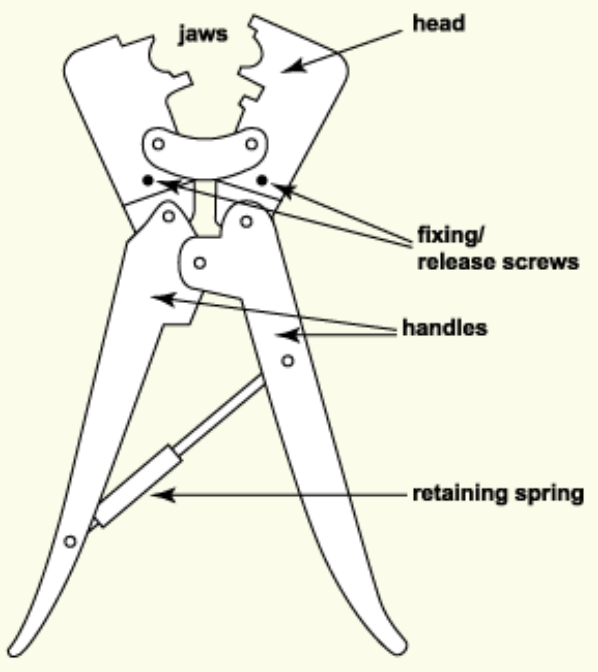
Crimping

In a crimped joint, a stripped wire is inserted in a metal sleeve, which is then distorted by pressure so as to make an internal contact between wire and sleeve body. The sleeve may be part of a connector pin or some other style or terminal, but the same general requirements apply to the crimped joint.

Microsection of satisfactory crimp termination

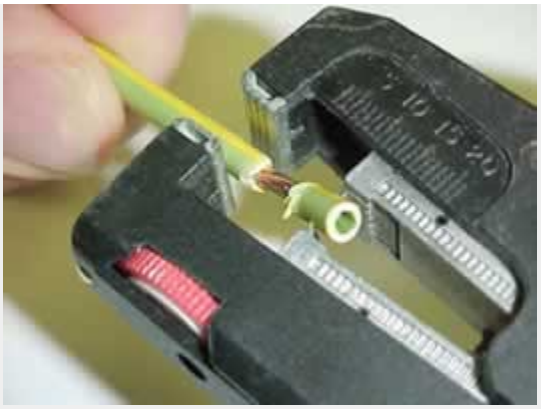
There are many types of crimp tool (Figure 1) available, the mechanical form depending on the force needed to distort the crimp barrel – this can be quite substantial for heavier cables. In all cases a crucial requirement is that the tool chosen is correct for the type and size of crimp tag being used, and this is selected according to wire size. Only by getting a correct match of wire, tag, and crimped tool will a satisfactory gas-tight and reliable joint be created.

Figure 1: Basic hand crimping tool



The sequence of making the crimp is to strip the insulation from the end of the wire using wire strippers, and taking care not to nick any of the wire. As with the crimp tool, correct selection of the stripping head is important. The aim is to leave a multi-strand wire in a neat bundle which may be inserted easily into the sleeve. Some slight twisting action may be needed to ensure that no whiskers are left, as this is a frequent cause of short circuit between crimped joints. The crimp barrel on the terminal or connector is placed over the wire and the jaws centrally positioned over the barrel, with the jaws square and central. In a hand tool, the crimp is normally made by squeezing the handle and the tool released by squeezing the handle still further, after which the handle can be opened and the wire and crimp removed.

Wire insulation stripping



Crimping of termination

Crimp tool and insulated crimp after crimping operation

All crimped joints need to be checked visually, and it is common practice to sample check tags to ensure they are correctly crimped. Just looking at the form

of the crimp will give a good indication of whether or not it is correct. The crimp should be central to the barrel and square, with no whiskering.

Test crimps can be checked for insulation damage by pulling the wire from its tag and checking the insulation is only slightly deformed. If there is excessive damage to the insulation then the crimp is too tight and must be readjusted.

The conductor must be positioned correctly in the connector, and many connectors have an inspection window in the crimped area through which bare wire should be visible.

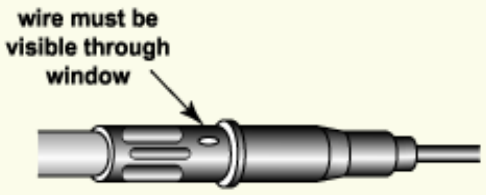
After crimping the connector should be free from fractures, rough edges and flash. Where conductors protrude through the connector ferrule, this projection should be a minimum, to bring it level with the connector insulation, and the gap between insulator and ferrule should be as specified.

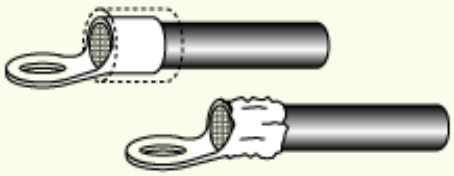
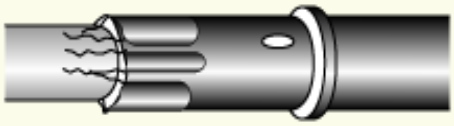
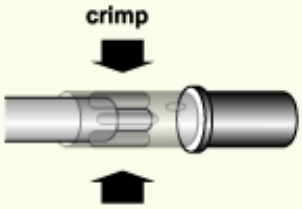
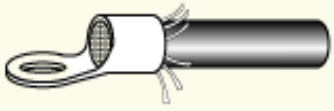
- Where crimped connectors are also crimped to the insulation, the insulation must be held firmly.
- There should be no loose strands of wire projecting from the ferrule.

Further information on generally-accepted standards for crimped joints is given in Figure 2.

Figure 2: Some crimping recommendations

The conductor must be positioned correctly in the connector. Many connectors have an inspection window in the crimped area. If bare wire is not visible through this window, the joint is suspect.



The connector must be free from fractures, rough edges and flashes. The conductors must protrude through the connector ferrule for a minimum length to bring it level with the connector insulation.	
The crimp must be in the correct position on the connector to give maximum strength to the joint and to avoid damage.	
The insulation gap must be as specified.	
Many crimped connectors are also crimped to the insulation. The insulation must be held firmly.	
There must be no loose strands of wire. These are a common cause of short circuits.	

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