

# 3M™ Mechanical Shearbolt Lugs QL2 Series: Two-Hole

Data Sheet

September 2016

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**Description** 3M Shearbolt Lugs QL2 Series: Two-Hole are designed to cover a wide range of conductor sizes from 2 AWG to 1250 kcmil. This shearbolt lug design provides excellent performance and features not found in many other shearbolt lugs. No dies are needed for installation: following cable preparation, simply slide the lug over the conductor, attach a Shearbolt Holding Tool (highly recommended; see NOTE in next section) and tighten the bolts until they shear. The 3M lugs QL2 Series are designed to terminate either aluminum and/or copper conductors. The lugs 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.

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**Kit Contents** Each Kit includes the following materials:

- Lug with centering rings, if needed (no centering rings included with 1000-1250 kcmil lug)
- Foil tape
- Cold Shrink Sealing Tube
- Instruction sheet

NOTE: A Shearbolt Holding Tool is not included in the 3M™ Mechanical Shearbolt Lugs QL2 Series: Two Hole kits and must be purchased separately. This is highly recommended in order to provide physical support for the shearbolt lug 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 lugs
- 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 lug surface
- Meets, or exceeds, the requirements of ANSI C119.4, Class 2 (40% Mechanical Pullout Strength)
- The center-of-hole to center-of-hole spacing of the mounting holes meets the NEMA® Standard of 1.75" (44.5 mm)
- Sized for American wire gauge conductors
- Tapered ends allow for smooth termination body transition from the lug to the cable
- Centering rings are provided for smaller conductors (not included/required with 1000-1250 kcmil lug)
- Designed to fit 3M Cold Shrink QT-III Terminations

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## Applications

- To terminate 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 termination kits that utilize shearbolt lugs specifically designed for these voltage classes.)

## 3M Mechanical Shearbolt Lugs QL2 Series: Two Hole Selection Table

QL2*	Conductor Size Range AWG/kcmil	Lug O.D. Inches (mm)	Lug Length, with centering rings Inches (mm)	Lug I.D. Inches (mm)
QL2-A-2-250	2-250	1.10 (28)	5.98 (152,0)	0.64 (16,3)
QL2-A-1/0-350	1/0-350	1.30 (33)	6.32 (160,5)	0.78 (19,8)
QL2-A-4/0-600	4/0-600	1.50 (38)	6.79 (172,5)	0.94 (23,9)
QL2-A-350-750	350-750	1.65 (42)	7.54 (191,5)	1.03 (26,2)
QL2-A-500-1000	500-1000	2.05 (52)	8.37 (212,5)	1.22 (31,0)
QL2-A-1000-1250	1000-1250	2.05 (52)	8.37 (212,5)	1.31 (33,3)

**\*NOTE:** These lugs are designed to be used with 3M Cold Shrink QT-III Terminations. Refer to the termination instruction sheet for specific information regarding 3M lugs QL2 Series usage for each kit. For non-3M terminations, contact the termination manufacturer before installing the lug to determine proper sizing.

## Shearbolt Holding Tool Selection Table

Lug Part #	Shearbolt Holding Tool SB Size 1 (Stock #80-6116-1338-3)	Shearbolt Holding Tool SB Size 2 (Stock #80-6116-1339-1)
QL2-A-2-250	Yes	No
QL2-A-1/0-350	Yes	Yes
QL2-A-4/0-600	Yes	Yes
QL2-A-350-750	Yes	Yes
QL2-A-500-1000	No	Yes
QL2-A-1000-1250	No	Yes

## 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, 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, a ratchet should be used to complete bolt shearing.

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**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 Lugs QL2 Series: Two Hole aluminum /copper lugs 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 lugs QL2 Series pass the requirements of ANSI C119.4, Class 2. The current rating of these lugs meets or exceeds the current rating of the conductor size for which it is intended.

Electrical Property Test Method - ANSI C119.4	Requirement	Results
<b>Current Cycle Test - Class A @ 284°F (140°C) Conductor</b>	Thermal Stability Resistance Stability	Pass Pass
<b>Mechanical Pullout Test - Class 2 Partial Tension</b>	40% pullout force	Pass

**Storage** Components of the 3M Mechanical Shearbolt Lugs QL2 Series: Two Hole lugs 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](http://3M.com/electrical) [Where to Buy] or call 1.800.245.3573.

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### Electrical Markets Division

6801 River Place Blvd.  
Austin, TX 78726-9000  
800.245.3573  
FAX: 800.245.0329  
[www.3M.com/electrical](http://www.3M.com/electrical)

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