

3M™ Mechanical Shearbolt Connectors, QCI Series

Data Sheet

November 2018

Description 3M Mechanical Shearbolt Connectors, QCI Series are designed to cover a wide range of conductor sizes from 2 AWG to 1250 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 3M QCI connectors are designed to connect either aluminum and/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, 500–1000 kcmil and 1000-1250 kcmil.

Kit Contents Each kit includes the following materials:

- Connector with centering rings, if needed (no centering rings included/required with 1000-1250 kcmil connector)
- Aluminum Foil Tape Pad with Conductive Adhesive
- Instruction sheet

NOTE: A 3M Shearbolt Holding Tool is not included in the 3M Mechanical Shearbolt QCI Series, kits and must be purchased separately. This is highly recommended in order to provide physical support for the Shearbolt Connector during shearing of the bolts during installation on the cable conductor. See Shearbolt Holding Tool Selection Table section for appropriately sized holding tool.

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- Features**
- 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 fine strand conductors
 - Bolts are continuous shearing, thus no filing is needed; bolts shear below the connector surface
 - No specialty tools needed
 - Meets, or exceeds, the requirements of ANSI C119.4, Class 2 (40% Mechanical Pullout Strength)
 - Sized for American wire gauge conductors
 - Tapered ends allow for smooth splice body transition from the connector to the cable
 - Centering rings are provided for smaller conductors (not included/required with 1000-1250 kcmil connector)
 - Designed to fit 3M Cold Shrink QS-III Splices and 3M Cold Shrink QS4 Integrated Splices
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- Applications**
- To connect aluminum and/or copper conductors from 2 AWG through 1250 kcmil (MCM)
 - For low and medium voltage up to 46 kV (Contact 3M for 69 kV and higher voltage applications. We offer splice kits that utilize shearbolt connectors specifically designed for these voltage classes.)

QCI Connector Selection Table

3M™ QCI Connector Number*	Conductor Size Range AWG/kcmil	Connector O.D. Inches (mm)	Connector Length, with centering rings Inches (mm)	Connector I.D. Inches (mm)
QCI 2-250	2-250	1.10 (27,9)	3.50" (89 mm)	0.64 (16,3)
QCI 1/0-350	1/0-350	1.30 (33,0)	4.41" (112 mm)	0.78 (19,8)
QCI 4/0-600	4/0-600	1.50 (38,1)	5.20" (132 mm)	0.94 (23,9)
QCI 350-750	350-750	1.65 (41,9)	6.73" (171 mm)	1.02 (25,9)
QCI 500-1000	500-1000	2.05 (52,1)	7.80" (198 mm)	1.22 (31,0)
QCI 1000-1250	1000-1250	2.05 (52,1)	7.87" (200 mm)**	1.34 (34,0)

***NOTE:** These connectors are designed to be used with 3M™ Cold Shrink QS-III Splice Kits and 3M Cold Shrink QS4 Integrated Splices. Refer to the splice instruction sheet for specific information regarding 3M QCI Connector usage for each kit. For non-3M splices, contact the splice manufacturer before installing the connector to determine proper sizing.

** No centering rings used with this connector.

Shearbolt Holding Tool Selection Table

3M™ Connector Part Number	Shearbolt Holding Tool SB Size 1 (Stock # 80-6116-1338-3)	Shearbolt Holding Tool SB Size 2 (Stock # 80-6116-1339-1)
QCI 2-250	Yes	Yes
QCI 1/0-350	Yes	Yes
QCI 4/0-600	Yes	Yes
QCI 350-750	Yes	Yes
QCI 500-1000	No	Yes
QCI 1000-1250	No	Yes

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Tool Installation Information The installer can use a ratchet (long handle, if available) with the correct hex socket (5, 6, or 8 mm; see Instruction Sheet for correct hex socket size for each specific 3M Shearbolt Connector part number.) or an electric impact wrench, 18 volts, or greater, to tighten and shear the bolts. Depending on the battery condition, and the torque available (160ft-lbs (217 Nm) or greater), some electric impact wrenches may not be able to complete bolt shear. In these cases, another electric impact wrench, or a ratchet, should be used to complete bolt shearing.

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 3M QCI connectors pass the requirements of ANSI C119.4, Class 2. 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	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	40% pullout force	Pass

Storage Components of the 3M Mechanical Shearbolt Connectors, QCI Series connectors are not impaired by freezing or overheating due to ambient temperatures found in typical storage or shipping. Normal stock rotation procedures are recommended.

Availability Please contact your local distributor; available from 3M.com/electrical; Purchasing Information (at bottom of website page), then choose your Market (Construction and Industrial, Electrical Utility or Electrical & Electronics OEM) and your State and City or call 1.800.245.3573.

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