Based on the modular system of the Genius product family, the new KUKA Genius D double-head friction welding machine is the ideal solution for applications with double welds. Available as KUKA Genius D power, it makes for maximum efficiency, allowing simultaneous welding of the component at both ends in a single work cycle (one-pass productivity).

**Industries & applications**
The KUKA Genius D features the latest, industry-proven technology modules and, with a forge force of 1.2 – 30 tonnes, can be used for a wide range of components in diverse industries, e.g.:

- **Automotive**
  - Camshafts
  - Drive / prop shafts
  - Axles
- **Construction industry**
  - Truck axles
  - Piston rods
  - Hydraulic cylinders
- **Metal industry**
  - Shafts
  - Heat exchangers
  - Tools

**System architecture**
The newly designed system architecture enables a highly compact configuration (22 m²). The two large operator doors allow fast set-up, loading and unloading optimized in terms of cycle time, and ergonomic working. Similarly, the higher machine performance, ease of transportation (container dimensions), optimized cabling, reduced footprint and shorter commissioning time significantly enhance the cost efficiency of the Genius D. The electronically controlled hydraulic system additionally saves up to 20 % energy.

**Features & functions**
Numerous functions can be individually configured:

- Automatically adjustable backstop (ABS)
- Defined-angle positioning
- Component lifter
- Automatic operator door
- User management with EKS chip
- Weld data export
- Data matrix code interface (for component tracking)
- Ready for 4.0, based on OPC UA
- Automation interface
- KUKA RemoteService

**Control & operation**
The KUKA Genius D has a clearly designed touch panel for simple and intuitive operation. Comprehensive reporting with data analysis of all process-relevant parameters for improved quality monitoring is possible for 12 weld parameters in real time thanks to the new PCD controller. A reject is reported if the parameter limits are violated.
## Basic configuration – technical data

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forge force*</td>
<td>12 – 300 kN</td>
</tr>
<tr>
<td>Spindle speed*</td>
<td>max. 3,000 1/min</td>
</tr>
<tr>
<td>Spindle drive</td>
<td>2,400 Nm</td>
</tr>
<tr>
<td>Slide advance</td>
<td>max. 350 mm per side</td>
</tr>
<tr>
<td>Adjustable travel, ABS system</td>
<td>850 mm per side</td>
</tr>
<tr>
<td>Component length (spindle side)*</td>
<td>max. 300 mm</td>
</tr>
<tr>
<td>Component length (center)*</td>
<td>min. 300 mm**</td>
</tr>
<tr>
<td></td>
<td>min. 150 mm***</td>
</tr>
<tr>
<td></td>
<td>max. 2,000 mm</td>
</tr>
<tr>
<td>Noise emission</td>
<td>min. 500 mm****</td>
</tr>
<tr>
<td>Footprint</td>
<td>max. 2,000 mm</td>
</tr>
<tr>
<td></td>
<td>approx. 78 dB (A)</td>
</tr>
<tr>
<td>Dimensions (L × W × H, excl. swarf conveyor)</td>
<td>ca. 8,600 × 2,550 × 2,550 mm</td>
</tr>
<tr>
<td>Weight</td>
<td>approx. 23,000 kg</td>
</tr>
</tbody>
</table>

* Depending on component type, forge force and process sequence
** Double-head operation
*** Single-head operation
**** Double-head operation with turning

## Wide range of options

Optional packages are available for the Genius D. These significantly help to increase productivity and can be configured independently of each other.

### Cycle time reduction package
- Integrated light curtain

### Production optimization package
- Automatic temperature control of the headstock
- Monitoring of the cooling unit
- Start button on pedestal

### Turning unit package
- Two turning units for flash removal and facing
- Tool holder or duplex tool changer
- Conveyor for removal of swarf (integrated into the side or rear of the machine)

### 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

For further information please contact us at frictionwelding.industries.de@kuka.com