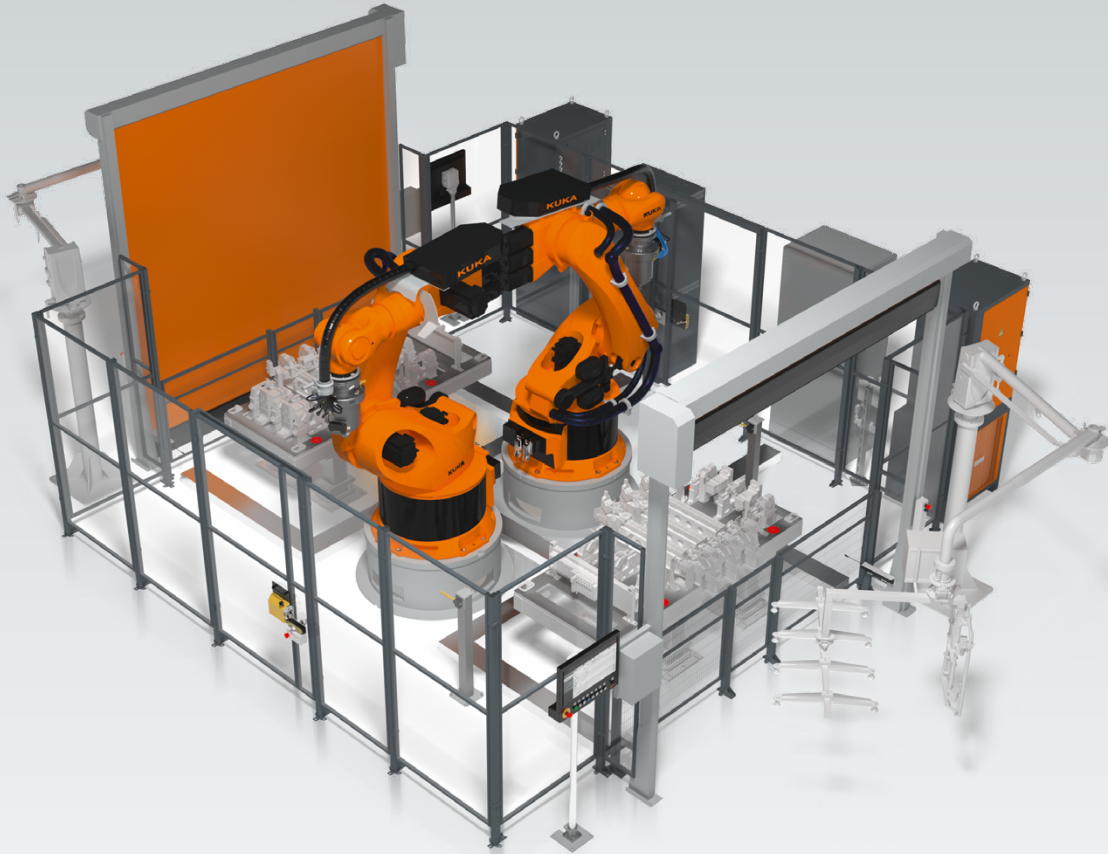


cell4\_production manufacturing cells  
\_friction stir welding efficiently automated



## KUKA cell4\_FSW

\_the modular cell for joining non-ferrous metals

KUKA Friction Stir Welding (FSW) cells join non-ferrous metals with a low melting temperature and mixed-material combinations such as aluminum and steel. Ideal for future-oriented markets, such as electromobility. The modular cells can be easily configured for specific requirements and upgraded with expansion modules. For efficiency in top quality.

### Highlights cell4\_FSW

- Maximum process utilization up to 95% with two workstations in separate loading areas
- Compact, modular cell based on the FSW application module
- Enables cost-effective welding of non-ferrous metals and mixed-material combinations
- Loading and unloading with no impact on cycle time
- Precise path accuracy of up to 0.5 mm achievable thanks to KUKA path calibration
- 100% process monitoring
- Ready for IIoT and remote services



KUKA cloud applications

# KUKA cell4\_FSW

\_modular, compact friction stir welding cell for optimum process utilization



cell4\_FSW  
midsize single KR



cell4\_FSW  
large dual KR

## Standard configuration

Length (incl. control cabinet)	5,600 mm	6,770 mm
Width (incl. control cabinet)	5,400 mm	6,320 mm
Height (incl. control cabinet)	3,500 mm	3,500 mm
FSW application modules	1	2
Weight approx.*	5,000 kg	8,000 kg
Robot	KR 500 R2830 FORTEC MT	2 x KR 500 R2830 FORTEC MT
Worktable (optional), quantity	2	2
Area of worktable (W x D)	1,400 mm x 800 mm	2,400 mm x 1,600 mm
Cell equipment	Siemens TIA Portal series 1500, KUKA.SafeOperation, 2 roll doors with point-of-operation guarding and light curtain, polycarbonate fence with 1 or 2 maintenance gates and locking mechanisms	
Robot controller	KR C4 mit KSS 8.6	KR C4 mit KSS 8.6
Cell operation	HMI Advanced, 23.4" Display with IPC	HMI Advanced, 23.4" Display with IPC

\* without clamping system and manipulator

## Various option packages can be selected, depending on the specific requirements on the friction stir welding applications:

- PCD 507 for process monitoring with display on HMI Advanced
- Laser-assisted detection of seam positions for automatic compensation of tolerances on the component
- FSW tools:
  - Tooling kit »Rotating Shoulder« (pin and shoulder)
  - Tooling kit »Stationary Shoulder« (pin and shoulder)
  - Special tools on request
- Product-specific clamping systems
- Service for laser-assisted path calibration
- Customer-specific designs on request



## Target applications

- Battery housings for EV and HEV
- Housings for power electronics and heat exchangers
- Cooling systems for power electronics
- Casings for smartphones, tablets and operator panels

## Features

- Two cell types:
  - One FSW welding robot for welding HEV battery housings and power electronics
  - Two FSW welding robots for welding large battery housings
- Two worktables in separate loading areas
- Improved operating convenience with new KUKA.Web HMI and touch panel
- Ready for I4.0, based on OPC UA

## Scope of supply and services

- FSW cell
- Component-specific tooling and clamping systems (optional)
- Process validation (optional)
- Project management with system acceptance
- CE certificate (in the case of turnkey solution)



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