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

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

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.
Joining Solutions — KUKA Invictus® 150
— New, versatile friction welding machine for medium to large components

Base configuration — technical data

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forge force</td>
<td>77 – 1,500 kN</td>
</tr>
<tr>
<td>Spindle speed*</td>
<td>max. 1,800 min⁻¹</td>
</tr>
<tr>
<td>Slide advance</td>
<td>max. 780 mm</td>
</tr>
<tr>
<td>Component length (at spindle end)**</td>
<td>max. 900 mm</td>
</tr>
<tr>
<td>Component length (at slide end)**</td>
<td>max. 3,900 mm</td>
</tr>
<tr>
<td>Noise emissions</td>
<td>&lt; 78 dB (A)</td>
</tr>
<tr>
<td>Footprint (without/with peripheral eq.)</td>
<td>approx. 26 m² / approx. 41.3 m²</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 40,000 kg</td>
</tr>
<tr>
<td>Dimensions (L x W x H)**</td>
<td>11.50 x 2.30 x 2.80 m</td>
</tr>
<tr>
<td>Process control</td>
<td>KUKA PCD Controller 324</td>
</tr>
<tr>
<td>PLC controller</td>
<td>Siemens</td>
</tr>
</tbody>
</table>

* Depending on component, forge force and process sequence
** Longer components on request
*** Without swarf conveyer

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 frictionwelding.industries.de@kuka.com