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one company › a world of innovation

Solderless Terminals, Terminal Blocks and Connectors

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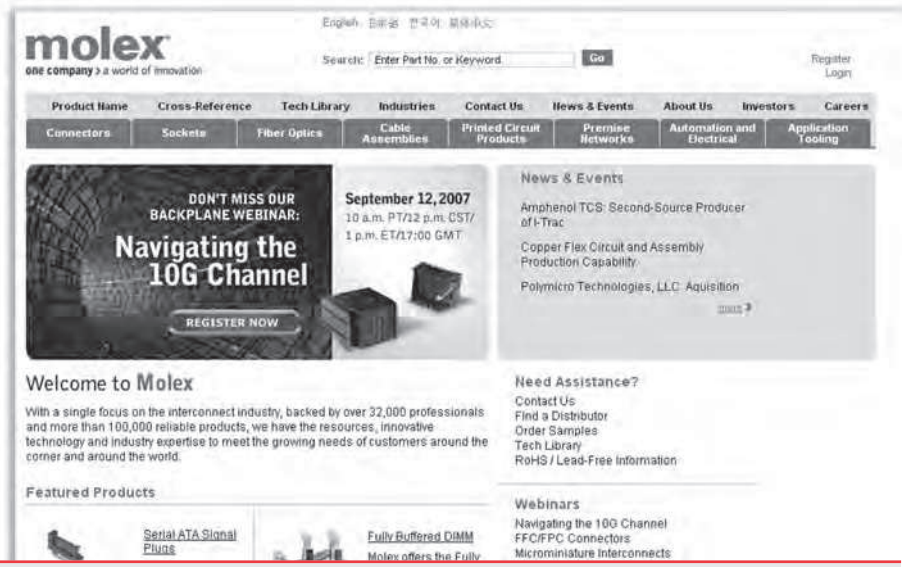
Molex.com helps you get more done in less time. The site offers consistent navigation and robust search capabilities that allow you to search by application profile, keyword, feature and part number. The site includes all of the products and information found in this product catalog plus expanded content such as new products, 3D solid models, 2D drawings, product specifications, test results and sample request forms. You can even set up your own personalized molex.com simply by registering.



How do you want to search?

By Product Feature

Searching by multiple product features such as pitch, PCB thickness, wire size and current saves time by focusing only on the connectors that have the features you need.

In Your Language

Search product information in the language of your choice. Molex.com offers search capabilities in Japanese and Korean.

By Product Type

Find a connector by drilling through stages of the product hierarchy. Information becomes more specific with each level you advance to. At any time, you may access a "feature search" which gives you the ability to search across the product hierarchy that you are currently in.

By Product Name

This keyword search allows you to link to the commercially used name of a connector family or category, such as Mini-Fit® or IEEE 1394.

By Part Number

Enter an entire or partial Molex part number to get the search results. Or search by competitor part number to find the Molex equivalent.

By Industry

You can search by industry such as networking, portables or industrial. For a more detailed search once you select the application profile – notebooks, for example, you can select a specific product category such as "memory" or "microprocessors."

Why should you register?

By taking advantage of the optional registration, you will be able to get more – and more immediate – information on key applications in your market. Registering allows you to sign up for a monthly e-mail and be among the first to hear about new products. Finally, you can set site-specific bookmarks and self-populate your response screens, making it easier to order samples on-line. Simply find your solution on-line or in this catalog and then order samples on molex.com.

Step 1: Go to www.molex.com

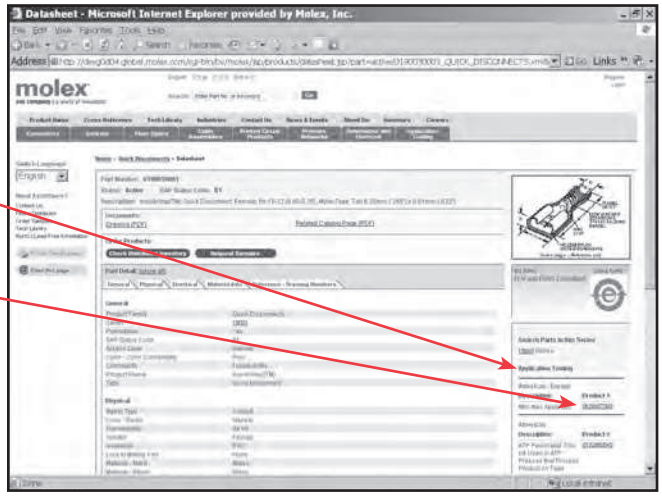
Step 2: Enter Connector Part Number Into Search

Enter Part Number Here

Hit the "GO" Button

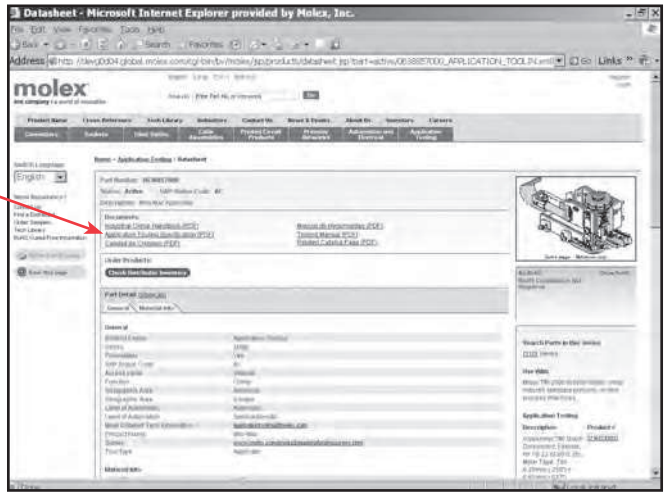
Step 3: Review Product Page for Tooling Links on Right

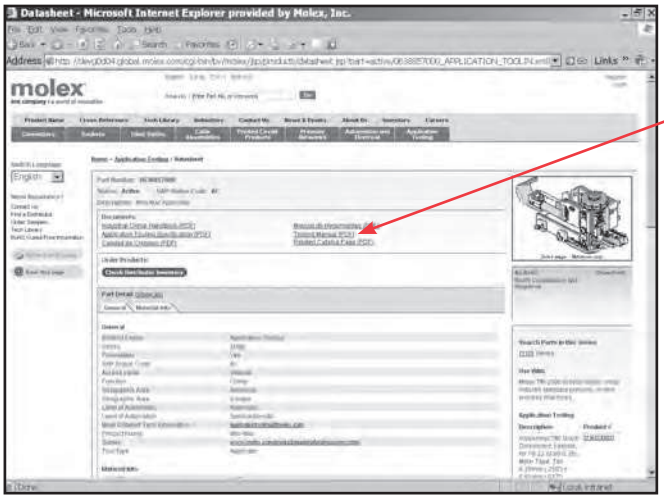
Review tooling link(s) and double click black link



***Step 4: Review Tooling Page* Application Tooling Specification**

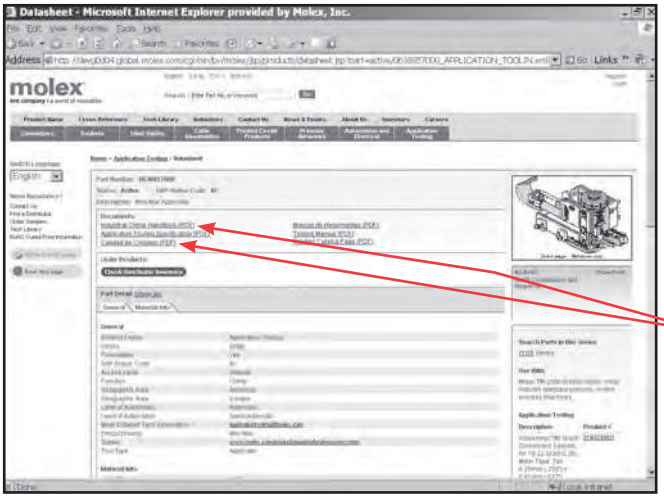
Application Tooling Specification sheets have all tooling information: terminals used in tool, crimp height, pull force, perishable tool kits, repair kits, how to measure go/no-go, list of products processed, new product number, old product number, wire strip length, part list for tooling components, exploded view of installation and maintenance and warranty information





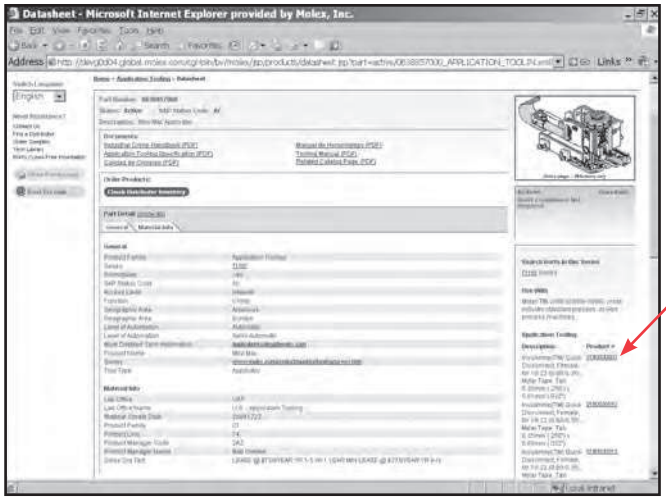
Step 4: Review Tooling Page
Tooling Manual

The Tooling Manual has all of the basic information with regard to the tool. Not all tools have a manual



Step 5: Review Tooling Page
Crimp Quality Handbook

The Crimp Quality Handbook has all of the basic information regarding a proper crimp. Open barrel (CPD) and closed barrel (TBO) have their own quality manuals linked on the web. There are English and Spanish versions of both manuals.



Other Information on Page

Tooling page will show all of the web-published terminals that the tool will run

Developed to replace the need to solder terminations, crimping technology provides a high quality connection between a terminal and a wire at a relatively low applied cost. The methods for applying crimp terminations depend on the application and volume, and range from hand-held devices to fully-automated systems. The application methods include a basic hand tool, a press and die set, a stripper crimper or a fully automatic wire processing system. But no matter what method is used, the setup of each tool is critical for achieving a quality crimp.

Website: Please visit the Molex website to view the most current Application Tooling information. The Molex website is continuously updated with the latest information. (www.molex.com)

TERMINOLOGY

Bellmouth (Flare)

The flare that is formed on the edge of the conductor crimp acts as a funnel for the wire strands. This funnel reduces the possibility that a sharp edge on the conductor crimp will cut or nick the wire strands. As a general guideline, the conductor bellmouth needs to be approximately 1 to 2x the thickness of the terminal material.*

Conductor Brush

The conductor brush is made up of the wire strands that extend past the conductor crimp on the contact side of the terminal. This helps ensure that mechanical compression occurs over the full length of the conductor crimp. The conductor brush should not extend into the contact area.

Conductor Crimp

This is for the metallurgical compression of a terminal around the wire's conductor. This connection creates a common electrical path with low resistance and high current carrying capabilities.

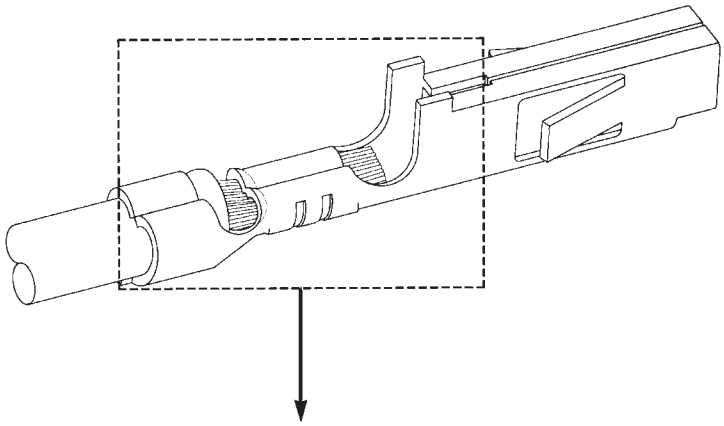
Conductor Crimp Height

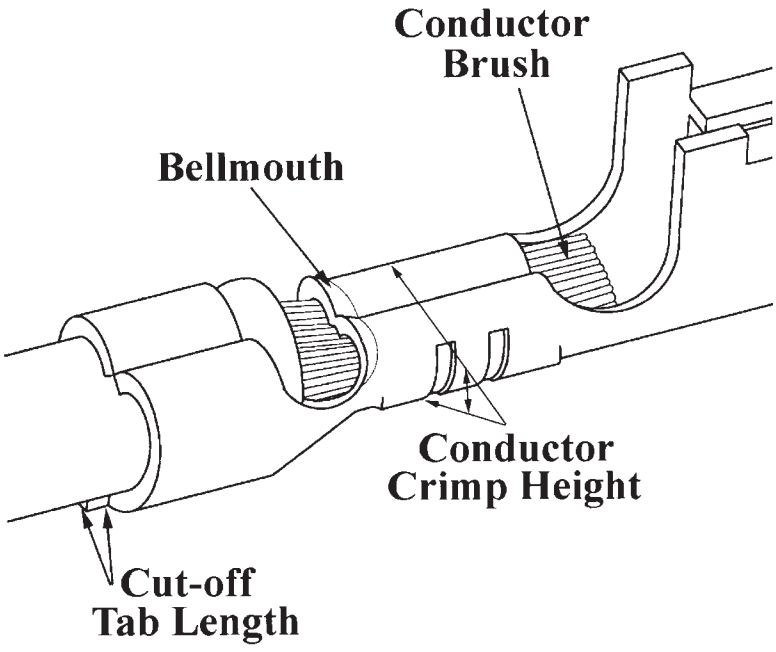
The conductor crimp height is measured from the top surface of the formed crimp to the bottom most radial surface. Do not include the extrusion points in this measurement (See Figure 2). Measuring crimp height is a quick, non-destructive way to help ensure the correct metallurgical compression of a terminal around the wire's conductor and is an excellent attribute for process control. The crimp height specification is typically set as a balance between electrical and mechanical performance over the complete range of wire stranding and coatings, and terminal materials and platings. Although it is possible to optimize a crimp height to individual wire strandings and terminal platings, one crimp height specification is normally created.

Cut-off Tab Length

This is the material that protrudes outside the insulation crimp after the terminal is separated from the carrier strip. As a general rule, the cut-off tab is approximately 1.0 by 1.5x terminal material thickness.* A cut-off tab that is too long may expose a terminal outside the housing or it may fail electrical spacing requirements. In most situations, a tool is setup to provide a cut-off tab that is flush to one material thickness.

*Consult individual terminal specifications





TERMINOLOGY (CONTINUED)

Extrusions (Flash)

These are the small flares that form on the bottom of the conductor crimp resulting from the clearance between the punch and anvil tooling. If the anvil is worn or the terminal is over-crimped, excessive extrusion results. An uneven extrusion may also result if the punch and anvil alignment is not correct, if the feed adjustment is off, or if there is insufficient/excessive terminal drag.

Insulation Crimp (Strain Relief)

This is the part of the terminal that provides both wire support for insertion into the housing and allows the terminal to withstand shock and vibration. The terminal needs to hold the wire as firmly as possible without cutting through to the conductor strands. The acceptability of an insulation crimp is subjective and depends on the application. A bend test is recommended to determine whether or not the strain relief is acceptable for each particular application.

Insulation Crimp Height

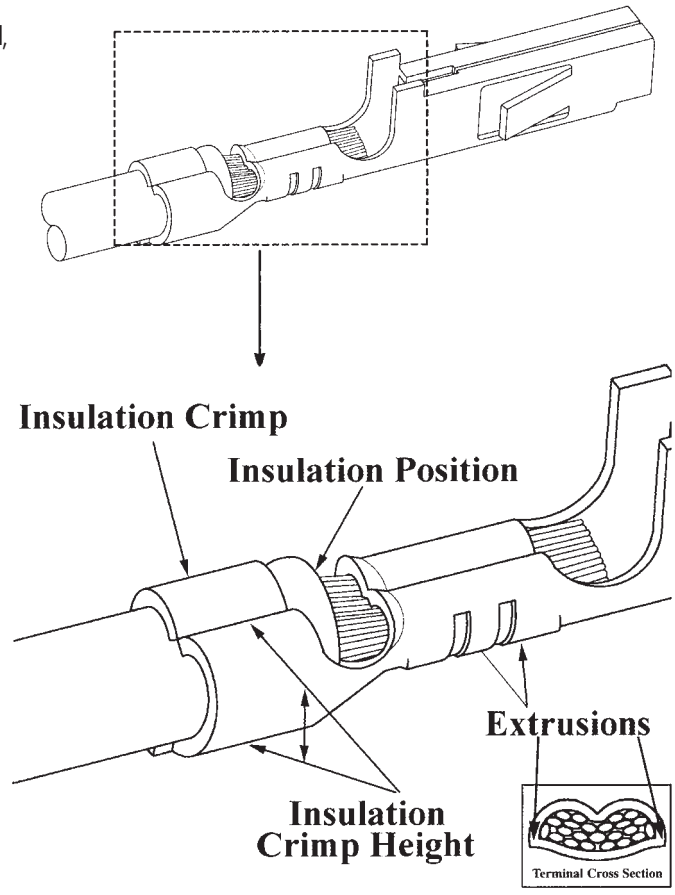
Molex does not specify insulation crimp heights because of the wide variety of insulation thickness, material, and hardness. Most terminals are designed to accommodate multiple wire ranges. Within the terminals range, an insulation diameter may not completely surround the wire or fully surround the diameter of the wire. This condition will still provide an acceptable insulation crimp for most applications.

- A large insulation should firmly grip at least 88% of the wire
- A smaller insulation should firmly grip at least 50% of the wire and firmly hold the top of the wire

To evaluate the insulation section cut the wire flush with the back of the terminal. Once the optimum setting for the application is determined it is important to document the insulation crimp height. Then, as part of the setup procedure the operator can check the crimp height.

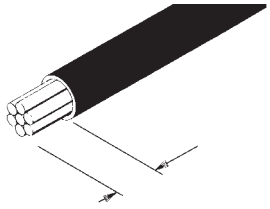
Insulation Position

This is the location of the insulation in relation to the transition area between the conductor and insulation crimps. Equal amounts of the conductor strands and insulation need to be visible in the transition area. The insulation position ensures that the insulation is crimped along the full length of the insulation crimp, and that no insulation gets crimped under the conductor crimp. The insulation position is set by the wire stop and strip length for bench applications. For automatic wire processing applications the insulation position is set by the in/out press adjustment.



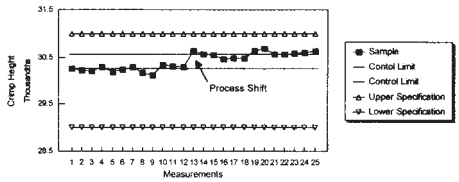
Strip Length

The strip length is determined by measuring the exposed conductor strands after the insulation is removed. The strip length determines the conductor brush length when the insulation position is centered.



Process

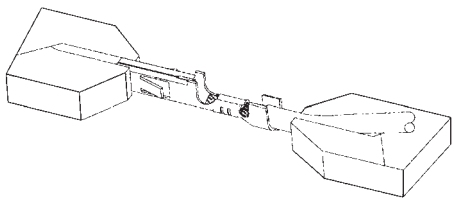
The combination of people, equipment, tooling, materials, methods and procedures needed to produce a crimp termination. Process control is used to track attributes over time to aid in the detection of change to the process. Detecting a process change when it happens helps prevent many thousands of bad crimps.



Pull Force Testing

Pull Force Testing is a quick, destructive way to evaluate the mechanical properties of a crimp termination. When making a crimp, enough pressure must be applied to breakdown the oxides that build up on the stripped conductor and the tin plating on the inside of the terminal grip. This is necessary to provide a good metal-to-metal contact. If this does not occur, resistance can increase. Over crimping a crimp termination will reduce the circular area of the conductor and increase resistance.

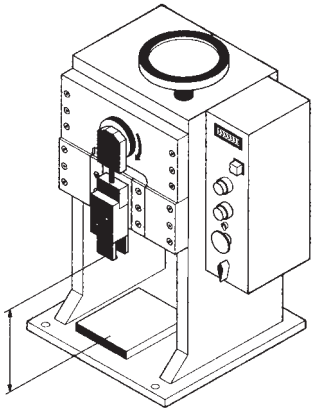
Pull Force Testing is also a good indicator of problems in the process. Cut or nicked strands in the stripping operation, lack of bellmouth or conductor brush, or incorrect crimp height or tooling will reduce pull force. Wire properties and stranding, and terminal design (material thickness and serration design), also can increase or decrease pull force levels.



TERMINOLOGY (CONTINUED)

Shut Height

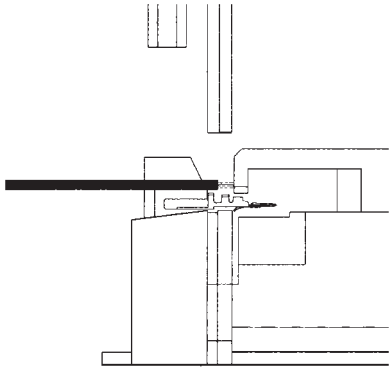
The distance, at bottom dead center on a press, from the tooling mounting base plate to the tooling connection point on the ram of the press.



Terminal Position

The terminal position is set by the alignment of the terminal to the forming punch and anvils, and the carrier strip cut-off tooling. The tool set-up determines conductor bellmouth, cut-off tab length, and terminal extrusions.

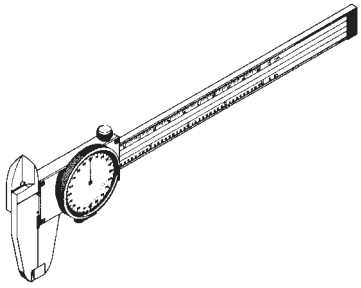
*Consult individual terminal specifications



ASSOCIATED MATERIALS

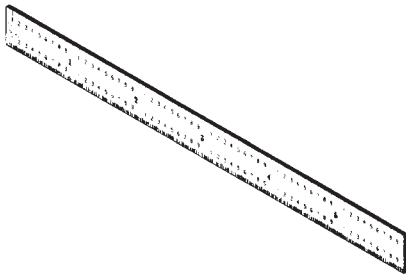
Caliper

A gauge, consisting of two opposing blades, for measuring linear dimensional attributes.



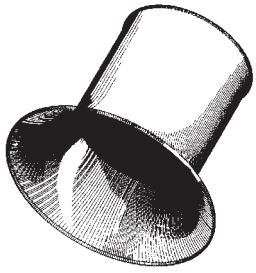
Ruler (Pocket Scale)

This is used to estimate the five piece measurement of bellmouth, cut-off tab, conductor brush, wire position, and strip length. The recommended maximum resolution is .5mm (.020 in).



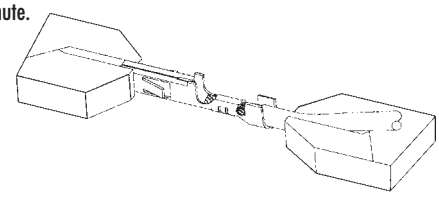
Eye Loop

A magnification tool, normally 10x power or greater, which is used to aid visual evaluation of a crimp termination.



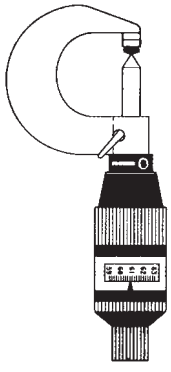
Pull Tester (Reference Figure 5)

A device used to determine the mechanical strength of a crimp termination. Most pull testing is done with a device that clamps the wire, pulls at a set speed, and measures force by means of a load cell. A pull tester also can be as simple as hanging fixed weights on the wire for a minimum of one minute.



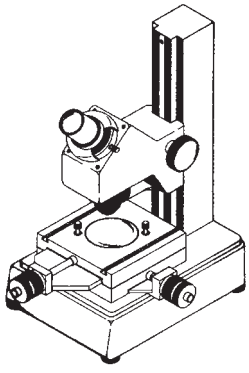
Crimp Micrometer

This is a micrometer specifically designed to measure crimp height. The measurement is taken in the center of the crimp so it is not influenced by the conductor bellmouth. It has a thin blade that supports the top of the crimp while a pointed section determines the bottom most radial surface.



Toolmaker's Microscope

This is used for close visual evaluation and statistical measurement of bellmouth, cut-off tab, conductor brush, wire position, and strip length.



Glossary

A

Absorption: 1) The amount of moisture a substance will assimilate and retain. 2) The dissipation of energy by radiation passing through a medium.

Accelerated Aging: A test in which voltage, temperature and other parameters are increased above normal operating values to obtain observable deterioration in a relatively short period of time.

Accessories: Mechanical devices, such as cable clamps, added to connectors, and other such attachable hardware that makes up the total connector configuration.

Adapter: An intermediate device that attaches special accessories and provides for special mounting.

Admittance: The ease with which an alternating current flows in a circuit. The reciprocal of impedance.

Alloy: A combination of two or more elements of which at least one is a metal.

Ampere: A standard unit of current. Designated as the amount of current that occurs when one volt of emf is applied across one ohm of resistance. An ampere of current is produced by one coulomb of charge passing a point in one second.

Attenuation: Power or signal strength loss in an electrical system. Decrease in power expressed in decibels (dB).

B

Back Mounted: When a connector is mounted from the inside of a panel or box with its mounting flanges inside the equipment.

Bandwidth: The amount of data that can be sent through a network connection, measured in bits per second (bps).

Barrel: The back end portion of a terminal or contact that is crimped to the conductor or insulation or both.

Bellmouth: Flared or a tapered entrance to a connector crimp barrel permitting an essentially smooth stress transition zone between the highly compressed, crimped wire within the barrel and the wire (uncompressed, uncrimped) outside of the barrel, thus preventing micro-cracking of both the barrel and the wire.

Blind Mating: A term describing the mating of rack-and-panel connectors via guide or key pins that ensure correct alignment of the connector halves during mating.

Boot: 1) A form placed around wire termination of a multiple-contact connector to hold the liquid potting compound before it hardens. 2) A protective housing, usually made from a resilient material, that prevents moisture entry into a connector.

Braid: Woven bare metallic or tinned copper wire used as shielding for wires and cables and as ground wire for batteries or heavy industrial equipment. Also a woven fibrous protective outer covering over a conductor or cable.

Brazing: A group of welding processes in which the filler is a nonferrous metal or alloy with a melting point greater than 1000 degrees Fahrenheit, but lower than that of the metals or alloys to be joined. Brazing is sometimes referred to as hard soldering.

Bulkhead Connector: Type of connector designed for insertion into a panel cutout from the component side.

C

Cable: An assembly of one or more conductors or fiber optic strands within a protective sheath.

Cable Pierce: A termination technique in which a metal lance or tine in the terminal passes through the insulation and into the conductive strands.

Canadian Standards Association (CSA): A Canadian organization that sets certain standards for connector testing.

Capacitance: The ability of a dielectric material between conductors to store an electrical charge when a voltage difference exists between conductors.

Centerline Spacing: See Pitch.

Chamfer: Angle on the inside edge of the barrel entrance of a terminal or connector housing that permits easier insertion of the cable into the barrel or of a plug into a receptacle.

Circuit: A conductive channel through which electrical current flows (in a closed loop termed closed-circuit) or through which light energy flows.

Component Density: The quantity of components on a printed circuit board per unit area.

Compression Terminal: Terminal crimped by an externally applied force; the conductor is also crimped by such force inside the tube-like terminal body.

Conductivity: A material's ability to conduct electric current expressed in terms of the current per unit of applied voltage or 1/impedance.

Conductor: An uninsulated wire or combination of wires suitable for carrying electric current.

Connector: A coupling device that provides an electrical and mechanical connection or disconnection between two circuits.

Contact: The conducting part of a connector that acts with another such part to complete or break a circuit. Also known as terminals.

Contact Durability: Endurance measured by the number of insertion and withdrawal cycles that a connector withstands while remaining within its specified electrical and mechanical performance levels.

Contact Force: See Normal Force.

Contact Insertion Force: The amount of force required to insert a contact into the connector housing.

Contact Pressure: The force that mating surfaces exert against each other.

Contact Rating: The maximum and minimum voltage, current and power that a contact system is capable of carrying under certain specified conditions.

Contact Resistance: Maximum permitted electrical resistance of pin and socket contacts when assembled in a connector under typical service use.

Contact Retention: Defines the minimum axial load in either direction that a contact must withstand while remaining firmly seated in its normal position in the connector housing.

Continuity: A continuous path for the flow of current in an electrical circuit.

Coplanarity: 1) In general, the levelness of the terminals. 2) The maximum distance between the lowest and highest SMT solder tail when the connector rests on a perfectly flat surface.

Coupling Ring: A device used on cylindrical connectors to lock a plug and receptacle together. It may or may not make the connector easier to mate/unmate.

Crosstalk: A type of interference caused when the signal on one conductor interferes with the signal on an adjacent conductor.

Current: A movement of electrons, either positive or negative ions, or holes. The rate of transfer of electricity from one point to another. Current is usually measured in amperes.

Current Carrying Capacity: The maximum current an insulated conductor can safely carry without exceeding its insulation and jacket temperature limitations.

Current Rating: Maximum current that a device is designed to conduct for a specified time at a specified operating temperature.

D

Daisy Chain: Two or more connectors terminated on the same cable. Each connector shares the same electrical path but provides independent signal distribution.

Dielectric: Non-conducting barriers that protect individual conductors from accidental contact with other conductors (a "short circuit") and allow uninterrupted flow or current.

Dielectric Strength: The maximum voltage that a dielectric material can withstand, under specified conditions, without rupturing. It is usually expressed in volts/unit thickness.

Dielectric Withstanding Voltage: Maximum potential gradient that a dielectric material can withstand without failure.

Discontinuity: A broken connection, or the loss of a specific connection characteristic.

Discrete Wire: A single cable or wire. Contrast it to ribbon cable, which consists of multiple cables or wires.

Disengagement Force: See Withdrawal Force.

Dual Beam: A type of stamped-and-formed contact where the female contact holds the male contact between two beams.

Durability: See Contact Durability.

E

Electromagnetic: Pertaining to the combined electric and magnetic fields associated with movements of electrons through conductors.

Electromagnetic Interference (EMI): Electromagnetic waves that interrupt signals in electronic equipment.

Engagement and Separation Force: The amount of force needed to engage (mate) and/or separate (unmate) contact elements in mating connectors. Force levels vary with circuit size. Total connector engagement force is approximated by multiplying the number of circuits in the housing by the per circuit engagement (mating) force.

Epoxy: A family of thermosetting resins used in the packaging of semiconductor devices and fiber optics. Epoxies form a chemical bond to many metal and glass surfaces.

F

Feed Through: 1) A conductor that connects patterns on opposite sides of a printed circuit board. Also called interfacial connection. 2) A connector or terminal block, usually having double-ended terminals that permit simple distribution and bussing of electrical circuits. Also used to describe a bushing in a wall or bulkhead separating compartments at different pressure levels with terminations on both sides.

Ferrule: 1) A short tube used to make solderless connections to shielded or coaxial cable. Also molded into the plastic inserts of multiple contact connectors to provide strong, wear-resistant shoulders on which contact retaining springs can bear. 2) A mechanical fixture used to confine and align the stripped end of a fiber in a fiber optic connector.

First Mate/Last Break (FMLB): A connector design in which power contacts engage before signal contacts when two connector halves are mated. FMLB prevents damage to electrical circuitry in the system by having the ground pin mate first.

Flammability: The measure of the material's ability to support combustion.

Flange: A projection extending from or around the periphery of a connector and provided with holes to permit mounting the connector to a panel or to another mating connector half.

Flex Life: The ability of a conductor or cable to withstand repeated bending.

Frequency: The number of times a periodic action occurs in a unit of time. The number of cycles that an electric current completes in one second.

G

Gang Disconnect: A connector that permits the rapid and simultaneous connection and disconnection of two or more electrical circuits.

Gas Tightness: The characteristic of a contact which is impervious to ingress by corrosive gases.

Gauge: A term used to denote the physical size of a wire.

Gigabit Ethernet: A Local Area Network (LAN) protocol that supports data transfer rates of 1 Gb/s.

Grid: An orthogonal network of two sets of parallel, equidistant lines used for locating points on a printed board. Connections should be located on the cross-points of the grid lines.

Ground: A common or reference point in an electrical circuit that can be earth ground and/or a chassis. It is with respect to this common point that all voltages are measured.

H

Header: The male connector assembly of a two-piece post-and-box connector attached to a PCB. Headers are available in two styles: shrouded and unshrouded.

Hermaphroditic Connector: An interconnecting device in which both mating parts are identical at their mating surfaces. Also a connector housing that accepts both male and female terminals.

Hi Pot: A dielectric strength test that tests the insulation between two circuits.

Hot Pluggable: Adding electronic components to a system (plugging) or removing electronic components from a system (unplugging) while the system is powered up (hot). Also known as live insertion or live mating.

Hygroscopic: Capable of absorbing moisture from the air.

I

Impedance: The total opposition that a circuit offers to the flow of alternating current, or any other varying current, at a particular frequency.

Inductance: The property of a circuit or circuit element that opposes a change in current flow, causing current changes to lag behind voltage changes.

Infrared Reflow Solder: A soldering process in which heat from infrared radiation is used to melt solder paste between connector leads and PCB pads to make a solder joint.

Ingress Protection (IP): A rating system that measures a connector's sealing capabilities against dust and moisture.

Insertion Force: The force required to insert a connector housing into its final position in a printed circuit board or panel cutout.

Insertion Loss: 1) The loss in load power resulting from the insertion of a component, connector or device. 2) A measure of the attenuation of a device by determining the output of a system before and after the device is inserted into the system.

Insulation Displacement Technology (IDT): A wire termination technique in which an insulated wire is pressed into a terminal slot smaller than the conductor diameter, displacing the insulation, and forming an electrical contact between the terminal and the conductor.

Insulation Resistance: The electrical resistance of the insulating material between any pair of contacts, conductors or grounding devices in various combinations.

Interference: Disturbances of an electrical or electromagnetic nature that introduce undesirable responses into electronic equipment.

J

Jacket: Outermost layer of insulating material of a cable or wire.

Jackscrew: A screw attached to one half of a two-piece, multiple-contact connector and used to draw and secure both halves together and to separate them.

Jumper Cable: A short flat cable interconnecting two printed circuit boards or devices.

K

Keying: A mechanical arrangement of inserts and/or shell configurations (referred to as clocking in some instances) that prohibits the mating of mismatched plugs and receptacles. This allows connectors of the same size to be lined up, side-by-side, with no danger of making the wrong connection.

L

Leakage: The undesirable passage of current over the surface of, or through, an insulator.

Life Cycle: A test to determine the length of time before failure in a controlled, usually accelerated, environment.

Liquid Crystal Polymer (LCP): A type of plastic material of high crystallinity with excellent high-temperature applications, very high strength and excellent chemical resistance.

Loop Resistance: The total resistance of two conductors measured round trip from one end.

M

Mass Termination: A termination method, typically used with discrete wire or ribbon cable, in which two or more insulated conductors are simultaneously terminated to the same connector housing. Termination method is typically insulation displacement.

Mating/Unmating Force: The amount of force, measured in grams or pounds, required to join or separate a mated plug and receptacle.

Migration: The movement of atoms or molecules of a metal from one location to another that changes the properties of the metal.

MIL SPEC: Specific manufacturing, testing, and packaging requirements set by the U.S. military as indicated on an item by a military identification or MIL SPEC number.

Mismatch, Connector Impedance: Terminal or connector with a different impedance than the circuit or cable it is designed for.

Motherboard: A printed circuit board that is generally the main PCB in a system.

N

Non-compliant Press-fit Technology: A square pin pushed into a slightly undersized plated through hole on a PCB.

Normal Force: The force perpendicular to the contact interface. Does not include frictional forces, created from insertion to, or withdrawal from the connector housing.

O

Operating Temperature: The maximum and minimum ranges of temperatures at which a device is designed to operate at its rated current and voltage.

P

Panel Cutout: The hole, usually round or rectangular, cut in a panel for mounting a connector. May include holes for mounting screws or bolts.

Panel Mount: Method of fixing a connector half to a cut out in a board, panel or frame.

Parallel Bus: A bus that transfers eight or more bits of data simultaneously through several parallel lines.

Passive Device: A static device that requires no power for its intended functions.

Pitch: The nominal distance from center-to-center of adjacent conductors.

Plating: The overlaying of a thin coating of metal on metallic components to improve conductivity, provide for easy soldering, or prevent rusting or corrosion.

Plug: Usually the half of a two-piece multiple contact connector that contains the male contacts or the cable-side connector in an Input/Output configuration.

Polarization: Mechanical guide arrangement in a connector housing, shell or insert that ensures that connector halves are correctly aligned before they can be fully mated.

Polarizing Pin (Key): A pin or keying device on one half of a two-piece connector that mates with an appropriate hole on the other half during connector assembly to assure that only related connector halves can be assembled.

Positive Lock: A type of latch or locking mechanism that holds a die set in an installation tool, or connector housing, so that the parts cannot be accidentally unlocked or unmated.

Printed Circuit Board (PCB): An insulating base material, usually of rosin polymer, onto which interconnecting conductive strips have been printed, usually via an etching process.

Profile Height: The height of a connector, when mated to its header, that is above the PCB.

Protocol: In data transmission, a set of rules that specifies the timing, format, sequencing and error control of transmitted signals.

Pull Out Force: Force required to separate a cable from a connector by pulling them apart.

Q

Quick Disconnect: A type of terminal that permits rapid connection and disconnection to a flat blade terminal or terminal block.

R

Rated Temperature: The maximum temperature an electric component can operate at for extended periods without loss of its basic properties.

Rated Voltage: The maximum voltage an electric component can operate at for extended periods without undue degradation or causing a safety hazard.

Real Estate: Surface space on a PCB.

Receptacle: Usually the half of a two-piece multiple contact connector that contains the female contacts.

Resistance: Property of a conductor that determines the current produced by a given difference of potential.

RoHS: A European-driven standard regarding the absence of selective hazardous materials within systems and their respective components.

S

Selective Plating: The process of plating gold only in the mating areas (surfaces) of a contact.

Separation Force: See Engagement Force.

Shield: Device surrounding the portion of a connector that is used for attaching wires or cables to shield against radio frequency and electromagnetic interference, and/or protect connector wires or cable from mechanical damage.

Shield Effectiveness: The relative ability of a shield to screen out undesirable signals.

Shielded Cable: A cable in which a metallic layer is placed around a conductor or group of conductors to prevent electrostatic or electromagnetic interference between the enclosed wires and external fields. The shield may be the metallic sheath of the cable or a metallic layer inside of a non-metallic sheath.

Short Circuit: A break or interruption of current flow in an electrical circuit due to current shunted to a conjoining circuit.

Shunt: A device used to divert part of an electric current.

Single Beam: A stamped-and-formed contact where the female contact holds the male contact between itself and the housing wall.

Solder: An alloy that melts at relatively low temperature, and which is used to join or seal metals with higher melting points. Commonly used for connector terminations.

Solder Wicking: A capillary action that tends to draw solder or flux up into a connector from the PCB during the soldering process and can cause a short circuit.

Spice Modeling: Circuit response modeling and simulation per a given electrical excitation in order to judge the electrical and design capabilities of a system.

Stackable: Refers to placing symmetrical housings (assemblies) side-by-side or end-to-end and where the distance from the last contact in one assembly to the first contact in the next assembly is equal to the distance between any two contacts in the assembly itself.

Standoff: Tiny spacers built into housings to raise the housing from the surface of a printed circuit board.

Strain Relief: Technique involving methods of termination or installation, which reduces the transmission of mechanical stresses to the conductor termination.

Strand: One of the wires, or groups of wires, of any stranded conductor.

Strip Length: The length of insulation that must be removed from a cable prior to crimping.

Surface Mount Compatible (SMC): Through hole product made of high temperature material, thereby suitable for the IR or convection reflow soldering process.

Surface Mount Technology (SMT): The electrical connection of components to the surface of a conductive pattern without using component holes.

T

Tensile Strength: Greatest longitudinal stress that a substance can bear without pulling apart.

Terminal: A device that terminates a conductor to a post, stud, chassis or another conductor, or the like, to establish an electrical connection.

Termination Resistance: The opposition to current flow due to the mating interface of a connector and a header or to another connector.

Thermoplastic: A type of plastic that can be re-melted a number of times without any important change in properties.

Thermosetting Plastic: A type of plastic in which an irreversible chemical reaction takes place while it is being molded under heat and pressure.

Through-Hole Mounting: Electrical connection of components through drilled holes rather than attachment directly to the insulating material.

Tolerance: The upper and lower limits of variation from a component's nominal value.

Twisted Pair: A cable composed of two small gauge insulated conductors, twisted together without a common covering. The two conductors of a twisted pair are usually well insulated.

U

Underwriters Laboratories (UL): A U.S. organization that sets certain standards for connector testing.

Unmating Force: The force required to disconnect a male and female connector.

V

Void: A hole in a header that does not have a pin/terminal for polarization purposes.

W

Wiping: The translational action that occurs when contacts are mated with a sliding action. Wiping has the effect of removing small amounts of contamination from the contact surfaces, thus establishing better conductivity.

Wire Pull Out: The force required to separate a wire from a contact after termination.

Withdrawal Force: The force required to disconnect the two halves of a connector.

Z

ZIF: Zero Insertion Force. Usually describes a socket which permits the insertion of the component without the socket exerting any force on the leads of the component.

Order (EDP) No. Index

Order (EDP) No. Index

Solderless Terminals

Solderless Terminals, Splices and Quick Disconnects

Barrel Styles

KRIMPTITE®

This is the basic Molex barrel style. It is noninsulated and features a quality, 1-piece design. It is also the most economical style and has the greatest variety of uses where special features are not required. The Krimptite is available in wire range 10 to 26 AWG (0.10 to 6.60mm²).

INSULKRIMP®

These terminals and splices feature a rigid insulation sleeve of polyvinyl chloride (PVC) affixed permanently to the Krimptite barrel (in 10 to 22 AWG) or the brazed-seam Versakrimp barrel (in 4/0 to 22 AWG). It attaches to the wire with 1 quick crimp and the insulation sleeve protects against vibration damage by preventing wire flex at the crimp point. The funnel entrance into the electrical barrel eliminates wire strand "hang up," increases crimping rates and enhances wire termination reliability. Wire range 4/0 to 22 AWG (0.10 to 117.00mm²).

VERSAKRIMP™

When the butted-seam Krimptite barrel is bonded with a special brazing alloy, it becomes a Versakrimp barrel. These brazed-seam barrel terminals and splices will not open under conditions of stress or wire pull. As versatile as it is tough, it can be crimped under most adverse conditions by many types of tooling. The Versakrimp is ideal for hard-to-crimp solid and stranded wires. It is available in wire range 4/0 to 22 AWG.

NYLAKRIMP®

This terminal was designed specifically for larger wire applications . The color-coded barrel is formed by affixing a permanent, rigid, color-coded nylon insulating sleeve to the barrel. The insulation has a funnel entrance into the electrical barrel that eliminates wire strand "fold back," increases crimping rates and enhances wire termination.

Nylakrimp terminals withstand continuous operating temperatures of -55 to 105˚C (-67 to 221˚F). Available in wire range 4/0 to 8 AWG.

AVIKRIMP®

This color-coded barrel style offers you the ultimate in high-performance terminal design and rugged construction. The Tin-plated Brass sleeve strengthens the barrel and secures the wire to protect against stress and high vibration. The color-coded nylon insulating sleeve extends beyond the metal support sleeve. A funnel ferrule wire entrance into the electrical barrel prevents wire strand "fold back" for increased crimping rates and added wire termination reliability in the standard barrel length. Wire range 10 to 26 AWG (0.10 to 6.60mm²).

PERMA-SEAL

This is the ultimate in terminations and splicing. The insulation is a nylon shrink tubing with an inner wall of hot-melt adhesive. After the wire is crimped, heat is applied and the insulation shrinks and melts to give the crimp area a complete environmental seal. Wire range 10 to 22 AWG (0.10 to 6.60mm²).

EYELET

Our color-coded eyelet terminals can be used in place of standard compression terminals because they are deep drawn from CDA-110 electrolytic tough pitch Copper stock and then Tin plated for corrosion resistance. Combined with seamless barrels and pad, these parts are extra tough and reliable.

OPEN BARREL STRIP

Quick Disconnects, Rings and Star Rings are available on metal "T" carried strip. These parts feature open barrels with an insulation support and are made of Brass.

94V-0 TERMINALS

These terminals are used extensively in the telecommunications industry. 94V-0 parts consist of a PVC-insulated Avikrimp part. The PVC insulation has a 94V-0 Flammability Rating and an Oxygen Index Rating above 28%. These terminals exceed all UL and Bellcore requirements. Contact the factory for more information.

Tongue Styles

RING

The basic tongue type. It is the safest and most reliable because it cannot be disconnected unless the screw is completely removed.

SPADE

The open tongue end is for rapid insertion on the mounting screw. The spade is usually used on free standing studs.

BLOCK SPADE

This tongue style is similar to the spade. However, note the longer and flatter sides. Block Spades are designed for use in terminal blocks.

SNAP SPADE

The spring-like tongue snaps around the screw like a Quick Disconnect and the terminal is locked into place until the mounting screw can be tightened down.

FLANGED SPADE

The turned up edges give this spade more safety and reliability. The flanges also give both a location and locking action that aid greatly in installation.

HOOK

This tongue type combines the security advantage of the ring with the easy-handling characteristics of the spade.

STAR RING

This tongue style is a ring with serrated edges that bite into the applied surface insuring a good connection or ground.

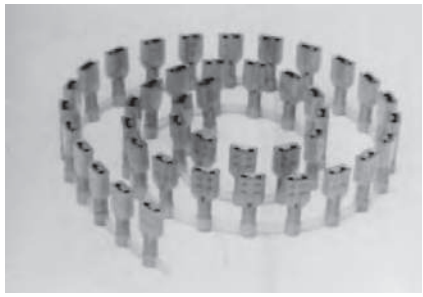
Solderless Terminals, Splices and Quick Disconnects

METAL STRIP

Quick Disconnects are available on a continuous metal carrier. They are made in the traditional "T" carrier.

MYLAR TAPE CARRIER

Most Molex terminals in the 2 to 26 AWG wire range can be tape-mounted.



CONTINUOUS MOLDED STRIP

The fully insulated line of Quick Disconnects is also available in easy-to-identify, color-coded, continuous molded nylon strips.

Special reel sizes available upon request. For high-speed, volume production crimping, many companies in a wide range of industries have come to rely on Molex Metal Strip, Tape-Mounted, and Continuous Molded Strip terminals and automatic crimping presses to give them the highest quality end-product at the lowest applied cost.

Splices

Molex offers standard and special splices for nearly every type of wiring need.

BUTT SPLICE
Stripped wires are inserted from each end and "butt" in the center. Then a crimp at each end secures the connection.

NYLON CLOSED-END CONNECTOR
Used in a wide variety of situations to "pigtail" or tie together 2 or more wires.

MULTI-LOCK
These color-coded connectors make quick, reliable and pre-insulated splices without stripping, twisting, soldering or the need for special tools.

STEP DOWN BUTT SPLICE
The Step Down Butt Splice is the perfect solution when 2 wires need to be inserted in one end of a splice and a single wire in the other end.

FUNNEL ENTRY BUTT SPLICE
In the past, the crimping of machine terminated butt splices has been difficult and nearly impossible if attempted on a piece of robotic equipment. Now, with our new Funnel Entry Butt Splice, the end that will be crimped by the crimping press is funneled to allow quick and easy wire insertion.

PARALLEL SPLICE
Stripped wires lie side-by-side in the splice and are secured by a single crimp in the middle.

AVIKRIMP® BUTT SPLICE
With the extra metal sleeve and nylon insulation, these splices should be used when heavy vibration is anticipated and a strong strain relief is needed.

WIRE TAP
The quick and easy way to splice into a wire.

WINDOW BUTT SPLICE
QPL'd to Mil-T-7928/5

Perma-Seal™ All-Weather Heat-Sealable Terminals and Splices

Perma-Seal terminals and splices provide a rugged, environmentally sealed connection for wire sizes 8 to 22 AWG that will insulate, seal and protect joints from physical abuse and abrasion, water, salt and other corrosive compounds.

Waterproof Adhesive Seal

Perma-Seal terminals and splices give you long-lasting, moisture-proof connections that withstand water, salt, condensation, corrosion and heat, which cause serious problems for conventional, unsealed splices. The inner wall of the heat-shrinkable Perma-Seal sleeve is lined with a special hot-melt adhesive that is inert at room temperature, permitting wires to be inserted easily into the splices and terminals. As the sleeve is heated, the adhesive melts and flows under pressure from the tubing. This action creates a voidless seal that repels moisture incursion even during pressure cycling, and stands up to some of the most rigorous tests that can be applied to high-performance splices, including full immersion for 24 hours at room temperature in gasoline, battery acid, diesel fuel, motor oil, antifreeze, brake fluid, trichloroethylene and 5% soft water.

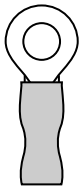
Tough and Durable

The tough sleeve of Perma-Seal splices and terminals resists abrasion and cutting. This protection helps to maintain the insulation and sealing properties even in the most hostile environments, not to mention an unbeatable strain relief.

Physical

Material: Terminal—Copper Alloy
Insulation—NiAc™
Plating: Tin

Terminals



Ring

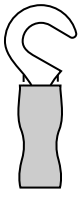
Ring

Wire Range AWG (mm²)	Stud Size	Order No.		Lead-free
		Loose Piece	Mylar Tape	
18-22 (0.96-0.38)	6	19164-0085		Yes
	8	19164-0086	19164-0419	
	10	19164-0003	19164-0306	
	1/4	19164-0004	19164-0844	
	3/8	19164-0005	19164-0845	
14-16 (1.94-1.23)	6	19164-0032	19164-0310	
	8	19164-0033	19164-0311	
	10	19164-0034	19164-0312	
	1/4	19164-0026	19164-0308	
	5/16	19164-0027	19164-0309	
	3/8	19164-0020	19164-0307	
10-12 (5.01-3.09)	6	19164-0061		
	8	19164-0062		
	10	19164-0065	19164-0316	
	1/4	19164-0066	19164-0317	
	5/16	19164-0067	19164-0318	
	3/8	19164-0068		
	1/2	19164-0058		
8 (7.96)	10	19164-0080	19164-0602	
	1/4	19164-0081	19164-0603	
	5/16	19164-0083	19164-0605	
	3/8	19164-0082	19164-0604	
	1/2	19164-0457		

Spade

Spade

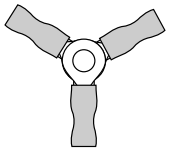
Wire Range AWG (mm²)	Stud Size	Order No.	Lead-free
18-22 (0.96-0.38)	6	19164-0006	Yes
	8	19164-0007	
	10	19164-0008	
14-16 (1.94-1.23)	6	19164-0028	
	8	19164-0029	
	10	19164-0030	
10-12 (5.01-3.09)	6	19164-0069	
	8	19164-0070	
	10	19164-0072	
	1/4	19164-0073	



Hook

Hook

Wire Range AWG (mm²)	Stud Size	Order No.s	Lead-free
14-16 (1.94-1.23)	10	19164-0021	Yes



3-Way

3-Way

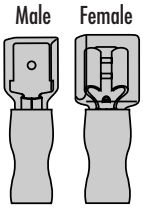
Wire Range AWG (mm²)	Order No.	Lead-free
18-22 (0.96-0.38)	19164-0011	Yes
14-16 (1.94-1.23)	19164-0042	
10-12 (5.01-3.09)	19164-0074	

Perma-Seal™ All-Weather Heat-Sealable Splices

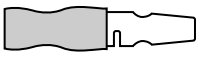
Butt Splice

Step Down Butt

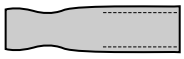
Quick Disconnects



Quick Disconnect Couplers



Snap Plug



Snap Plug Receptacle

Butt Splices

Physical
Material: Splice—Copper
Insulation—NiAc™
Plating: Tin

Wire Range AWG (mm²)	Order No.		Lead-free
	Loose Piece	Mylar Tape	
18-22 (0.96-0.38)	19164-0013	19164-0014	Yes
14-16 (1.94-1.23)	19164-0044	19164-0045	
10-12 (5.01-3.09)	19164-0056	19164-0057	
8 (7.96)	19164-0079		

Step Down Butt

Wire Range AWG (mm²)	Order No.	Lead-free
14-16 (1.94-1.23) to 18-22 (0.96-0.38)	19164-0043	Yes
10-12 (5.01-3.09) to 14-16 (1.94-1.23)	19164-0077	

Quick Disconnects

Physical
Material: Terminal—Brass
Insulation—NiAc™
Plating: Tin

Wire Range AWG (mm²)	Fits Tab Size (in.)	Order No.	Lead-free
18-22 (0.96-0.38)	6.35 by 0.81 (.250 by .032)	19164-0012	Yes
14-16 (1.94-1.23)	6.35 by 0.81 (.250 by .032)	19164-0047	
10-12 (5.01-3.09)	6.35 by 0.81 (.250 by .032)	19164-0059	

Quick Disconnect Couplers

Physical
Terminal Material: Male—Copper
Female—Brass
Insulation— NiAc™
Plating: Tin

Wire Range AWG (mm²)	Tab Size	Order No.				Lead-free
		Loose Piece		Mylar Tape		
		Male	Female	Male	Female	
18-22 (0.96-0.38)	6.35 by 0.81 (.250 by .032)	19164-0015	19164-0017	19164-0016	19164-0018	Yes
14-16 (1.94-1.23)	6.35 by 0.81 (.250 by .032)	19164-0048	19164-0050	19164-0049	19164-0051	
10-12 (5.01-3.09)	6.35 by 0.81 (.250 by .032)	19164-0075	19164-0076		19164-0305	

Snap Plug

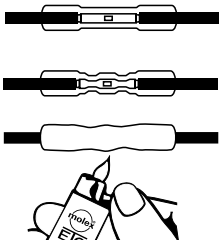
Physical
Material: Terminal-Copper Alloy
Insulation- NiAc™
Plating: Tin

Wire Range AWG (mm²)	Diameter	Order No.		Lead-free
		Loose Piece	Mylar Tape	
18-22 (0.96-0.38)	3.96 (.156)	19164-0010	19164-0807	Yes
14-16 (1.94-1.23)	3.96 (.156)	19164-0040	19164-0315	

Snap Plug Receptacle

Wire Range AWG (mm²)	Diameter	Order No.		Lead-free
		Loose Piece	Mylar Tape	
18-22 (0.96-0.38)	3.96 (.156)	19164-0052		Yes
	4.57 (.180)	19164-0053		
14-16 (1.94-1.23)	3.96 (.156)	19164-0054	19164-0414	
	4.57 (.180)	19164-0055		

Simple Installation



Select the correct splice size for the wire gauge. Strip the wires 7.60mm (.300") from the end and insert into the crimp barrel.

Making sure the wire end is properly seated, make the crimp connection using a tool designed for insulated splices.

Apply heat directly to the splice, working from the center out to the edges, using a hot air gun or other heat source, until the tubing shrinks and the adhesive flows. Allow to cool before inspecting splice and checking the integrity.

Perma-Seal only needs a temperature of 90˚C to shrink.

Temp-Terms
Ring Tongue Terminals

Reliable terminations for high-temperature applications. Extreme thermal environments for electrical and electronic circuitry demand Molex TEMP-TERMS. Their consistent, high quality and rugged reliability assure your product's proper performance even at temperatures up to 649°C (1200°F). TEMP-TERMS are designed and value-engineered for three different high ambient temperature ranges: 343°, 483° and 649°C (650°, 900° and 1200°F, respectively). The terminals and splices in each range are fabricated from different materials to obtain maximum thermal performance at optimum initial and installed costs.

343°C Temp-Terms (650°F)

VersaKrimp™
Operating conditions in this maximum temperature range calls for Molex 343°C (650°F) TEMP-TERMS terminals and splices. Both terminals and splices are constructed of nickel-plated copper and are available in the VersaKrimp barrel style.

Physical
Material: Copper
Plating: Nickel

483°C Temp-Terms (900°F)

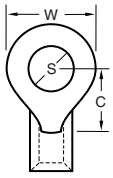
Krimptite™
Molex also offers a line of terminals designed to perform satisfactorily in ambient operating temperature ranges up to 483°C (900°F). These nickel-plated, steel alloy products are available in the butted seam, Krimptite™ barrel style. Ring tongue terminals cover the 22 through 10 AWG wire ranges to provide reliable performance time after time even in these hostile temperature environments.

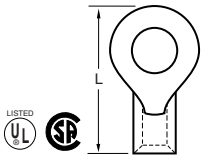
Physical
Material: Steel
Plating: Nickel

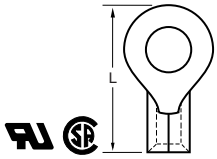
649°C Temp-Terms (1200°F)

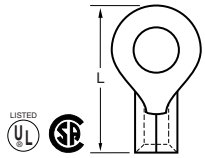
Krimptite™
The ultimate in thermal reliability is afforded by the Molex 649°C (1200°F) TEMP-TERMS. The ring tongue terminals, which are fabricated from pure nickel, cover the 22 through 10 AWG wire range. These terminals have the butted seam Krimptite™ barrel.

Physical
Material: Nickel
Plating: Nickel









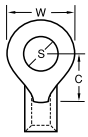
Basic Dimensions				343°C (650°F) VersaKrimp™			483°C (900°F) Krimptite™			649°C (1200°F) Krimptite™			Lead-free
Wire Range AWG (mm²)	Stud Size (S)	Maximum Width (W)	Minimum Clearance (C)	Order No. Loose Piece	Order No. Mylar Tape	Maximum Length (L)	Order No. Loose Piece	Order No. Mylar Tape	Maximum Length (L)	Order No. Loose Piece	Order No. Mylar Tape	Maximum Length (L)	
18-22 (0.96-0.38)	5-6	6.7 (.264)	6.1 (.240)				19203-0483	19203-0011	16.8 (.660)				
	8	6.7 (.264)	6.1 (.240)				19203-0485	19203-0014	16.8 (.660)				
	10	7.2 (.283)	6.1 (.240)				19203-0387	19203-0016	17.0 (.670)	19203-0034	19203-0035	.591 (15.0)	
	1/4	12.1 (.477)	9.8 (.386)				19203-0486	19203-0005	23.2 (.914)				
14-16 (1.94-1.23)	5-6	6.6 (.260)	5.3 (.209)				19203-0489	19203-0043	16.2 (.639)	19203-0077	19203-0078	.560 (14.2)	
		8.2 (.322)	7.0 (.275)				19203-0488	19203-0048	18.4 (.725)				
	8	8.2 (.322)	7.0 (.275)				19203-0470	19203-0050	18.4 (.725)	19203-0083	19203-0084	.640 (16.3)	
	10	8.2 (.322)	7.0 (.275)	19203-0063	19203-0064	16.3 (.640)	19203-0388	19203-0052	18.4 (.725)	19203-0085	19203-0086	.640 (16.3)	Yes
	1/4	12.1 (.477)	9.9 (.388)	19203-0148	19203-0058	21.2 (.837)	19203-0490	19203-0045	23.3 (.916)				
10-12 (5.01-3.09)	5-6	9.8 (.385)	7.7 (.303)				19203-0493	19203-0092	19.9 (.785)				
	8	9.8 (.385)	7.7 (.303)	19203-0156	19203-0098	19.9 (.785)	19203-0494		19.9 (.785)				
	10	9.8 (.385)	7.7 (.303)	19203-0099	19203-0100	19.9 (.785)	19203-0389	19203-0094	19.9 (.785)	19203-0113	19203-0114	.785 (19.9)	
	1/4	13.7 (.540)	10.0 (.393)	19203-0182	19203-0101	24.2 (.952)	19203-0495	19203-0095	24.2 (.952)	19203-0161			
	5/16	13.7 (.540)	10.0 (.393)				19203-0496	19203-0096	24.2 (.952)				
	3/8	13.7 (.540)	14.4 (.566)	19203-0158	19203-0103	26.8 (1.056)							

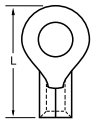
IMPORTANT: The 343°C (650°F) TEMP-TERMS cataloged above represent only the more popular terminals and splices in the 22 through 10 AWG wire ranges.
Other 343°C (650°F) TEMP-TERMS are available. Contact your Molex Customer Service Representative for more information.

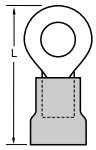
Ring Tongue Terminals

LISTED UL SP

Physical
Material: Copperr





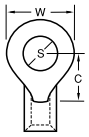


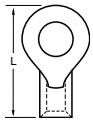
Wire Range AWG (mm²)	Stud Size (S)	Dimension		Krimptite™			InsulKrimp™—PVC Insulation			Lead-free
		Min. Clearance (C)	Max. Width (W)	Order No.		Max. Length (L)	Order No.		Max. Length (L)	
				Loose Piece	Mylar Tape		Loose Piece	Mylar Tape		
24-26 (0.22-0.13)	0	3.10 (.121)	3.80 (.150)	19069-0369	19069-0407	9.30 (.366)				
	2	3.10 (.121)	3.80 (.150)	19069-0370	19069-0371	9.30 (.366)				
		5.50 (.215)	5.40 (.213)	19069-0352	19069-0353	12.50 (.492)				
		5.50 (.215)	3.80 (.150)	19069-0358	19069-0405	11.70 (.460)				
	4	5.50 (.215)	5.40 (.213)	19069-0354	19069-0355	12.50 (.492)				
	6	5.50 (.215)	5.40 (.213)	19069-0356	19069-0357	12.50 (.492)				
		7.40 (.290)	6.60 (.260)	19069-0361	19069-0362	15.00 (.590)				
	8	7.40 (.290)	6.60 (.260)	19069-0363	19069-0364	15.00 (.590)				
	10	7.40 (.290)	6.60 (.260)	19069-0365	19069-0406	15.00 (.590)				
18-22 (0.96-0.38)	1-2	3.90 (.157)	6.00 (.235)	19069-0027	19069-0028	12.30 (.484)	19070-0005	19070-0006	18.00 (.709)	
	3-4	4.40 (.173)	5.00 (.197)	19069-0025	19069-0026	12.40 (.490)				
		3.90 (.157)	6.00 (.235)	19069-0029	19069-0030	12.30 (.484)	19070-0007	19070-0008	18.00 (.709)	
		6.10 (.240)	6.70 (.264)	19069-0052	19069-0053	14.80 (.582)	19070-0038	19070-0039	20.50 (.807)	
	5-6	3.90 (.157)	6.00 (.235)	19069-0031	19069-0032	12.30 (.484)	19070-0009	19070-0010	18.00 (.709)	
		6.10 (.240)	6.70 (.264)	19069-0054	19069-0055	14.80 (.582)	19070-0040	19070-0042	20.50 (.807)	
		7.60 (.300)	8.20 (.322)	19069-0033	19069-0034	17.00 (.671)	19070-0011	19070-0012	22.80 (.896)	
	8	6.10 (.240)	6.70 (.264)	19069-0056	19069-0057	14.80 (.582)	19070-0044	19070-0045	20.50 (.807)	
		7.60 (.300)	8.20 (.322)	19069-0035	19069-0036	17.00 (.671)	19070-0013	19070-0014	22.80 (.896)	
	10	6.10 (.240)	7.20 (.283)	19069-0061	19069-0062	15.00 (.591)	19070-0051	19070-0052	20.70 (.816)	
		7.60 (.300)	8.20 (.322)	19069-0037	19069-0038	17.00 (.671)	19070-0015	19070-0017	22.80 (.896)	
		9.80 (.386)	12.10 (.477)	19069-0040	19069-0041	21.20 (.835)	19070-0021	19070-0022	26.90 (1.060)	
	1/4	9.80 (.386)	12.10 (.477)	19069-0042	19069-0044	21.20 (.835)	19070-0023	19070-0024	26.90 (1.060)	
	5/16	9.80 (.386)	12.10 (.477)	19069-0045	19069-0046	21.20 (.835)	19070-0026	19070-0027	26.90 (1.060)	
	3/8	14.00 (.552)	13.80 (.544)	19069-0049	19069-0050	26.30 (1.034)	19070-0033	19070-0035	31.90 (1.259)	
14-16 (1.94-1.23)	1-2	5.30 (.209)	6.60 (.260)	19069-0098	19069-0134	14.20 (.560)	19070-0065	19070-0066	19.90 (.785)	Yes
	3-4	5.30 (.209)	6.00 (.260)	19069-0099	19069-0100	14.20 (.560)	19070-0067	19070-0068	19.90 (.785)	
	5-6	5.30 (.209)	6.60 (.260)	19069-0101	19069-0102	14.20 (.560)	19070-0069	19070-0070	19.90 (.785)	
		7.00 (.275)	8.20 (.322)	19069-0112	19069-0113	16.30 (.640)	19070-0083	19070-0084	22.00 (.865)	
	8	5.30 (.209)	6.60 (.260)	19069-0103	19069-0104	14.20 (.560)	19070-0071	19070-0072	19.90 (.785)	
		7.00 (.275)	8.20 (.322)	19069-0114	19069-0115	16.30 (.640)	19070-0086	19070-0087	22.00 (.865)	
		7.90 (.310)	8.90 (.352)	19069-0121	19069-0122	17.70 (.696)	19070-0099	19070-0100	23.40 (.921)	
	10	7.00 (.275)	8.20 (.322)	19069-0116	19069-0117	16.30 (.640)	19070-0090	19070-0092	22.00 (.865)	
		7.90 (.310)	8.90 (.352)	19069-0123	19069-0124	17.70 (.696)	19070-0102	19070-0104	23.40 (.921)	
		9.90 (.388)	12.10 (.477)	19069-0105	19069-0106	21.20 (.837)	19070-0073	19070-0074	26.10 (1.062)	
	1/4	9.90 (.388)	12.10 (.477)	19069-0107	19069-0108	21.20 (.837)	19070-0075	19070-0076	26.10 (1.062)	
	5/16	9.90 (.388)	12.10 (.477)	19069-0109	19069-0110	21.20 (.837)	19070-0078	19070-0079	26.10 (1.062)	
		13.60 (.535)	13.80 (.544)	19069-0096	19069-0097	25.70 (1.010)	19070-0063	19070-0064	31.40 (1.235)	
	3/8	13.60 (.535)	13.80 (.544)	19069-0093	19069-0094	25.70 (1.010)	19070-0059	19070-0061	31.40 (1.235)	
14-16 (1.94-1.23) Heavy Duty (Also suitable for 12 AWG)	5-6	7.70 (.303)	9.80 (.385)	19044-0161		19.90 (.785)	19054-0090	19054-0091	27.30 (1.076)	
	8	7.70 (.303)	9.80 (.385)	19044-0162		19.90 (.785)	19054-0092	19054-0093	27.30 (1.076)	
	10	7.70 (.303)	9.80 (.385)	19044-0163	19044-0164	19.90 (.785)	19054-0094	19054-0095	27.30 (1.076)	
		10.00 (.393)	13.70 (.540)	19044-0166		24.20 (.952)	19054-0096	19054-0021	31.60 (1.243)	
	1/4	10.00 (.393)	13.70 (.540)	19044-0167	19044-0023	24.20 (.952)	19054-0097		31.60 (1.243)	
	5/16	10.00 (.393)	13.70 (.540)	19044-0168	19044-0024	24.20 (.952)	19054-0098	19054-0099	31.60 (1.243)	
		11.80 (.466)	13.70 (.540)	19044-0186	19044-0187	26.80 (1.056)			31.60 (1.243)	
	3/8	11.80 (.466)	13.70 (.540)	19044-0184	19044-0185	26.80 (1.056)	19054-0126	19054-0127	34.20 (1.347)	
		15.50 (.611)	19.30 (.760)	19044-0140		32.50 (1.280)	19054-0066	19054-0068	39.90 (1.571)	
	7/16	15.50 (.611)	19.30 (.760)	19044-0142	19044-0229	32.50 (1.280)	19054-0070	19054-0071	39.90 (1.571)	
	1/2	15.50 (.611)	19.30 (.760)	19044-0137	19044-0138	32.50 (1.280)	19054-0063	19054-0064	39.90 (1.571)	
10-12(5.00-3.30)	5-6	7.80 (.306)	7.40 (.292)	19069-0230	19069-0232	18.80 (.741)	19070-0143	19070-0144	26.20 (1.032)	
		7.70 (.303)	9.80 (.385)	19069-0202		19.90 (.785)	19070-0119	19070-0120	27.30 (1.076)	
	8	7.80 (.306)	7.40 (.292)	19069-0233	19069-0235	18.80 (.741)	19070-0145	19070-0146	26.20 (1.032)	
		7.70 (.303)	9.80 (.385)	19069-0205	19069-0208	19.90 (.785)	19070-0121	19070-0122	27.30 (1.076)	
	10	7.70 (.303)	9.80 (.385)	19069-0209	19069-0212	19.90 (.785)	19070-0123	19070-0125	27.30 (1.076)	
		10.00 (.393)	13.70 (.540)	19069-0217	19069-0218	24.20 (.952)	19070-0130	19070-0131	31.60 (1.243)	
		14.40 (.566)	15.20 (.598)	19069-0236		26.80 (1.056)				
	1/4	10.00 (.393)	13.70 (.540)	19069-0219	19069-0221	24.20 (.952)	19070-0132	19070-0133	31.60 (1.243)	
		14.40 (.566)	15.20 (.598)	19069-0238	19069-0240	26.80 (1.056)	19070-0150	19070-0151	34.20 (1.347)	
	5/16	10.00 (.393)	13.70 (.540)	19069-0223	19069-0225	24.20 (.952)	19070-0136	19070-0137	31.60 (1.243)	
		14.40 (.566)	15.20 (.598)	19069-0244	19069-0246	26.80 (1.056)	19070-0155	19070-0156	34.20 (1.347)	
	3/8	14.40 (.566)	15.20 (.598)	19069-0241	19069-0243	26.80 (1.056)	19070-0153	19070-0154	34.20 (1.347)	
		15.50 (.611)	19.30 (.760)	19069-0196	19069-0145	32.50 (1.280)			39.90 (1.571)	
	7/16	15.50 (.611)	19.30 (.760)	19069-0198	19069-0146	32.50 (1.280)	19070-0115	19070-0116	39.90 (1.571)	
	1/2	15.50 (.611)	19.30 (.760)	19069-0192	19069-0194	32.50 (1.280)	19070-0109	19070-0110	39.90 (1.571)	

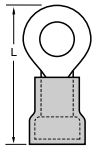
Ring Tongue Terminals

LISTED

Physical
Material: Copperr







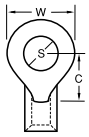
Wire Range AWG (mm²)	Stud Size (S)	Dimension		VersaKrimp™			Avikrimp™—Nylon Insulation			Lead-free
		Min. Clearance (C)	Max. Width (W)	Order No.		Max. Length (L)	Order No.		Max. Length (L)	
				Loose Piece	Mylar Tape		Loose Piece	Mylar Tape		
18-22 (0.96-0.38)	1-2	3.90 (.157)	6.00 (.235)				19073-0005	19073-0006	18.00 (.709)	Yes
	3-4	4.40 (.173)	5.00 (.197)				19073-0003	19073-0004	18.20 (.715)	
		3.90 (.157)	6.00 (.235)	19193-0007	19193-0008	12.30 (.484)	19073-0007	19073-0008	18.00 (.709)	
		6.10 (.240)	6.70 (.264)				19073-0036	19073-0037	20.50 (.807)	
	5-6	3.90 (.157)	6.00 (.235)	19193-0009	19193-0011	12.30 (.484)	19073-0009	19073-0010	18.00 (.709)	
		6.10 (.240)	6.70 (.264)	19193-0034	19193-0035	14.80 (.582)	19073-0038	19073-0040	20.50 (.807)	
		7.60 (.300)	8.20 (.322)	19193-0012	19193-0013	17.00 (.671)	19073-0011	19073-0012	22.80 (.896)	
	8	6.10 (.240)	6.70 (.264)	19193-0036	19193-0037	14.80 (.582)	19073-0042	19073-0043	20.50 (.807)	
		7.60 (.300)	8.20 (.322)	19193-0014	19193-0015	17.00 (.671)	19073-0013	19073-0015	22.80 (.896)	
	10	6.10 (.240)	7.20 (.283)	19193-0041	19193-0042	15.00 (.591)	19073-0049	19073-0050	20.70 (.816)	
		7.60 (.300)	8.20 (.322)	19193-0016	19193-0017	17.00 (.671)	19073-0017	19073-0019	22.80 (.896)	
	1/4	9.80 (.386)	12.10 (.477)	19193-0021	19193-0022	21.20 (.835)	19073-0024	19073-0026	26.90 (1.060)	
	5/16	9.80 (.386)	12.10 (.477)	19193-0023	19193-0024	21.20 (.835)	19073-0027	19073-0028	26.90 (1.060)	
	3/8	14.00 (.552)	13.80 (.544)				19073-0032	19073-0033	31.90 (1.259)	
14-16 (1.94-1.23)	1-2	5.30 (.209)	6.60 (.260)	19193-0062	19193-0063	14.20 (.560)				
	3-4	5.30 (.209)	6.00 (.260)				19073-0065	19073-0066	22.30 (.880)	
	5-6	5.30 (.209)	6.60 (.260)				19073-0067	19073-0070	22.30 (.880)	
		7.00 (.275)	8.20 (.322)	19193-0078	19193-0079	16.30 (.640)	19073-0083	19073-0084	22.30 (.880)	
	8	5.30 (.209)	6.60 (.260)				19073-0072	19073-0073	22.30 (.880)	
		7.00 (.275)	8.20 (.322)	19193-0080	19193-0081	16.30 (.640)	19073-0085	19073-0086	22.30 (.880)	
		7.90 (.310)	8.90 (.352)	19193-0089	19193-0090	17.70 (.696)	19073-0094	19073-0096	23.80 (.936)	
	10	7.00 (.275)	8.20 (.322)	19193-0082	19193-0083	16.30 (.640)	19073-0087	19073-0088	22.30 (.880)	
		7.90 (.310)	8.90 (.352)	19193-0091	19193-0092	17.70 (.696)	19073-0097	19073-0099	23.80 (.936)	
		9.90 (.388)	12.10 (.477)				19073-0074	19073-0075	27.40 (1.077)	
	1/4	9.90 (.388)	12.10 (.477)	19193-0072	19193-0073	21.20 (.837)	19073-0076	19073-0077	27.40 (1.077)	
	5/16	9.90 (.388)	12.10 (.477)	19193-0074	19193-0075	21.20 (.837)	19073-0079	19073-0080	27.40 (1.077)	
		13.60 (.535)	13.80 (.544)				19073-0061	19073-0062	31.80 (1.250)	
	3/8	13.60 (.535)	13.80 (.544)	19193-0057	19193-0058	25.70 (1.010)	19073-0059	19073-0060	31.80 (1.250)	
14-16 (1.94-1.23) Heavy Duty (Also suitable for 12 AWG)	8	7.70 (.303)	9.80 (.385)				19058-0041		27.70 (1.091)	
	10	7.70 (.303)	9.80 (.385)				19058-0047	19058-0050	27.70 (1.091)	
		10.00 (.393)	13.70 (.540)					19058-0060	32.00 (1.258)	
	1/4	10.00 (.393)	13.70 (.540)				19058-0063	19058-0068	32.00 (1.258)	
	5/16	10.00 (.393)	13.70 (.540)				19058-0072	19058-0077	32.00 (1.258)	
	3/8	11.80 (.466)	15.20 (.598)				19058-0117	19058-0119	34.60 (1.362)	
	7/16	15.50 (.611)	19.30 (.760)				19058-0026		40.30 (1.586)	
	1/2	15.50 (.611)	19.30 (.760)				19058-0016		40.30 (1.586)	

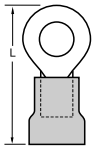
Wire Range AWG (mm²)	Stud Size (S)	Dimension		VersaKrimp™			Avikrimp™—Nylon Insulation					Lead-free
		Min. Clearance (C)	Max. Width (W)	Order No.		Max. Length (L)	Order No.				Max.Length (L)	
				Loose Piece	Mylar Tape		Loose Piece	Mylar Tape	Expanded Flare*	Expanded Flare on Mylar Tape*		
10-12 (5.01-3.09)	5-6	7.80 (.306)	7.40 (.292)	19193-0128	19193-0129	18.80 (.741)	19073-0216	19073-0218	19073-0220	19073-0221	27.00 (1.047)	Yes
		7.70 (.303)	9.80 (.385)	19193-0103	19193-0105	19.90 (.785)	19073-0160	19073-0162	19073-0163	19073-0164	27.70 (1.091)	
	8	7.80 (.306)	7.40 (.292)	19193-0130	19193-0131	18.80 (.741)	19073-0222	19073-0224	19073-0225	19073-0226	27.00 (1.047)	
		7.70 (.303)	9.80 (.385)	19193-0106	19193-0108	19.90 (.785)	19073-0165	19073-0167	19073-0168	19073-0169	27.70 (1.091)	
	10	7.70 (.303)	9.80 (.385)	19193-0109	19193-0111	19.90 (.785)	19073-0170	19073-0172	19073-0173	19073-0174	27.70 (1.091)	
		10.00 (.393)	13.70 (.540)	19193-0114	19193-0115	24.20 (.952)	19073-0179	19073-0180	19073-0181	19073-0184	32.00 (1.258)	
		11.80 (.466)	15.20 (.598)				19073-0227	19073-0228	19073-0229	19073-0230	34.60 (1.362)	
	1/4	10.00 (.393)	13.70 (.540)	19193-0116	19193-0118	24.20 (.952)	19073-0188	19073-0190	19073-0191	19073-0194	32.00 (1.258)	
		11.80 (.466)	15.20 (.598)	19193-0134	19193-0135	26.80 (1.056)	19073-0231	19073-0232	19073-0233	19073-0234	34.60 (1.362)	
	5/16	10.00 (.393)	13.70 (.540)	19193-0120	19193-0122	24.20 (.952)	19073-0200	19073-0201	19073-0202	19073-0205	32.00 (1.258)	
		11.80 (.466)	15.20 (.598)	19193-0141	19193-0142	26.80 (1.056)	19073-0242	19073-0243	19073-0244	19073-0245	34.60 (1.362)	
	3/8	11.80 (.466)	15.20 (.598)	19193-0137	19193-0139	26.80 (1.056)	19073-0236	19073-0237	19073-0238	19073-0239	34.60 (1.362)	
		15.50 (.611)	19.30 (.760)	19193-0097		32.50 (1.280)						
	7/16	15.50 (.611)	19.30 (.760)	19193-0099	19193-0100	32.50 (1.280)						
	1/2	15.50 (.611)	19.30 (.760)	19193-0094	19193-0095	32.50 (1.280)	19073-0145	19073-0146	19073-0147		40.30 (1.586)	

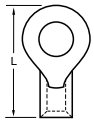
* For use with heavier wire insulation. Max. wire insulation 6.50mm (.255").

Ring Tongue Terminals

Physical
Material: Copperr

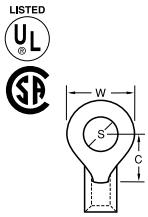




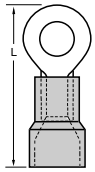


Wire Range AWG (mm²)	Stud Size (S)	Dimension		InsulKrimp™ – PVC Insulation			VersaKrimp™			Lead-free
		Min. Clearance (C)	Max. Width (W)	Order No.		Max. Length (L)	Order No.		Max. Length (L)	
				Loose Piece	Mylar Tape		Loose Piece	Mylar Tape		
8 (7.96)	6	9.40 (.368)	9.90 (.389)	19071-0176	19071-0177	31.80 (1.252)	19193-0198	19193-0199	23.80 (.937)	
	8	9.40 (.368)	12.30 (.483)	19071-0134	19071-0135	33.00 (1.299)	19193-0146	19193-0148	25.00 (.984)	
		9.40 (.368)	9.90 (.389)	19071-0178	19071-0179	31.80 (1.252)	19193-0200	19193-0201	23.80 (.937)	
	10	9.40 (.368)	12.30 (.483)	19071-0136	19071-0139	33.00 (1.299)	19193-0149	19193-0151	25.00 (.984)	
		11.00 (.433)	15.30 (.603)	19071-0146	19071-0147	36.10 (1.421)	19193-0159	19193-0162	28.10 (1.106)	
		9.40 (.368)	9.90 (.389)	19071-0180	19071-0181	31.80 (1.252)	19193-0202	19193-0203	23.80 (.937)	
	1/4	9.40 (.368)	12.30 (.483)	19071-0140	19071-0143	33.00 (1.299)	19193-0152	19193-0155	28.10 (1.106)	
		11.00 (.433)	15.30 (.603)	19071-0148	19071-0149	36.10 (1.421)	19193-0163	19193-0166	28.10 (1.106)	
		9.30 (.368)	9.90 (.389)	19071-0182	19071-0184	31.80 (1.252)	19193-0204	19193-0205	23.80 (.937)	
	5/16	9.40 (.368)	12.30 (.483)	19071-0144	19071-0145	33.00 (1.299)	19193-0157	19193-0158	25.00 (.984)	
		11.00 (.433)	15.30 (.603)	19071-0153	19071-0155	36.10 (1.421)	19193-0171	19193-0174	28.10 (1.106)	
	3/8	11.00 (.433)	15.30 (.603)	19071-0150	19071-0152	36.10 (1.421)	19193-0167	19193-0170	28.10 (1.106)	
		15.60 (.616)	21.00 (.825)	19071-0162		42.60 (1.718)	19193-0184		35.60 (1.403)	
	7/16	15.60 (.616)	21.00 (.825)	19071-0166		42.60 (1.718)	19193-0187	19193-0189	35.60 (1.403)	
	1/2	15.60 (.616)	21.00 (.825)	19071-0334	19071-0160	42.60 (1.718)	19193-0179	19193-0181	35.60 (1.403)	
	5/8	15.60 (.616)	21.00 (.825)	19071-0164	19071-0165	42.60 (1.718)	19193-0186		35.60 (1.403)	
		25.20 (.993)	29.00 (1.140)	19071-0173		57.20 (2.253)	19193-0195		49.20 (1.938)	
	3/4	25.20 (.993)	29.00 (1.140)				19193-0192		49.20 (1.938)	
6 (13.48)	8	13.20 (.518)	16.40 (.645)				19193-0206		32.20 (1.268)	Yes
		13.20 (.518)	12.30 (.485)	19071-0218	19071-0219	40.50 (1.593)	19193-0243	19193-0244	30.20 (1.188)	
	10	13.20 (.518)	16.40 (.645)	19071-0188	19071-0189	42.50 (1.673)	19193-0209	19193-0211	32.20 (1.268)	
		13.20 (.518)	12.30 (.485)	19071-0221	19071-0223	40.50 (1.593)	19193-0245	19193-0247	30.20 (1.188)	
		15.50 (.610)	21.30 (.837)				19193-0225		37.00 (1.46)	
	1/4	13.20 (.518)	16.40 (.645)	19071-0190	19071-0192	42.50 (1.673)	19193-0212	19193-0215	32.20 (1.268)	
		15.50 (.610)	21.30 (.837)				19193-0229		37.00 (1.456)	
		13.20 (.518)	12.30 (.485)	19071-0225	19071-0227	40.50 (1.593)	19193-0248	19193-0250	30.20 (1.188)	
		25.20 (.991)	28.90 (1.136)				19193-0237		50.60 (1.99)	
	5/16	13.20 (.518)	16.40 (.645)	19071-0196	19071-0198	42.50 (1.673)	19193-0219	19193-0222	32.20 (1.268)	
		13.20 (.518)	12.30 (.485)	19071-0229	19071-0230	40.50 (1.593)	19193-0251	19193-0253	30.20 (1.188)	
		13.20 (.518)	16.40 (.645)	19193-0206		32.20 (1.268)				
		15.50 (.610)	21.30 (.837)				19193-0232		37.00 (1.46)	
		25.20 (.991)	28.90 (1.136)				19193-0240		50.60 (1.99)	
	3/8	13.20 (.518)	16.40 (.645)	19071-0193	19071-0195	42.50 (1.673)	19193-0216	19193-0218	32.20 (1.268)	
		15.50 (.610)	21.30 (.837)				19193-0230	19193-0231	37.00 (1.456)	
		25.20 (.991)	28.90 (1.136)				19193-0239		50.60 (1.99)	
	7/16	15.50 (.610)	21.30 (.837)	19071-0208		47.30 (1.861)	19193-0234		37.00 (1.456)	
		25.20 (.991)	28.90 (1.136)				19193-0242		50.60 (1.99)	
		13.20 (.518)	16.40 (.645)				19193-0223		32.20 (1.27)	
	1/2	15.50 (.610)	21.30 (.837)	19071-0201		47.30 (1.861)	19193-0226	19193-0228	37.00 (1.456)	
		25.20 (.991)	28.90 (1.136)				19193-0236		50.60 (1.99)	
	5/8	15.50 (.610)	21.30 (.837)				19193-0233		37.00 (1.456)	
		25.20 (.991)	28.90 (1.136)				19193-0241		50.60 (1.99)	
	3/4	25.20 (.991)	28.90 (1.136)	19071-0212		50.60 (1.991)	19193-0238		50.60 (1.991)	
4 (21.28)	10	13.40 (.527)	17.30 (.680)	19071-0231		46.70 (1.840)	19193-0254	19193-0257	34.50 (1.357)	
		13.40 (.527)	12.40 (.490)	19071-0250	19071-0252	44.30 (1.744)	19193-0273	19193-0274	32.00 (1.261)	
	1/4	13.40 (.527)	17.30 (.680)	19071-0237		46.70 (1.840)	19193-0261	19193-0263	34.50 (1.357)	
		13.40 (.527)	12.40 (.490)	19071-0253	19071-0254	44.30 (1.744)	19193-0275	19193-0277	32.00 (1.261)	
	5/16	13.40 (.527)	17.30 (.680)	19071-0243	19071-0246	46.70 (1.840)	19193-0267	19193-0269	34.50 (1.357)	
		13.40 (.527)	12.40 (.490)				19193-0278	19193-0280	33.00 (1.261)	
	3/8	13.40 (.527)	17.30 (.680)	19071-0240		46.70 (1.840)	19193-0264	19193-0266	34.50 (1.357)	
		25.30 (.996)	22.90 (.900)				19193-0283		49.10 (1.935)	
	1/2	13.40 (.527)	17.30 (.680)	19071-0234		46.70 (1.840)	19193-0258	19193-0260	34.50 (1.357)	
		25.30 (.996)	22.90 (.900)				19193-0281		49.10 (1.935)	
	5/8	25.30 (.996)	22.90 (.900)				19193-0285		49.10 (1.935)	
		25.30 (.996)	32.40 (1.275)				19193-0293		53.90 (2.123)	
	3/4	25.30 (.996)	32.40 (1.275)				19193-0289		53.90 (2.123)	

Ring Tongue Terminals



Physical
Material: Copper

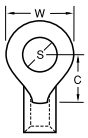


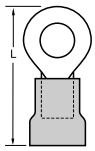
Wire Range AWG (mm²)	Stud Size (S)	Dimension		NylaKrimp™– Nylon Insulation			Lead-free
		Minimum Clearance (C)	Maximum Width (W)	Order No.		Maximum Length (L)	
				Loose Piece	Mylar Tape		
8 (7.96)	6	9.40 (.368)	9.90 (.389)			34.30 (1.352)	Yes
	8	9.40 (.368)	12.30 (.483)	19067-0003	19067-0005	35.50 (1.399)	
		9.40 (.368)	9.90 (.389)	19067-0037	19067-0038	34.30 (1.352)	
	10	9.40 (.368)	12.30 (.483)	19067-0006	19067-0007	35.50 (1.399)	
		11.00 (.433)	15.30 (.603)	19067-0016	19067-0017	38.60 (1.521)	
		9.40 (.368)	9.90 (.389)	19067-0039	19067-0040	34.30 (1.352)	
	1/4	9.40 (.368)	12.30 (.483)	19067-0008	19067-0011	35.50 (1.399)	
		11.00 (.433)	15.30 (.603)	19067-0018	19067-0019	38.60 (1.521)	
		9.30 (.368)	9.90 (.389)	19067-0041	19067-0042	34.30 (1.352)	
	5/16	9.40 (.368)	12.30 (.483)	19067-0012	19067-0013	35.50 (1.399)	
		11.00 (.433)	15.30 (.603)	19067-0025	19067-0026	38.60 (1.521)	
	3/8	11.00 (.433)	15.30 (.603)	19067-0022	19067-0024	38.60 (1.521)	
		15.60 (.616)	21.00 (.825)	19067-0030		46.20 (1.818)	
	7/16	11.00 (.433)	15.30 (.603)	19067-0128	19067-0027	38.60 (1.521)	
		15.60 (.616)	21.00 (.825)	19067-0031		46.20 (1.818)	
	1/2	15.60 (.616)	21.00 (.825)	19067-0028		46.20 (1.818)	
		25.20 (.993)	29.00 (1.140)	19067-0032		59.80 (2.353)	
	5/8	15.60 (.616)	21.00 (.825)	19067-0129		46.20 (1.818)	
		25.20 (.993)	29.00 (1.140)	19067-0034		59.80 (2.353)	
	3/4	25.20 (.993)	29.00 (1.140)	19067-0033		59.80 (2.353)	
6 (13.48)	8	13.20 (.518)	12.30 (.485)	19067-0067	19067-0068	41.20 (1.623)	
	10	13.20 (.518)	16.40 (.645)	19067-0045	19067-0046	43.30 (1.703)	
		13.20 (.518)	12.30 (.485)	19067-0069	19067-0070	41.20 (1.623)	
	1/4	13.20 (.518)	16.40 (.645)	19067-0047	19067-0048	43.30 (1.703)	
		13.20 (.518)	12.30 (.485)	19067-0071	19067-0072	41.20 (1.623)	
	5/16	13.20 (.518)	16.40 (.645)	19067-0055	19067-0056	43.30 (1.703)	
		13.20 (.518)	12.30 (.485)	19067-0073	19067-0074	41.20 (1.623)	
	3/8	13.20 (.518)	16.40 (.645)	19067-0052	19067-0053	43.30 (1.703)	
		15.50 (.610)	21.30 (.837)	19067-0063		48.00 (1.891)	
	7/16	13.20 (.518)	16.40 (.645)	19067-0059	19067-0060	43.30 (1.703)	
		15.50 (.610)	21.30 (.837)	19067-0065		36.20 (1.426)	
	1/2	15.50 (.610)	21.30 (.837)	19067-0061		36.20 (1.426)	
	5/8	15.50 (.610)	21.30 (.837)				
4 (21.28)	10	13.40 (.527)	17.30 (.680)				
		13.40 (.527)	12.40 (.490)	19067-0081		46.50 (1.832)	
	1/4	13.40 (.527)	17.30 (.680)	19067-0077		49.00 (1.928)	
		13.40 (.527)	12.40 (.490)	19067-0082		46.50 (1.832)	
	5/16	13.40 (.527)	17.30 (.680)	19067-0079	19067-0141	49.00 (1.928)	
		13.40 (.527)	12.40 (.490)	19067-0084		46.50 (1.832)	
	3/8	13.40 (.527)	17.30 (.680)	19067-0078		49.00 (1.928)	
	7/16	13.40 (.527)	17.30 (.680)	19067-0080		49.00 (1.928)	
	1/2	13.40 (.527)	17.30 (.680)	19067-0076		49.00 (1.928)	
		25.30 (.996)	22.90 (.900)	19067-0085		63.70 (2.506)	
	5/8	25.30 (.996)	22.90 (.900)	19067-0087		63.70 (2.506)	
		25.30 (.996)	32.40 (1.275)	19067-0089		68.40 (2.694)	
	3/4	25.30 (.996)	32.40 (1.275)	19067-0088		68.40 (2.694)	

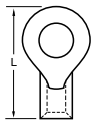
Ring Tongue Terminals

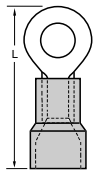
LISTED UL SP

Physical
Material: Copper









Wire Range AWG (mm²)	Stud Size (S)	Dimension		InsulKrimp™– PVC Insulation		VersaKrimp™		Funnel Entry NylaKrimp™ – Nylon Insulation		Lead-free
		Minimum Clearance (C)	Maximum Width (W)	Loose Piece Order No.	Maximum Length (L)	Loose Piece Order No.	Maximum Length (L)	Loose Piece Order No.	Maximum Length (L)	
2 (33.70)	10	17.90 (.703)	16.40 (.645)	19071-0279	53.20 (2.093)	19193-0303	40.20 (1.583)	19067-0095	55.50 (2.186)	
	1/4	17.90 (.703)	22.30 (.879)	19071-0273	56.10 (2.210)	19193-0297	43.20 (1.700)			
		17.90 (.703)	16.40 (.645)	19071-0281	53.20 (2.093)	19193-0305	40.20 (1.583)	19067-0096	55.50 (2.186)	
	5/16	17.90 (.703)	22.30 (.879)			19193-0299	43.20 (1.700)	19067-0093	58.50 (2.303)	
		17.90 (.703)	16.40 (.645)	19071-0285	53.20 (2.093)	19193-0309	40.20 (1.583)	19067-0098	55.50 (2.186)	
	3/8	17.90 (.703)	22.30 (.879)			19193-0298	43.20 (1.700)	19067-0092	58.50 (2.303)	
		17.90 (.703)	16.40 (.645)	19071-0283	53.20 (2.093)	19193-0307	40.20 (1.583)	19067-0097	55.50 (2.186)	
	7/16	17.90 (.703)	22.30 (.879)			19193-0302	43.20 (1.700)	19067-0094	58.50 (2.303)	
	1/2	17.90 (.703)	22.30 (.879)	19071-0272	56.10 (2.210)	19193-0296	43.20 (1.700)	19067-0090	58.50 (2.303)	
	5/8	17.90 (.703)	22.30 (.879)	19071-0277	56.10 (2.210)	19193-0301	43.20 (1.700)	19067-0130	58.50 (2.303)	
		25.10 (.990)	32.30 (1.270)			19193-0611	55.40 (2.183)	19067-0100	70.80 (2.786)	
	3/4	25.10 (.990)	32.30 (1.270)			19193-0320	55.40 (2.183)	19067-0099	70.80 (2.786)	
1/0 (52.95)	1/4	19.10 (.750)	21.30 (.840)	19071-0303	66.80 (2.630)	19193-0330	48.80 (1.920)			
	5/16	19.10 (.750)	21.30 (.840)	19071-0306	66.80 (2.630)	19193-0333	48.80 (1.920)	19067-0104	66.80 (2.628)	
	3/8	19.10 (.750)	21.30 (.840)	19071-0305	66.80 (2.630)	19193-0331	48.80 (1.920)			
		19.10 (.750)	22.90 (.902)			19193-0612	49.60 (1.951)	19067-0101	67.50 (2.659)	
		32.60 (1.282)	32.40 (1.277)					19067-0107	85.80 (3.379)	
	7/16	19.10 (.750)	22.90 (.902)	19071-0302	67.60 (2.661)	19193-0329	49.60 (1.951)	19067-0102	67.50 (2.659)	
	1/2	19.10 (.750)	22.90 (.902)			19193-0325	49.60 (1.951)			
		32.60 (1.282)	32.40 (1.277)					19067-0105	67.50 (2.659)	
	5/8	32.60 (1.282)	32.40 (1.277)					19067-0108	67.50 (2.659)	Yes
	3/4	32.60 (1.282)	32.40 (1.277)					19067-0106	67.50 (2.659)	
2/0 (67.39)	1/4	19.60 (.770)	24.10 (.948)			19193-0342	51.30 (2.019)	19067-0110	69.30 (2.727)	
	5/16	19.60 (.770)	24.10 (.948)	19071-0312	67.40 (2.654)	19193-0346	51.30 (2.019)	19067-0112	69.30 (2.727)	
	3/8	19.60 (.770)	24.10 (.948)	19071-0311	67.40 (2.654)	19193-0345	51.30 (2.019)	19067-0111	69.30 (2.727)	
	7/16	19.60 (.770)	24.10 (.948)	19071-0313	67.40 (2.654)	19193-0348	51.30 (2.019)			
	1/2	19.60 (.770)	24.10 (.948)			19193-0341	51.30 (2.019)	19067-0109	69.30 (2.727)	
		32.40 (1.275)	32.40 (1.275)	19071-0314	84.40 (3.322)	19193-0350	68.20 (2.687)	19067-0114	86.20 (3.395)	
	5/8	32.40 (1.275)	32.40 (1.275)	19071-0340	84.40 (3.322)	19193-0352	68.20 (2.687)			
	3/4	32.40 (1.275)	32.40 (1.275)	19071-0339	84.40 (3.322)	19193-0351	68.20 (2.687)			
3/0 (84.72)	5/16	20.40 (.805)	27.10 (1.067)			19193-0360	54.70 (2.154)			
	3/8	20.40 (.805)	27.10 (1.067)			19193-0358	54.70 (2.154)			
	7/16	20.40 (.805)	27.10 (1.067)							
	1/2	20.40 (.805)	27.10 (1.067)	19071-0315	76.90 (3.029)	19193-0354	54.70 (2.154)			
	5/8	20.40 (.805)	27.10 (1.067)	19071-0319	76.90 (3.029)	19193-0362	54.70 (2.154)	19067-0120	76.40 (3.008)	
	3/4	32.40 (1.274)	32.00 (1.260)	19071-0352	91.30 (3.594)					
4/0 (107.76)	5/16	21.10 (.830)	28.80 (1.135)			19193-0569	52.30 (2.215)	19067-0369	78.30 (3.08)	
	3/8	21.10 (.830)	28.80 (1.135)			19193-0375	52.30 (2.215)	19067-0124	78.30 (3.08)	
	7/16	21.10 (.830)	28.80 (1.135)			19193-0379	52.30 (2.215)	19067-0125	78.30 (3.08)	
	1/2	21.10 (.830)	28.80 (1.135)			19193-0372	52.30 (2.215)	19067-0123	78.30 (3.08)	
	5/8	21.10 (.830)	28.80 (1.135)			19193-0377	52.30 (2.215)	19067-0131	78.30 (3.08)	