

## Joining Solutions\_KUKA Invictus® 150

\_New, versatile friction welding machine for medium to large components



The **KUKA Invictus® 150** is a new development whose modular design presents a **universal solution** for a wide range of applications. In addition to outstanding economic efficiency, it is thus particularly suited for large weld cross-sections with a high required forge force and torque. Thanks to the “Viper Drive” feature, it can even simulate inertia welding processes.

### Customer benefits

- Unsurpassed performance and dynamics with up to 80 % higher spindle speed
- Simulation of the inertia welding process
- Improved ergonomics and a readily accessible working area for components up to 3,900 mm in length
- Simple touchscreen operation
- Future-proof control concept (Siemens)
- Reduced maintenance requirements thanks to central lubrication and long-life lubrication units
- Maximum cost-effectiveness due to cell automation
- 100 % quality monitoring
- Ready for I4.0, based on OPC UA

### System architecture

To achieve maximum precision and performance, the relevant core assemblies, machine frame, headstock, centering clamp, drive and turning unit have been completely redesigned and equipped with innovative KUKA bearing technology. Thanks to the good access, loading from the front or rear is easily possible with the help of robots or gantry solutions. The compact design reduces the floor space requirement and simplifies transportation and installation.

### Wide range of options

- Short model variant with one door for short components
- Facing and turning to remove weld flash
- VIPER drive (virtual inertia welding without flywheel mass)
- Automatically adjustable backstop
- Defined-angle positioning
- Active Travel Control (for minimizing length tolerances)
- Automation with cell interface
- OPC UA interface for I4.0

### Scope of supply

- Machine
- Component-specific tooling
- Process validation
- Project management
- Machine acceptance (CMK available)
- CE certificate (Declaration of Conformity)
- Version “based on UL standard” on request



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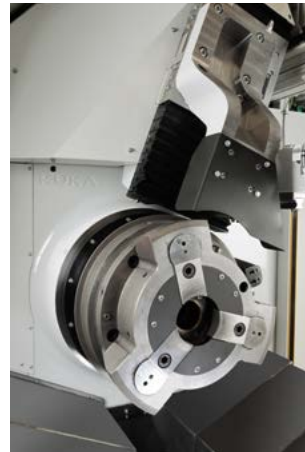
### Base configuration – technical data

Forge force	77 – 1,500 kN
Spindle speed*	max. 1,800 min <sup>-1</sup>
Slide advance	max. 780 mm
Component length (at spindle end)**	max. 900 mm
Component length (at slide end)**	max. 3,900 mm
Noise emissions	<78 dB (A)
Footprint (without/with peripheral equipment)	approx. 26 m <sup>2</sup> / approx. 41.3 m <sup>2</sup>
Weight	approx. 40,000 kg
Dimensions (L x W x H)***	11.50 x 2.30 x 2.80 m
Process control	KUKA PCD Controller 324
PLC controller	Siemens

\* Depending on component, forge force and process sequence

\*\* Longer components on request

\*\*\* Without swarf conveyor



Highly flexible spindle for accommodating different clamping systems and components with a diameter up to 240 mm

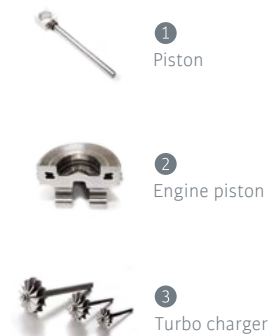
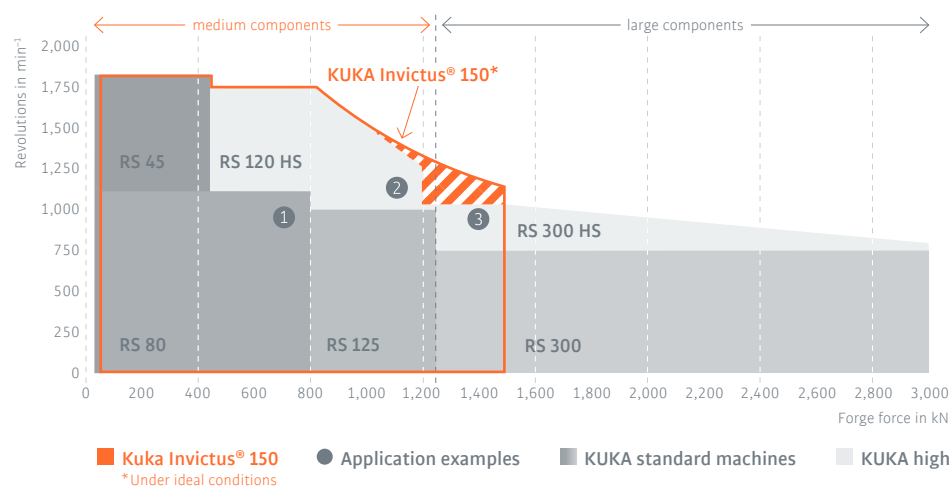


Integrated turning unit

### Wide range of applications

- Automotive industry: axles, engine pistons, turbochargers
- Construction industry: axles, hydraulic pistons/rods, hydraulic cylinders, rollers
- Metal industry: printing cylinders, printing rollers, shafts
- Oil & gas industry: drill pipes, water pipes, shut-off valves
- Electrical industry: rod anodes, aluminum-copper contacts

### Universally applicable – one machine replaces up to 6 special-purpose machines



For further information please contact us at  
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