

Copper Ferrules Used on Stranded FLEX or Code Wire UL Inspected Installations

UL508A Panel Builders

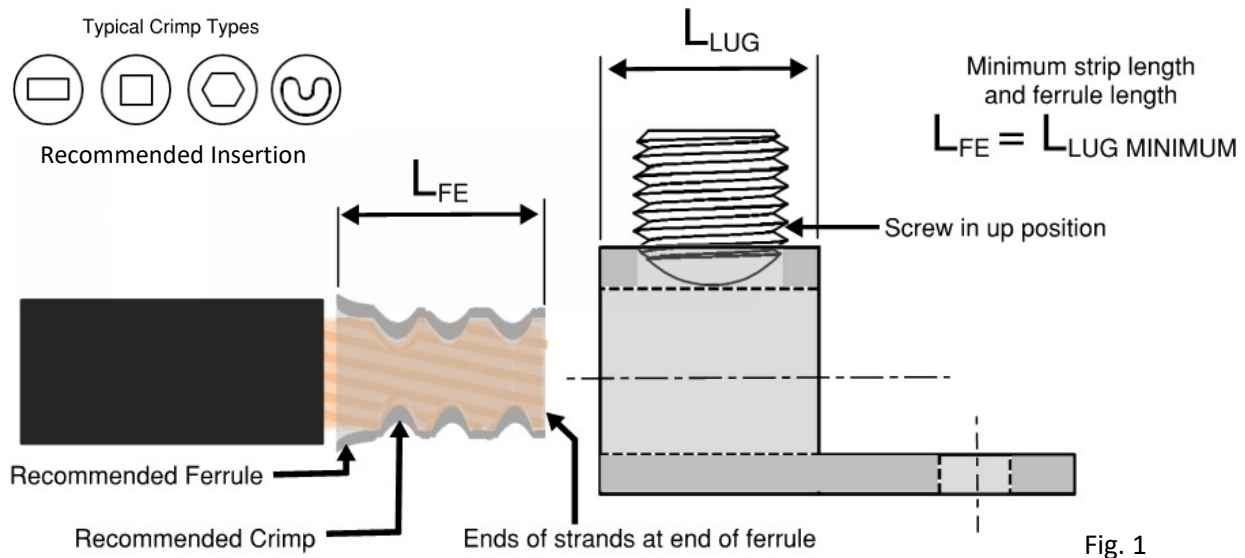


Fig. 1

UL508A Mandates of Use

1. Lug must already be rated for the copper wire size.
2. Ferrule must be rated under UL486F (ZMLF) for the wire gauge and stranding class being used.
3. Ferrule must be crimped before inserting into lug using the ferrule maker's recommendation for that ferrule and wire gauge and stranding class.
4. The length of the ferrule to be adequate to maintain the strip length for the full depth of the wire hole.
5. Bare part of ferrule must not cause a reduction of intended electrical spacings S_{LUG} . (Fig. 2)
6. After crimping and insertion into wire hole, lug screw to be tightened to the rated torque for the wire gauge and stranding class B or C.
7. See pages 2 and 3 for UL508A on "Use of Ferrules"

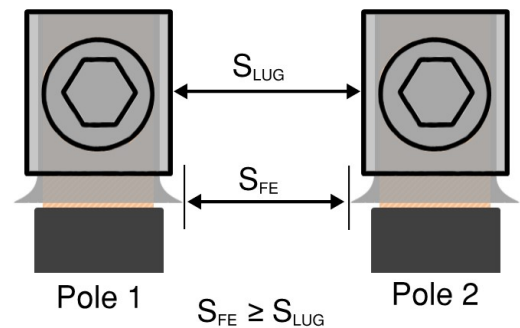


Fig. 2

USE OF FERRULES:

The original 2013 published “Use of Ferrules” bulletin from UL found [here](#) (historical use only) has been replaced by the UL508A addition formalizing the decision.

UL has made the following decision for UL508A panel builders regarding field and factory wiring use of ferrules:

This information is provided verbatim as an educational convenience to UL508A compliant customers seeking to learn **about the use of ferrules on fine stranded wire used in combination IHI® brand fine stranded mechanical wire connector lugs, in field and factory wired situations.** Check with your UL field inspector for current practices and updates.

Standard Number: UL 508A

Standard Title: Standard for Safety for Industrial Control Panels

Edition Date: April 24, 2018

Edition Number: 3

Section / Paragraph Reference: Sections 29.3.4, 29.3.6 (New), SB3.1 and SB4.2

29.3.4 A connection to a terminal of a component shall be made by:

a) Wire inserted directly into a pressure wire terminal of the component;

b) Quick-connect terminal of the component, where the mating part is provided with a dimple, depression, or spring-type connection such that a mechanical snap-action connection is made that does not rely solely upon friction between the two parts;

c) Crimped-on pressure terminal connector or closed-loop eyelet;

d) Solder terminal specified in 29.3.2;

e) Wire-binding screw specified in 29.3.3;

f) Open-type eyelet specified in 29.3.5; or

g) Wiring ferrule specified in 29.3.6.

29.3.6 A wiring ferrule shall be:

a) Used with stranded copper wire(s) only;

b) Terminated in a connector rated for copper wire and rated for the number and size of wire(s) crimped to the ferrule;

c) Crimped with an appropriate tool as recommended by the ferrule manufacturer before terminating in a terminal of a component;

d) Sized in diameter appropriate for the number of wires and wire size(s) as recommended by the ferrule manufacturer; and

e) Crimped to the wires such that the length of the uninsulated portion of the wires does not result in the reduction of electrical spacings when the ferrule is installed.

SB3.1 Internal wiring connections

SB3.1.1 All terminals of power circuit wiring connectors, wiring ferrules, and components shall be torqued to the manufacturer's specified value or crimped-on according to the manufacturer's instructions.

SB4.2 Short circuit current ratings of individual power circuit components

Exception No. 4: Wiring ferrules are not required to have a short circuit current rating, provided that the requirements of 29.3.6 are met.

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