



Hot Crimping

of Wires to Cable Shoes or Terminals

Amada Miyachi Europe offers its expertise to all of its customers to correctly match any Hot Crimping application with the right process and equipment.

HOT CRIMPING

Hot crimping is a type of resistance welding that uses electrical current and mechanical pressure to connect electrical conductive wires. It differs from other types of resistance welding because it uses a conductive metal sleeve to pass the current, generate the heat and hold the wires together.

This sleeve fuses the wires and makes one compacted metal part. It can be a cable shoe, a terminal or a simple round sleeve.



The process

The joint is formed using a process that is called diffusion welding. Diffusion welding means the copper is joined because the copper wires and the copper connector fuse together at near-to melt temperature. The material stays in solid phase and never enters the liquid phase. In some cases, like welding aluminium the process changes from diffusion to a melting welding process.

Strength

The hot-crimped joint has very high tensile strength and will not weaken over time due to vibration or temperature, as it is one solid piece of metal. Due to the heating the metal anneals and mechanical stress in the joint is relaxed, thus minimizing stress on the copper in the wire and terminal after the joining process. By eliminating the production step of stripping the isolation, the productivity of making the electrical connections is increased. As there is no stripping, no metal is removed, so maximum strength is guaranteed.

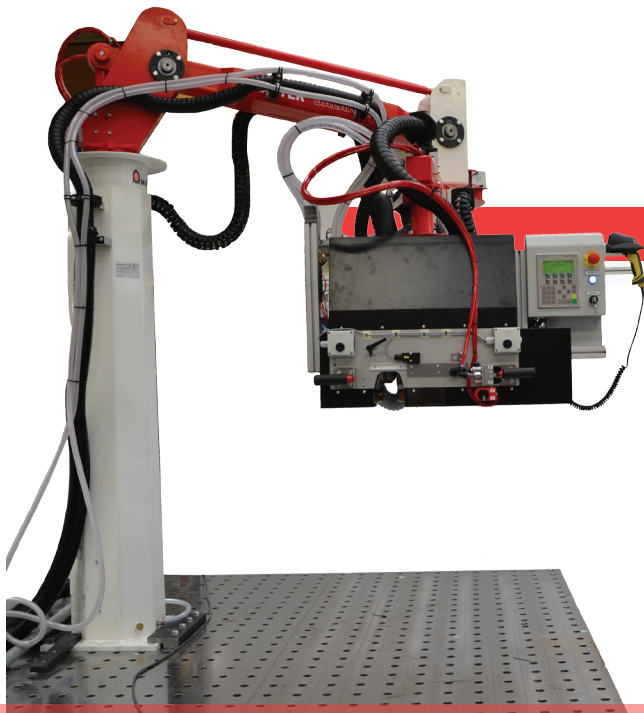
Unique Solution

Unique for our Hot Crimping equipment is the “weld to displacement” functionality. This allows the equipment to be programmed to reach a certain compression (defined in micron or millimeters), upon which the current flow and heating will be switched off. This compensates for part-to-part variation, and lets you program a parameter that is closely related to joint quality.

HOT CRIMPING SYSTEM

The system combines our equipment and expertise on resistance welding and hot crimping balancer handling systems. The handling system enables the positioning of the weld head with transformer above your product. It's handling is extremely easy and secure.

It is a standalone system for manual (un-)loading of the part and with fully automatic process control. With this complete system we can offer a very simple but flexible solution.



HOT CRIMPING SYSTEM FEATURES

- No stripping and no metal is removed so maximum strength is guaranteed
- System designed for high intrinsic value products
- Integrated cooling system to prevent (over-) heating
- Weld to displacement functionality
- Automatic reset for displacement, to compensate for electrode wear and product thickness variations

Easy positioning brings the compactor to the product



Weld Heads, Transformer & Power Supply

A high-force MIYACHI PECO weld head mechanically holds the electrodes. It also feeds the electrical current to the electrodes. Cooling water is applied to cool all components actively to prevent (over-) heating during production.

A MIYACHI PECO power supply and transformer will accurately emit the electrical power that is programmed. All electrical parameters can be guarded and stored by a MIYACHI PECO MG3. The MG3 is the ultimate process monitor for resistance welding and unique for the Amada Miyachi Europe product offering.

TECHNICAL SPECIFICATIONS

Hot crimping system specifications	
Connects copper terminals coated with	tin, nickel or silver
Welds individual wires as thin as	20 mm ²
Welds wire bundles as thick as (stranded or braided)	250 mm ²
High-force MIYACHI PECO weld head	7500 N
Welds at a temperature of about	750 °C
Within few seconds terminal cools down to	50 °C
Power	380 V
Maximum handling lifting capacity	272 kg

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