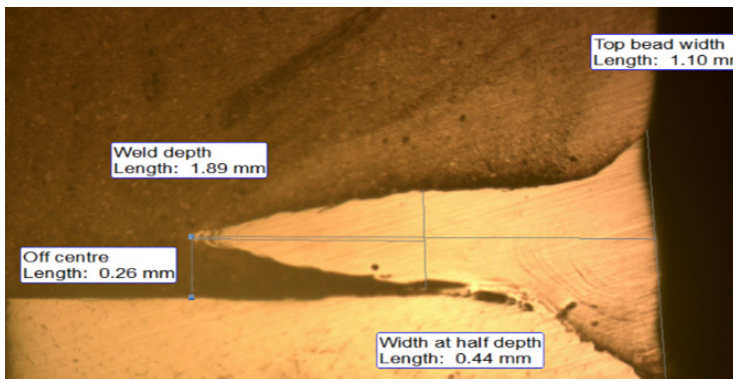
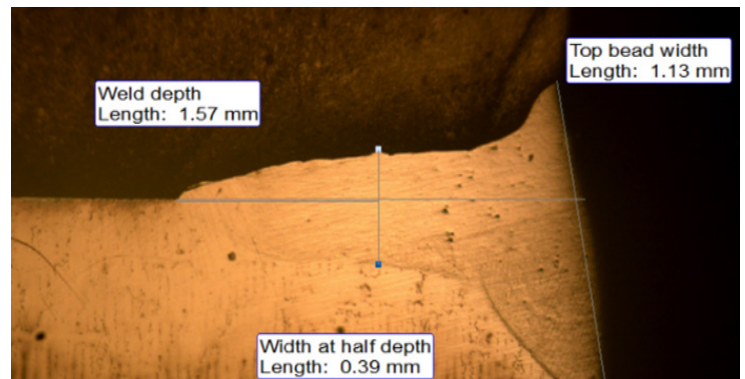


Automatic Joint Finding

The automatic joint finding feature works by mounting a detector in the chamber to collect backscattered electrons that the surface of the work-piece has reflected. When the beam scans across the joint, the intensity of electrons reaching the collector plate decreases and enables the system to determine the joint position to the free-falling beam - accurate to ± 20 micron.



Automatic joint finding off



Automatic joint finding on

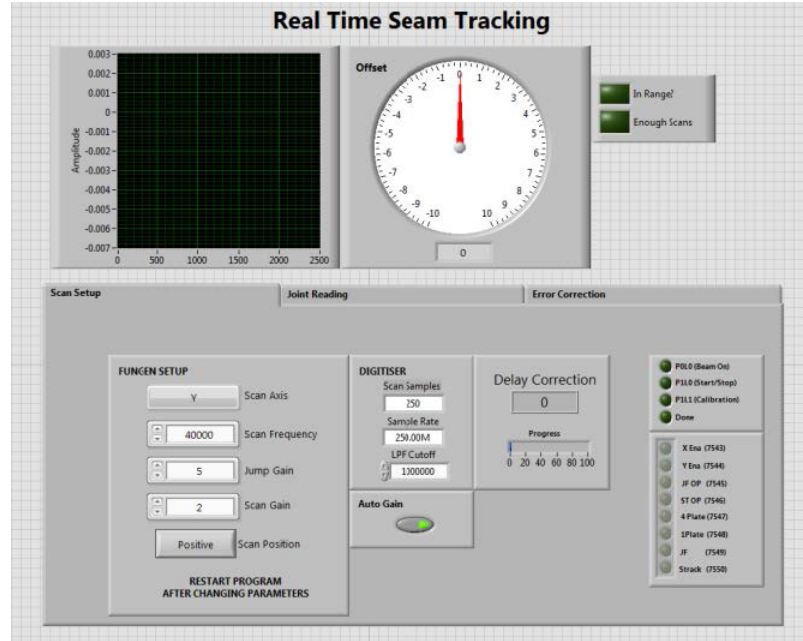


Joint finding control system

Real-Time Seam Tracking

A typical joint trace allows the position of the joint to be captured and the deflection value set into the machine. As a result the beam is accurately placed on the joint.

With real-time seam tracking (RTST), beam scanning is done ahead of the joint during welding, rapidly sweeping the beam across the seam at a sufficient speed to avoid melting. The beam deflection value is updated every scan (60 times per second). Accurate to ± 40 microns. Available upon application.



Cross section of a part welded at 18 mA using RTST (left). The part was put at an angle and the system adjusted the beam position onto the joint in real time as the part was welded.

Teach and Replay

Automatic joint finding can be calibrated to perform offset correction through CNC movement of deflection in a teach and replay process, storing the deflection value and then recalling it during welding.

By using a deflection value, rather than an average, it is extremely accurate and therefore useful for keeping the beam on parts with excessive run-out.

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