

# Refill Friction Stir Spot Welding Gun RSW

## Strong. Clean. Hole-free.

The Refill Friction Stir Spot Welding Gun RSW is a high-performance system for robotic-mounted or stationary applications as well as automated production lines. It enables precise, force- or position-controlled welding with continuous monitoring of force, position and temperature.

Refill Friction Stir Spot Welding (RFSSW) enables high-strength, hole-free joints while eliminating many of the limitations associated with conventional joining technologies. As a solid-state process, it joins the material without melting, resulting in low thermal distortion, clean joint surfaces and highly repeatable weld quality. Depending on the application, both overlap and butt joint configurations can be realised.

The RSW enables efficient joining of aluminium and selected dissimilar materials while reducing the need for additional joining elements. Integrated process monitoring, full data availability and flexible automation interfaces ensure reliable and traceable series production for lightweight applications.

- ▶ force or position control welding mode for optimum welding results
- ▶ high repeatability
- ▶ continuous force, position & temperature monitoring
- ▶ G-code programmable with recipe management
- ▶ robot-mounted, stationary or standalone operation

### MACHINE INFORMATION

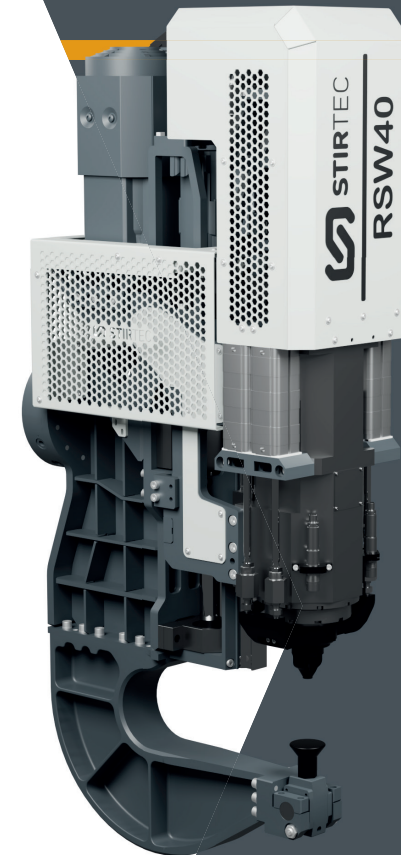
|                                |                                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------------------------|
| machine dimensions (L x W x H) | 670 x 390 x 1,380 mm                                                                                  |
| max. machine weight            | 285 kg                                                                                                |
| spindle orientation            | robot-mounted or stationary integration<br>standalone frame available for robot-independent operation |

### FSW WELDING PARAMETERS & PLUNGE RATE

|                                        |                 |
|----------------------------------------|-----------------|
| max. spindle rotation speed            | 5,000 rpm       |
| torque spindle performance             | 80 Nm           |
| shoulder / probe / clamping ring force | 30 / 20 / 15 kN |
| max. force                             | 40 kN           |

### PROCESS CONTROL

|                |                       |
|----------------|-----------------------|
| control system | SIEMENS Sinumerik one |
| input option   | G-code programmable   |



- ✓ for structural and lightweight applications with high repeatability
- ✓ joining of similar aluminium (Al 7XXX, Al 6XXX, Al5XXX, Al3XXX, Al2XXX, Al1XXX) and dissimilar metals (Al-Cu, Al-Steel, Al-composites and composites/composites) possible
- ✓ robot-compatible for automated production
- ✓ flexible integration into existing production systems