Refill friction stir spot welding robot
Kawasaki refill friction spot joining welding head and Kawasaki ZX300S robot arm

Single-point, solid-state spot welding technology that creates a virtually flush surface finish without the use of a consumable.

Features and benefits

- Energy savings of more than 90% compared to resistance spot welding
- Superior tensile shear and hardness properties to resistance spot welding
- Suitable for joining dissimilar metals
- Reduced corrosion risk in aluminium due to absence of steel rivets
- Zero net change in work-piece mass after welding
- Near-flush finish offering aerodynamic, hydrodynamic and aesthetic benefits

Some applications

- Primarily suitable for joining thin-section aluminium
- Aerospace fuselage and automotive body panels
- Similar and dissimilar aluminium alloy grades and metals
- Multi-lap/gauge capability

Technical specifications

**RFSSW gun**
- Drive method: AC servomotor drive
- Pressure range: 1,470–14,700N
- RPM range: 0–2,160 RPM
- Pressure shaft stroke: max. 180mm
- Mass: 190kg

**ZX300S robot arm**
- Axes: six-axis articulating arm
- Payload: 300kg
- Horizontal reach: 2501mm
- Vertical reach: 3115mm
- Repeatability: ±0.3mm
- Maximum linear speed: 2500mm/s