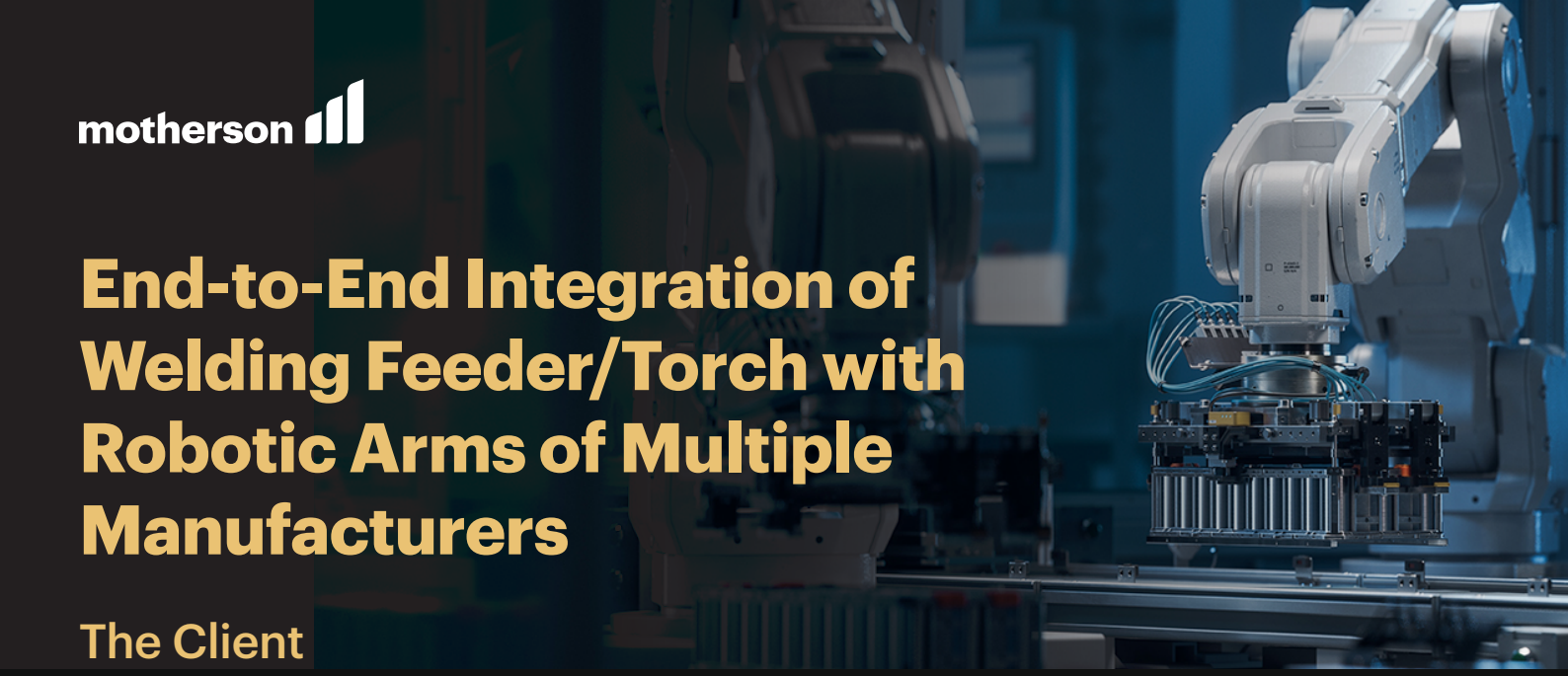
motherson

End-to-End Integration of Welding Feeder/Torch with Robotic Arms of Multiple Manufacturers



The Client

A leading global welding automation solutions provider.
Motherson Technology Services was approached by a leading welding automation manufacturer to design and develop bracket kits for seamless integration of welding wire feeders with robotic arms from multiple OEMs, ensuring structural compatibility, efficient cable routing, and compliance with manufacturability and safety standards.

Overview

The client required a standardized yet customizable solution to integrate welding feeder/torch systems with robotic arms from multiple OEMs. The objective was to streamline the mounting, cable routing, and operation of the feeders across various robot variants, ensuring compatibility, serviceability, and manufacturability for scalable deployment in industrial welding environments.

Engagement

Requirement gathering and design validation | Prototyping and manufacturability assessment

Tools

CAD Design and System Integration

Expertise

The project leveraged expertise in various areas, including:

- Cross-platform mechanical integration expertise
- Design for Manufacturability (DFM) and Design for Assembly (DFA)
- BOM creation and product lifecycle documentation
- CAD-based simulation and validation
- Supplier engagement and prototype validation

The Solution

- Analysed 3D/2D robotic arm variants and legacy feeder bracket designs
- Created and validated new bracket concepts meeting form, fit, and functional requirements
- Ensured compatibility with quick connectors, base cable split, and cable routing
- Applied DFM/DFA best practices and conducted feasibility studies with local suppliers
- Developed accurate BOM, released drawings for sourcing and RFQ
- Managed updates through SmartTeam/PLM and completed ECO process
- Delivered final 3D assemblies, material validations, and updated instructions

Benefits Delivered

The project delivered a standardised, scalable bracket solution that significantly reduced integration complexity across multiple robotic arm variants. This led to faster assembly and commissioning times, lowering production downtime and operational costs. Improved design for manufacturability and supplier collaboration enhanced product quality and reliability, while streamlined BOM and documentation processes facilitated efficient supply chain management. Overall, the solution boosted the client's agility in deploying welding automation, driving increased productivity and a stronger competitive edge in the market.