

Precaution for Crimping Process

The following instructions describe the procedure to be adopted when crimping terminals or contacts onto wires. Please read the relevant connector and application tooling "Handling Manuals" prior to termination the connector. If you need any further information, please contact F P I C .

1. Crimping tools :

When our chain terminals are crimped or terminated with wires, always use application tooling specified by FPIC. If this process is conducted using application tooling other than that specified, product defect and failure may occur. FPIC cannot accept any liability for failures due to the use of non-FPIC application tooling.

2. Applicable wires :

Before starting the crimping process, please confirm that the wire to be used is within the range of the chosen crimping terminal.

As a rule, applicable wires for crimping connector are tin-plated annealed copper stranded wire. Bare copper wire, solid wire, tin-coated wire, shielded wire and so on are out of range. However, it is possible to use other wires if they are checked for compatibility with the chosen crimping terminal.

3. Control Points for Crimping Operation :

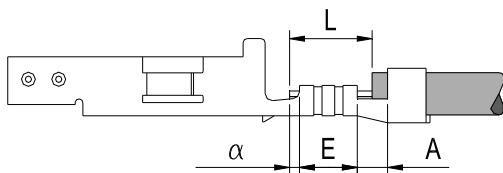
Please check the following points to ensure that a correctly crimped terminal and wire combination is produced.

3-1. Checking Application Tooling :

Read the "Operation/Handling Manuals" which are available for each press and application tool prior to commencing the crimping operation.

3-2. Stripping Wire Insulation Operation :

As the wire stripping length is influenced by wire style, crimping method and so on. Please set the proper stripping length according to processing condition. After setting the correct length depending on the terminal used, strip the insulation carefully by a wire stripper etc. without any damage to the wire conductors.



[Cautions]

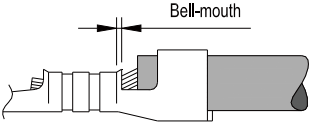
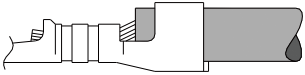
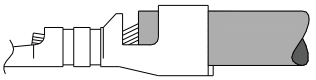
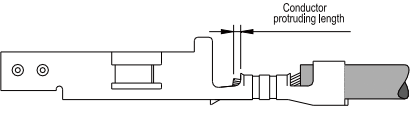
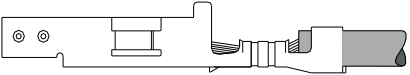

- (1) Take care to prevent cutting of wire conductors, uneven stripping length and insufficient cutting of the insulation.
- (2) Ensure the strands do not spray come apart.
- (3) Do not excessively twist the strands.

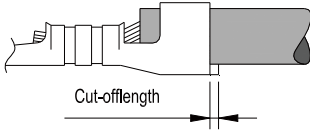
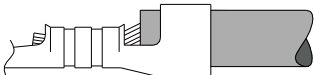
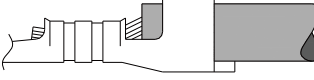
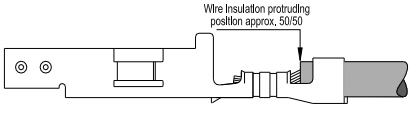
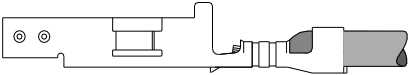
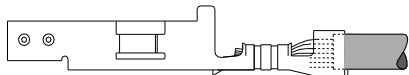
[Reference]

Stripping length $L = E + A / 2 + \alpha$

The proper value of is depended on each terminal.

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Bell-mouth	
Check bell-mouth size	
○ Good	
✗ No bell-mouth	
✗ Too much bell-mouth	
Wire Conductor Protruding Length	
Check the conductors are crimped at the correct position of whole wire barrel.	
○ Good	
✗ Conductors protrude excessively	
✗ Conductors do not protrude enough	

Cut-off Length	
Check cut-off length	
○ Good	
✗ No cut-off length	
✗ Too much cut-off length	
Wire Insulation Protruding Position	
Check the wire insulation is held by the whole insulation barrel and crimped at the wire barrel, so that a "window" of conductor is seen between the wire and insulation barrel approximately 50/50	
○ Good	
✗ Wire insulation is crimped at the wire barrel	
✗ Wire insulation is incompletely crimped at the insulation barrel	

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3-3. Crimping Height :

Crimping height is one of the important quality management items on crimping process.

As crimping terminals without the correct crimp-height is the cause of poor conductivity, measure the crimp-height at the start, in the middle and at the end of the crimping process.

3-3-1. Measuring Method :

Measure the crimping height of the crimped terminals with a specified crimp micrometer (designed by FPIC) at the center of the wire barrel and at the center of the insulation barrel.

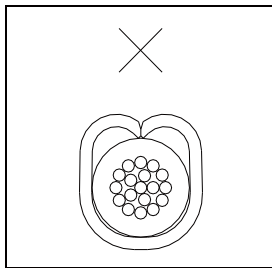


3-3-2. Crimping height for wire barrel

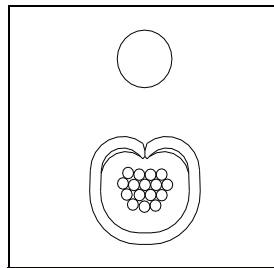
Set the crimping height of the wire conductor barrel within the range specified by FPIC

3-3-3. Crimping height for insulation barrel

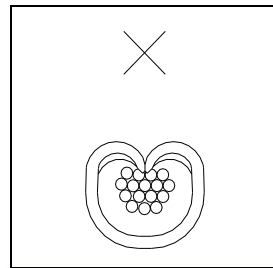
Adjust the crimping height of the insulation barrel in relation to the outer diameter of the wire insulation and wire type. Determine the range of crimping height for insulation barrel so that it is not crimped excessive nor too loosely.



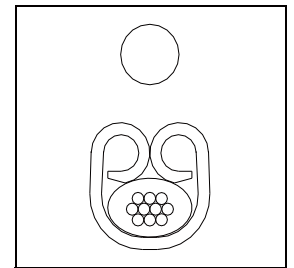
- Insufficient crimping
- Wire insulation is easily pulled from the terminal when applying tension to the wire.



- Good

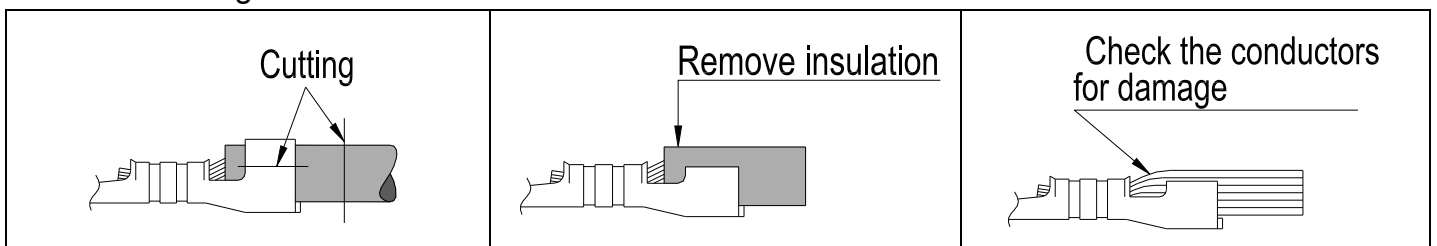


- Excessive crimping
- The barrel edges cut into the wire & damage the conductors.



- Good

Check: Cut off the insulation support and remove the wire insulation, then check the wire conductors for damage.



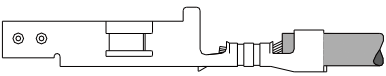
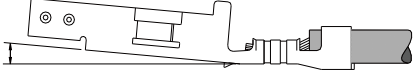
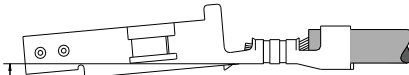
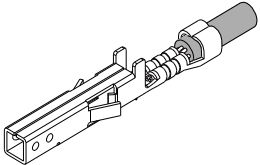
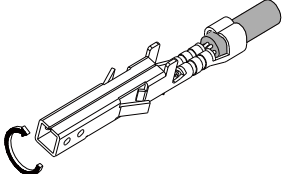
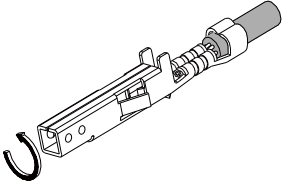
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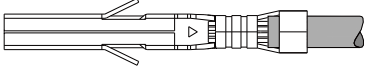
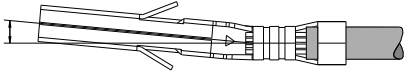
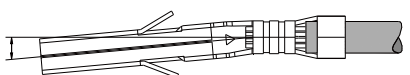
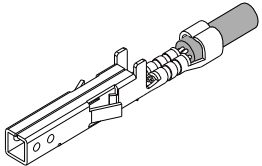
3-4. Crimped Appearance

Check crimped appearance visually (using loupe etc.) in order to confirm correct crimping condition.

As the inspection items change with each terminal, an example is shown below.

Check the Handling Manual for each terminal or connector about the specific details to be checked.

Bend up & Bend down	
Check the angle of bend up or bend down at the wire barrel.	
○ Good	
✕ Bend up	
✕ Bend down	
Rolling	
Check the angle of rolling at the wire barrel.	
○ Good	
✕ Rolling	
✕ Rolling	

Twist	
Check the angle of twist at the wire barrel.	
○ Good	
✕ Twist	
✕ Twist	
Un-crimped Conductor	
Check that there are no un-crimped conductors at the wire barrel.	
○ Good	
✕ Un-crimped conductor	