

Critical decision: Medical Equipment Case Study

Medical equipment connector



The sub assemblies provided by Harwin offered a more reliable solution, eliminating the need for rework.

In their application, the customer needed to insert eight 0.5mm pins into a plastic housing that formed part of a blood gas measurement sensor as used in emergency rooms and other hospital areas. Their existing solution used pins formed from round wire simply driven into a round core hole within the plastic. Whilst this appeared to be a simple solution and process, reject and rework rates were high due to pin depth variation and pin straightness being out of tolerance causing assemblies to be non-functional after final assembly.

Design Solution

The customer then asked Harwin for a design solution that would ensure pins were straight after insertion and were also held to a consistent depth. The mating half of the pin had to be similar to the cross section of the existing round pin. The Harwin solution consisted of a stamped pin with a shoulder to control the overall depth, used in conjunction with a minor mould modification, and a profiled mating section to duplicate the round pin.

The mating section effectively started as a 0.5mm square which then had heavy coining added to the four corners to produce an octagonal section which provided a very satisfactory mating pin.

The shoulder served two purposes:

1. To provide a reference point to control insertion depth to and;
2. To provide the link between terminals for stamping and selective plating.

To solve process issues, Harwin also provided an insertion solution in the form of a System 718 CNC Machine and suitable insertion heads.



The pin is an innovative stamping with heavy coining on the four corners to create an octagonal section, eliminating the need for the more expensive alternative of a turned pin.

Value Added Service

After verifying the design met their needs, the team from the customer were also offered a moulding and pin insertion service from Harwin, effectively removing a process from their shop floor and simplifying their supply chain. They ordered two new mould tools from their tool supplier who liaised with Harwin's

engineering team to ensure a smooth handover once the tools were complete. Whilst these were being built, Harwin produced the necessary tooling to produce and insert the pins into the moulds and created dedicated quality systems to ensure product standards were kept high.

One Stop Shop Solution

The customer is continuing to benefit from a 'one stop shop solution' by allowing Harwin to provide their finished sub-assemblies. Factors such as cost, quality and lead-time are closely managed by Harwin, allowing the customer to focus on their final assemblies, safe in the knowledge that their supply chain is short and well focused on their needs. The ongoing relationship between the customer and Harwin is going from strength to strength with a number of new projects currently being processed by teams from both companies.