



Sonosystems®



Ultrasonic metal welding

for power electronics and cell contacting systems

ultra fast. ultra strong. **ultrasonic.**

Our 300 employees worldwide develop and produce innovative ultrasonic welding machines - and, together with our representatives, are always close to our customers. In addition to our headquarters in Wettenberg (Germany), we have locations in Graevenwiesbach (Germany), Boston (USA), Moscow (Russia), Kenitra (Morocco) and Taicang (Jiangsu Province, China). We also have a global sales and service network.



Wire Harness

- Wire / Wire
- X-/Y-Splices
- Cascade
- Ground and high current contacts
- Busbars



Battery

- Battery modules
- Li-Ion Technology
- Capacitors
- Anode/cathode connections
- Copper/Tab connections



Cooling Technology

- Copper tubes for refrigeration circuits
- Capillary tubes for thermostats
- EX-certified



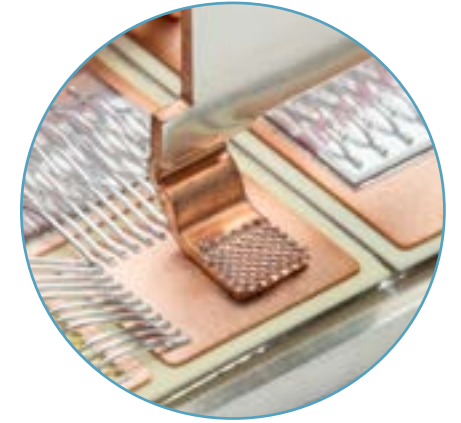
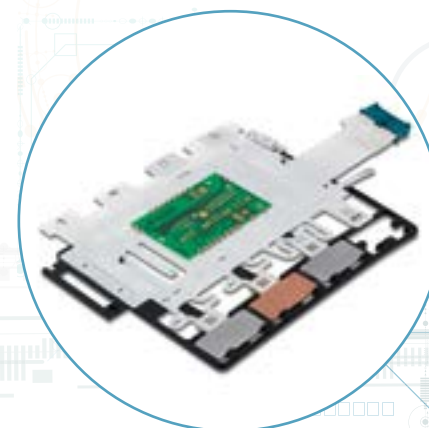
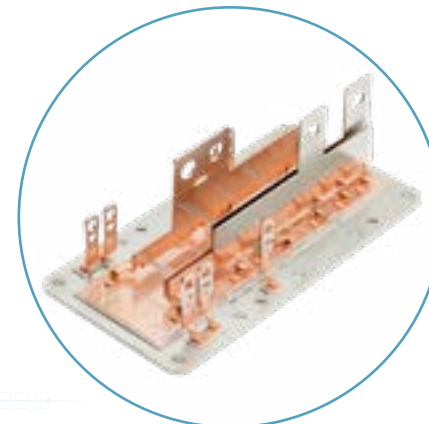
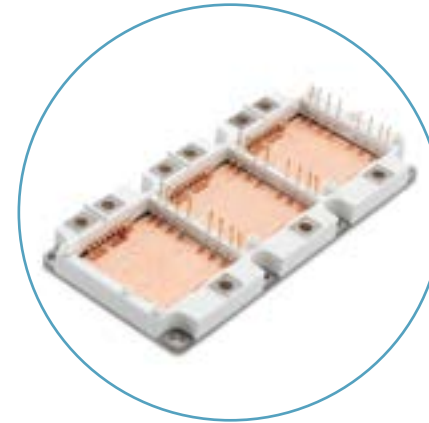
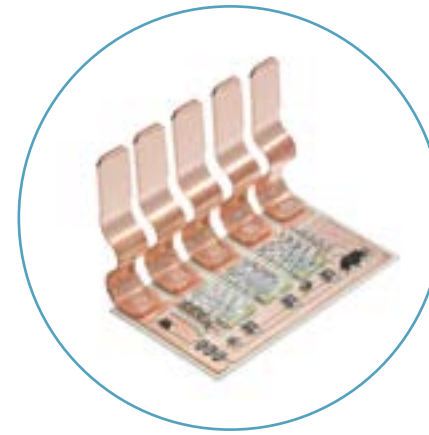
Service

- Technical advice and support
- Process development and integration
- Software development
- Training system



Innovations

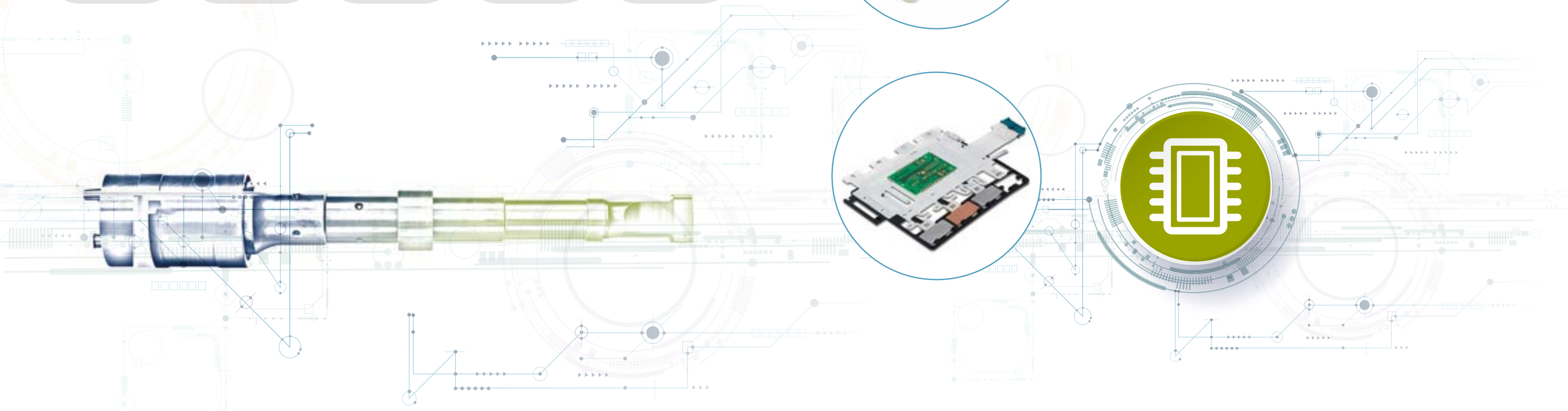
- Cutting
- Punching
- Welding of plastics and textiles
- Cut & Seal by combined procedure



Ultrasonic welding in the field of power electronics

In the field of power electronics increasingly high-performance modules such as IGBTs (Insulated-Gate Bipolar Transistors) or IPMs (Intelligent Power Modules) are produced with the help of ultrasonic welding. Ultrasonic welding of the load and control connections to substrates (e.g. DBC) offers full process and quality monitoring compared to conventional soldering.

In reliability tests, ultrasonically welded power modules last up to ten times longer. The intermetallic connection leads to a significantly reduced power dissipation at the contact points, which increases the electrical efficiency of the module and minimizes the cooling effort.



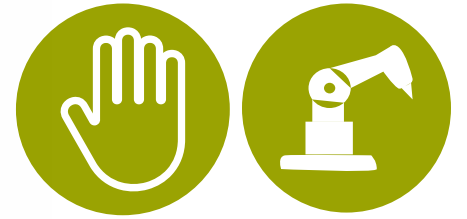
DS20-S-plus

The manually operated ultrasonic welding machine DS20-S-plus is based on a flexible concept and is suitable for laboratories, prototypes, sample series production and smaller series production of e.g. power electronics, cell contacting systems or special applications.

- Ultrasonic welding head: 20 kHz (35 kHz available on demand)
- Working area (x-y-table): x-axis: 100 mm, y-axis: 250 mm (manually with crank handles)
- special stiff axis systems resistant to ultrasonic vibrations
- Accessibility in z-direction (sonotrode): max. 62 mm



All machines are equipped with a quick-change system for welding tools and a patented dynamic process monitoring system. The latter monitors the power and height curves and provides adjustable tolerances for welding time, height, energy and deformation for each welding spot.



 further information



FX20-L

The FX20-L is a semi-automated ultrasonic welding machine for production. It is suitable for welding power electronic modules (e.g. IGBT modules) or cell contacting systems (battery applications). The machine is available with a pattern recognition system for checking and correcting the welding position and an external particle cleaning system.

- Ultrasonic welding head: 20 kHz (35 kHz available on demand)
- Working area: x-axis: 250 mm, y-axis: 400 mm - turntable: 360°
- special stiff axis systems resistant to ultrasonic vibrations
- Accessibility z-direction: max. 62 mm - special long welding tool available

FX20-2L-R



The FX20-2L-R is a flexible and fully automated ultrasonic welding machine for welding power electronic modules and cell contacting systems. Numerous options are available for the machine, such as an internal particle cleaning system, robot loading and component feeding via conveyor system.

- Two ultrasonic welding heads: 20 kHz (35 kHz available on demand)
- Working area (two x-y-tables): x-axis: 250 mm, y-axis: 600 mm. The highly reliable and precise axles are equipped with a brake system that ensures maximum stability during the welding process. The axle system is also designed to withstand ultrasonic vibrations.
- special stiff axis systems resistant to ultrasonic vibrations
- Accessibility in z-direction: max. 62 mm - special long welding tools available



Specifications

| | DS20-S-plus | FX20-L | FX20-2L-R |
|------------------------------|---|---|---|
| Welding head | 1 welding head: 20 kHz (35 kHz available on demand) | 1 welding head: 20 kHz (35 kHz available on demand) | 2 welding heads: 20 kHz (35 kHz available on demand) |
| Working area | x-axis: 100 mm, y-axis: 250 mm (manually with crank handles) | x-axis: 250 mm, y-axis: 400 mm (automatic) turntable: 360° | 2 x-y-tables: x-axis: 200 mm, y-axis: 600 mm (automatic) |
| Accessibility in z-direction | max. 62 mm | max. 62 mm | max. 62 mm |
| Stroke | max. 30 mm - adjustable (higher stroke on demand) | max. 30 mm - adjustable (higher stroke on demand) | max. 30 mm - adjustable (higher stroke on demand) |
| Generator | 3 kW (4 kW possible) | 3 kW (4 kW possible) | 3 kW (4 kW possible) |
| Pressing force | 50-900 N (1400 N on demand) soft touch down available | 50-900 N (1400 N on demand) soft touch down available | 50-900 N (1400 N on demand) soft touch down available |
| Dimesions L x W x H | 950 mm x 1000 mm x 1850 mm | 1200 mm x 980 mm x 2600 mm | 1800 mm x 2300 mm x 2300 mm |
| Weight | ca. 420 kg | 1200-1600 kg | ca. 2000 kg |
| Options | <ul style="list-style-type: none">Data Matrix Code (DMC) ReaderMeasurement and calibration station | <ul style="list-style-type: none">Pattern Recognition SystemData Matrix Code (DMC) ReaderMeasurement and calibration stationParticle cleaning (external system)Integration in automated production lines incl. data interface | <ul style="list-style-type: none">Pattern Recognition SystemData Matrix Code (DMC) ReaderMeasurement and calibration stationParticle cleaning (integrated system)Loading system (e.g. robot, conveyor belt)Integration in automated production lines incl. data interfacefull traceability for production and maintenance |



i further information



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