

Application Example

Battery Cable Assembly for Industrial Electric Vehicle

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SIEVING



Task

This ProEV™ cable, produced by Promark Electronics a Division of ECI, is welded to a Rosenberger male Silver-plated connector. ProEV™ 35 mm² high quality cable is used to terminate this Rosenberger connector with limited space for the 35 mm² cable. The ProEV™ cable was used in this application for its high levels of flexibility. The available weld width of 10 mm, as opposed to 11 mm, and the flexible finer strands presented the challenge of providing a welding solution on a smaller space where the required weld compaction can be achieved without damaging the finer strands within the weld transition area.

Solution

Telsonic's Torsional PowerWheel® welding system was used to achieve a good quality weld between the ProEV™ 35 mm² flexible cable and the connector within 10 mm width. Tooling design and configuration had to be arranged to compensate for the limited clamping force due to the radius of the connector. This tooling design and configuration solution allowed for sufficient weld energy to achieve a quality weld.

Configuration Advantages

The PowerWheel® system offers advantages 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 to the strands in the weld transition area. This useful torsional welding feature allows an acceptable weld quality with minimal effort. The PowerWheel® system provided a convenient solution for this application, and Promark Electronics already uses the PowerWheel® system on their ProEV™ 95 mm² cable termination. 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.