

Application Example

Battery Cable Assembly for Industrial Electric Vehicle

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SIEVING



Task

The ProEV™ cable, produced by Promark Electronics a Division of Electrical Components International, welded to a Staubli compact PerformMore two-pole connector which is used within an electric drive train.

The ProEV™ 95 mm² cable with 3,000 flexible fine strands of 0.2 mm diameter is used to terminate the Staubli terminal with limited space for the required weld width of 22 mm. The ProEV™ cable was used in this application for its high level of flexibility. The available weld width of just 18 mm as opposed to 22 mm, presented challenges of providing a welding solution within a smaller space where the required weld compaction can be achieved without damages to the finer strands within the weld transition area.

Solution

Telsonic's Torsional PowerWheel® welding system was used to achieve a good quality weld between ProEV™ 95 mm² flexible cable and the PerformMore connector within the 18 mm width. The tooling design and configuration had to be arranged so that we could allow sufficient welding energy to achieve a quality weld without affecting the finer strands within the transitional area.

Configuration Advantages

The PowerWheel® system allows higher clamping force for the Staubli terminal which is an advantage when welding a large cable in a smaller area. The weld nugget height in this case is higher than in a normal scenario. Since the Torsional welding amplitude is at its peak at the center of the weld nugget, one can apply the additional energy required for the thicker height, with minimal affect on the strands in the weld transition area. This useful Torsional welding feature allows an acceptable weld quality with minimum efforts. Quality control variables such as final weld height, welding time, and power are monitored and controlled for every weld whilst production data is recorded for traceability.



The application was completed on a MT8000 torsional ultrasonic PowerWheel® system. The picture above shows the successor product Telso®Terminal TT7.