

Crimp vs. Solder

Solder Method

Performed properly, it is one of the most reliable connections and can be used on cable with solid or stranded center conductors.

Advantages	Disadvantages
<i>Soldering is much more tolerant of non-optimum technique.</i>	<i>Requires more time.</i>
<i>Soldering may allow you use of cable that has a smaller center conductor O.D. than that for which the connector was designed. In this case, crimping cannot create a tight bond and solder is the only viable alternative.</i>	<i>“Cold” solder joints can cause problems if the connector is not soldered properly to the cable, observing solder flow through the contact solder hole.</i>
<i>Tooling is simple: the main tool is a low-wattage solder iron with an assortment of tips. Installation is aided by the use of a vise to hold the work in place while applying solder.</i>	<i>Soldered joints between contact and center conductor can work harden if subjected to excessive vibration during use and develop micro-cracks followed by solder fatigue.</i>
<i>Beyond tooling, the materials consumed are solder and flux.</i>	<i>Soldering can be inconsistent and subject to failure as a result of mechanical or temperature stresses.</i>

Solder Technique Tips:

Preferred:

- Solder around joint is smooth and shiny.
- No evidence of solder flow outside joint region.
- Solder hole is filled flush with outside pin surface.

Avoid:

- Visible center conductor in solder hole indicates solder fill is less than 75% minimum preferred. This cavity changes the contour of the contact and electricals will be affected.
- Excess solder flow onto the body of the contact. This changes the contour of the pin, affecting the electricals.

Care must be taken to control heat applied during the soldering process and not allow solder to wick or distort the cable dielectric. Minor heat flaring may be acceptable so long as it does not exceed O.D. + 20%. Flared dielectric or dielectric melted around the pin will interfere with the assembly of the connector. Your assembly will not meet interface requirements.



Sample photo from article of a good pin crimp.

Contact your distributor for the complete [Crimp vs. Solder](#) article, including illustrations.

Crimp-on Method

This method has always been the workhorse of the industry and is probably the most frequently used method of terminating connectors on coax cable. When crimping contacts, careful selection of proper tools is critical.

Advantages	Disadvantages
<i>There is no need for soldering; therefore, installation time is reduced.</i>	<i>Crimped contacts cannot be un-crimped and re-installed. In many cases, this means the entire connector assembly must be scrapped and replaced by a new one.</i>
<i>It takes an experienced technician about 15 seconds to install a crimp-crimp connector, reducing the time required to create cable assemblies.</i>	<i>Crimped connections on solid wire can be poor and prone to failure, unless crimped with the proper dies using professional crimp handles.</i>
<i>Crimped connections, done correctly, can be superior to soldered connections.</i>	<i>If done poorly, the crimped contact will not seat properly within the connector, taking the interface out of specification. Both signal continuity and quality will suffer.</i>
<i>A good crimp connection is gas tight and won't wick: it is sometimes referred to as a “cold weld”.</i>	<i>Sometimes, although rarely and under conditions of frequent flex, stranded wire can shift within the crimped joint and loosen.</i>
<i>Like the solder method, it can be used on solid or stranded conductors, and provides a good mechanical and electrical connection.</i>	

Crimp Technique Tips:

- A properly crimped connector will be slightly flared at the mouth. This is called the bell-mouth condition and helps relieve stress on the coax. If you are precutting for very large commercial jobs, substantial savings can be gained by having your supplier prepare your cables in advance.
- Select the proper connector for the coax you are using. A tight fit on the inner conductor before crimp and the proper ratio of ferrule stud ID to cable dielectric OD and ferrule stud OD to ferrule ID is important to avoid a substandard crimp.
- Select the proper crimp die cavity for your connector and contact. If the die is too small, the crimp area will “dog ear”, break, bend or distort. Coaxial crimpers are designed to place the pressure of the crimp evenly around the connector or contact.
- Do not position crimp die outside crimp area.
- Avoid double crimping, especially on the contact; this is known as “flagging” or “dog ears”.

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