

## Case Studies: Automation & Robotics

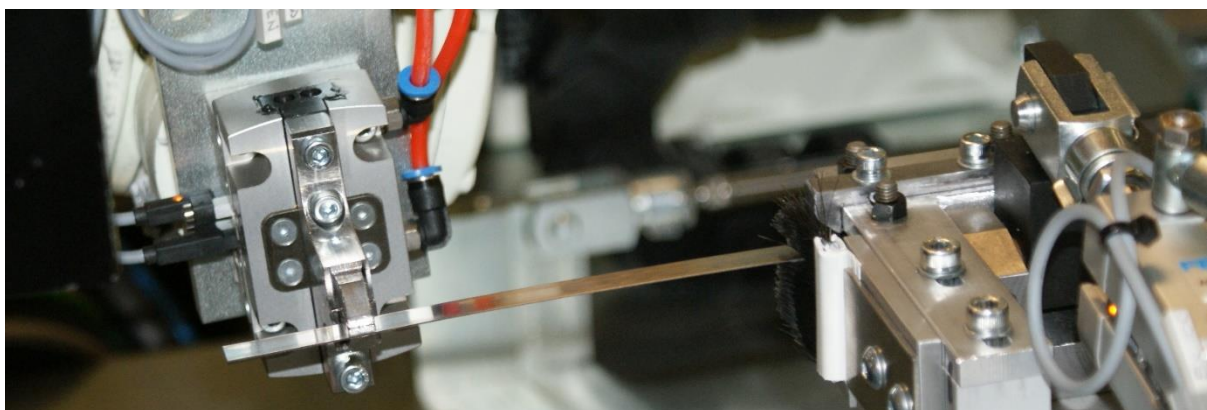
### Robotic Laser Weld Fabrication System

**Client:** Global Engineering Company

**Part:** Engineering Metal Seal Ring

**Machine supplied:** Robotic laser weld fabrication system

**Overview:** This laser weld and fabrication system was designed and manufactured in order to give the customer the ability to automatically produce parts that were previously labour intensive within their production environment. TQC developed this system alongside the client to allow them to manufacture a range of part diameters in a quality assured manner at a high throughput.

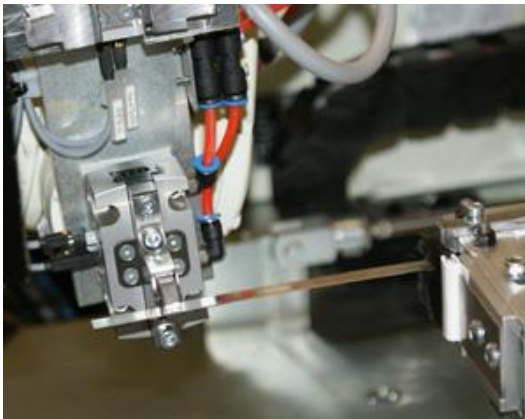


## Key features:

- Kawasaki 6-Axis Robot
- Reel fed material
- Multiple stations and sequential operations
- Laser welding and vision measurement and other technology modules incorporated
- PLC controlled

TQC have designed and manufactured a fully automatic manufacturing cell for the production of laser welded metal seal rings. The system incorporates multi stations that perform individual tasks to complete the manufacturing process, with a Kawasaki 6-axis robot being used to move product between the various manufacturing stations.

Reel fed material is measured out, cut to the correct length with the leading end presented for the robot to grip. The robot manipulates the strip to form the circular shape with a servo mounted gripper unit then securing the other end. The robot releases the part to allow it to be indexed into a fully guarded laser welding enclosure. The ends are welded together with vision inspection used to ensure the weld meets the required parameters.



Following welding, the ring is passed through a series of polishing and forming stations to complete the finished product. The final operation is to transfer completed parts to outfeed stack magazines. The control system monitors every station with part inspection included to ensure correct part production.

Throughout the system running, the robot manipulates parts between stations with any reject parts passed to a reject bin. The system manufactures several different sizes of rings.

If you have an application that could benefit from TQC's expertise in automation and robotics, please contact us by email or phone via the contact details

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