

3M™ Shearbolt Lugs QL2 Series: Two Hole Instructions

⚠ CAUTION

Working around energized systems may cause serious injury or death. Installation should be performed by personnel familiar with good safety practice in handling electrical equipment. De-energize and ground all electrical systems before installing product.

Lug Part #	Stud Size in (mm)	Lug Hole Diameter in (mm)	Outside Diameter Barrel in (mm)	Typical Length w/Centering Ring in (mm)
QL2 -A-2-250	1/2" (13)	0.56 (14,2)	1.1 (28)	6 (152,0)
QL2 -A- 1/0-350	1/2" (13)	0.56 (14,2)	1.3 (33)	6.3 (160,5)
QL2 -A- 4/0-600	1/2" (13)	0.56 (14,2)	1.5 (38)	6.8 (172,5)
QL2 -A- 350-750	1/2" (13)	0.56 (14,2)	1.65 (42)	7.5 (191,5)
QL2 -A- 500-1000	1/2" (13)	0.56 (14,2)	2.05 (52)	8.4 (212,5)
QL2 -A- 1000-1250	1/2" (13)	0.56 (14,2)	2.05 (52)	8.4 (212,5)

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3M

Kit Contents

- 1 3M™ Shearbolt Lug
(includes appropriate number of centering rings)
- 1 Cold Shrink Silicone Rubber Sealing Tube
- 1 3M™ Aluminum Foil Tape 1115B
- 1 Instruction Sheet

1.0 Notes

- 1.1 Unless the Shearbolt Lug is supplied with a cable accessory kit, always check with the cable accessory manufacturer to make certain that the shearbolt lug will work properly with the accessory before installing the lug.
- 1.2 Do not remove bolts from the lug.
- 1.3 These shearbolt lugs can be used with both copper and aluminum conductors.
- 1.4 The lug is pre-greased. Do not remove the lug grease.

2.0 Insulation Cutback Dimensions

- 2.1 Prepare the cable cutbacks per the accessory manufacturer's instructions. The ends of the conductors must be square cut. Using your QL2 Series lug part number, remove the cable insulation length shown in the following table.

Lug Part #	Insulation Cutback
QL2 -A-2-250	2 1/4" (57,2 mm)
QL2 -A- 1/0-350	2 1/2" (63,5 mm)
QL2 -A- 4/0-600	2 7/8" (73,0 mm)
QL2 -A- 350-750	3 1/2" (88,9 mm)
QL2 -A- 500-1000	4" (101,6 mm)
QL2 -A- 1000-1250	4 1/2" (114,3 mm)

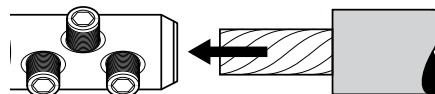
- 2.2 Use the following table and your conductor size to determine the appropriate lug centering ring. Install the centering ring, unless conductor size indicates "No ring," by screwing the ring clockwise into the lug end.

Lug Part #	Conductor Size (AWG, kcmil)	Connector Centering Ring Color
QL2 -A-2-250	2-1/0	Grey
	2/0-3/0	Black
	4/0-250	No ring
QL2 -A- 1/0-350	1/0-2/0	Blue
	3/0-4/0	Black
	250	White
	350	No ring
	4/0	Blue
QL2 -A- 4/0-600	250	Black
	350	White
	500-600	No ring
	350	White
QL2 -A- 350-750	500-750	No ring
	500	White
QL2 -A- 500-1000	750-1000	No ring
	1000-1250	No ring

* If conductor does not fit in the centering ring, use the next larger size ring or no ring if there's no larger ring.

3.0 Installation Steps

- 3.1 Aluminum conductors must be wire brushed shortly before installing the lug. The conductor must be clean and dry before installing the lug.
- 3.2 Check that screws are not protruding into the lug bore. Unscrew the bolts, as needed, to clear the bore. Do not remove the bolts from the lug. Feed the stripped cable end into the lug until conductor contacts the lug end stop. Hand tighten all of the bolts to the conductor.



3.3 Attach/tighten the Shearbolt Holding Tool (not included in kit; must be purchased separately; See illustration and Shearbolt Holding Tool Selection Table in next column) to the body of the lug. Place the Holding Tool around the lug body and tighten by turning the Holding Tool handle clockwise. Hold the handle while shearing the bolts (Step 3.4) in order to stabilize the assembly.

3.4 Shear the bolts by using the correct hex key/socket and following the sequence appropriate for the number of lug bolts (see illustration below). The installer can use a ratchet with the correct hex key/socket and/or an electric impact wrench to tighten and shear the bolts. If using an electric impact wrench, the wrench must be 18 volts, or greater, and have a torque of 160 ft.-lbs. (217 N•m), or greater.

Lug Part #	Hex Key/Socket Size
QL2 -A-2-250	5 mm
QL2 -A-1/0-350	6 mm
QL2 -A-4/0-600	8 mm
QL2 -A-350-750	8 mm
QL2 -A-500-1000	8 mm
QL2 -A-1000-1250	8 mm



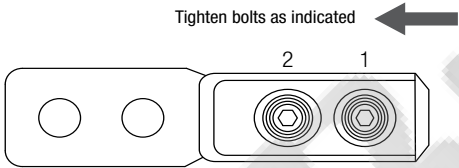
Shearbolt Holding Tool

Shearbolt Holding Tool Selection Table		
Lug Part #	Holding Tool SB Size 1*	Holding Tool SB Size 2**
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
* Stock #80-6116-1338-3 ** Stock #80-6116-1339-1		

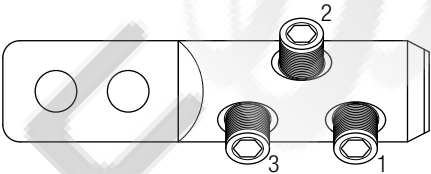
3.5 Clean the surface of the lug with an approved solvent (such as 3M™ Cleaning Solvent CC Series) to remove any debris or grease. Allow time for the cleaning solvent to dry, or dry with a clean cloth or paper towel, before proceeding to step 3.7.

3.6 Apply the included 3M™ Aluminum Foil Tape 1115B. Start by checking the foil tape width, before removing the liner. The tape must extend from lug taper to lug taper. The longer length will wrap around the lug.

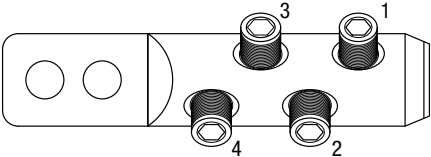
3.7 Remove the liner from the foil tape. Align the foil edge with the recessed bolt wells in a direction that covers the sheared bolts.



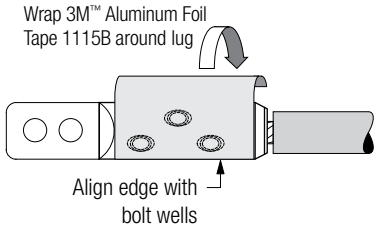
2-Screw QL2 Series Lug



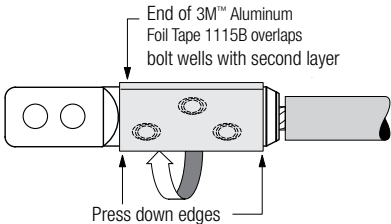
3-Screw QL2 Series Lug



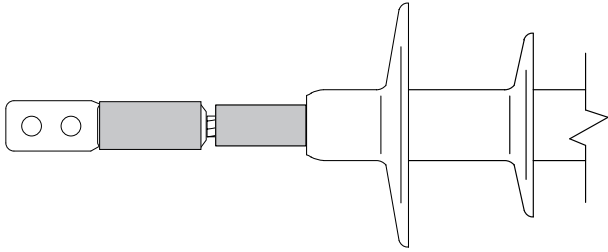
4-Screw QL2 Series Lug



3.8 Once foil tape is properly aligned, continue wrapping the foil tape around the lug until it covers the bolt wells with a second layer. Press down the ends of the tape at the final edge and near the lug tapers

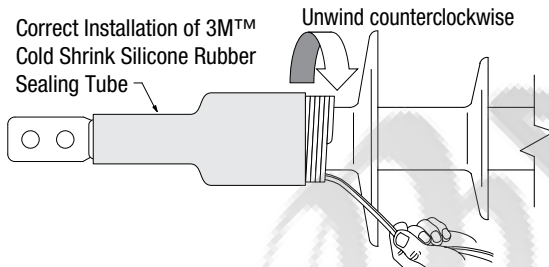


- 3.9 Install termination per the Instructions included with the termination kit.



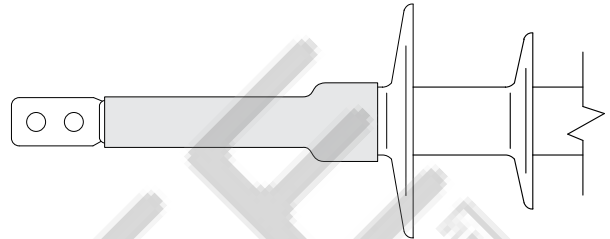
- 3.10 Install the 3M™ Cold Shrink Silicone Rubber Sealing Tube over the foil tape by aligning the edge of the Sealing Tube, not the core, with the lug body edge closest to the connection holes. The loose core end will be facing towards the cable and termination assembly. (See illustration under Paragraph 3.11.)

- 3.11 Slowly remove a couple of windings of the core ribbon, by pulling on the loose core end counterclockwise, until the Sealing Tube slightly contacts the lug body. Make slight adjustments needed by sliding / slightly twisting the Sealing Tube until it is in the proper position at the edge of the lug body.



- 3.12 Complete the removal of the core by pulling the core ribbon while unwinding counterclockwise. Be sure to alternate pulling and unwinding actions (pull-unwind-pull-unwind-etc.) to help prevent the core material from binding up as the core is being removed.

NOTE: Once the Sealing Tube body makes contact with the lug body, there is no need to continue supporting the assembly. DO NOT PUSH OR PULL ON THE SEALING TUBE ASSEMBLY WHILE UNWINDING THE CORE.



Correct Installation of 3M™ Cold Shrink Silicone Rubber Sealing Tube.

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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

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