



CONTROL 
TECHNIQUES

AUTOMATED WELDING BOOSTS PRODUCTION

WITTER TOWBARS | METALS

DRIVE OBSESSED

WELDING TIME REDUCED BY 50%

Witter Towbars, a Deeside based towbar manufacturer that produces more than 850 towbar variants, has been able to automate jig control in the welding process using Control Techniques drives.

Overview

- Increased production
- Quality improved
- Simple secure disable

The Challenge

Witter wanted to automate the handling task, previously done manually, and required the solution to integrate with the welding robots.

A number of specialist machine manufacturers offered Witter solutions that required PLCs to provide the control and interface but these were deemed too costly.

The Benefit

"Previously, each job was completed in four separate stages," explained Witter's senior manufacturing engineer, Gary Nuttall.

"Each stage requiring its own jig. Then of course, partly welded assemblies had to be moved from one stage to another by hand, a manual handling issue we were keen to eliminate. Now, as well as much less handling, we get improved weld quality. It's consistent, there's much less chance of human error, and of course, there's up to 50% time saving on the whole of the welding procedure."

The Solution

Nidec was able to provide a simpler, more cost effective solution that didn't require a PLC, and guaranteed complete safety for loading each job with the secure disable feature.

The new rotating jigs were designed and produced by Telford-based Automatic Technologies International (ATI) using Unidrive SP AC drives with UMD servomotors from Control Techniques Dynamics, with programming provided by on-board EZMotion modules.

Used in conjunction with MAG-welding robots, the jigs – known as welding 'manipulators' – provide up to 360° rotation, most often in 45° increments, between periods of welding. Seven robots are engaged in the welding, four of which were fitted with two manipulators, considerably cutting the time required for welding each assembly.

Just three outputs are used from the robot, making up eight binary codes covering the jig rotation, as well as 'stop' and 'run'. The programming for acceleration/deceleration and positioning is all carried out in the easy-to-program EZ-Motion card fitted inside each of the 2.2kW Unidrive SP AC drives. To give the best dynamic response, matched to the drive, 115UMD Unimotors low cogging brushless AC servomotors are used, with Sin/Cos absolute encoder feedback to give precise position control.

