass

Tool/Installation Information

The installer can use a ratchet (long handle, if available) with the correct hex socket (5, 6, or 8 mm) or an electric impact wrench to tighten and shear the bolts. Depending on the battery condition and the torque available, some electric wrenches may not be able to complete bolt shear. In these cases, a ratchet should be used to complete bolt shearing.

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Shelf Life & Storage	The 3M™ Mechanical Shearbolt Connectors, QCI Series has a 5-year shelf life from date of manufacture when stored in a humidity controlled storage (10°C/50°F to 27°C/80°F and <75% relative humidity). Components of the QCI connectors are not impaired by freezing or overheating due to ambient temperatures found in typical storage or shipping. Normal stock rotation procedures are recommended.
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Availability	Please contact your local distributor; available from 3M.com/electrical [Where to Buy] or call 1.800.245.3573.
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