



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

Sonosystems®



SCHUNK SONOSYSTEMS

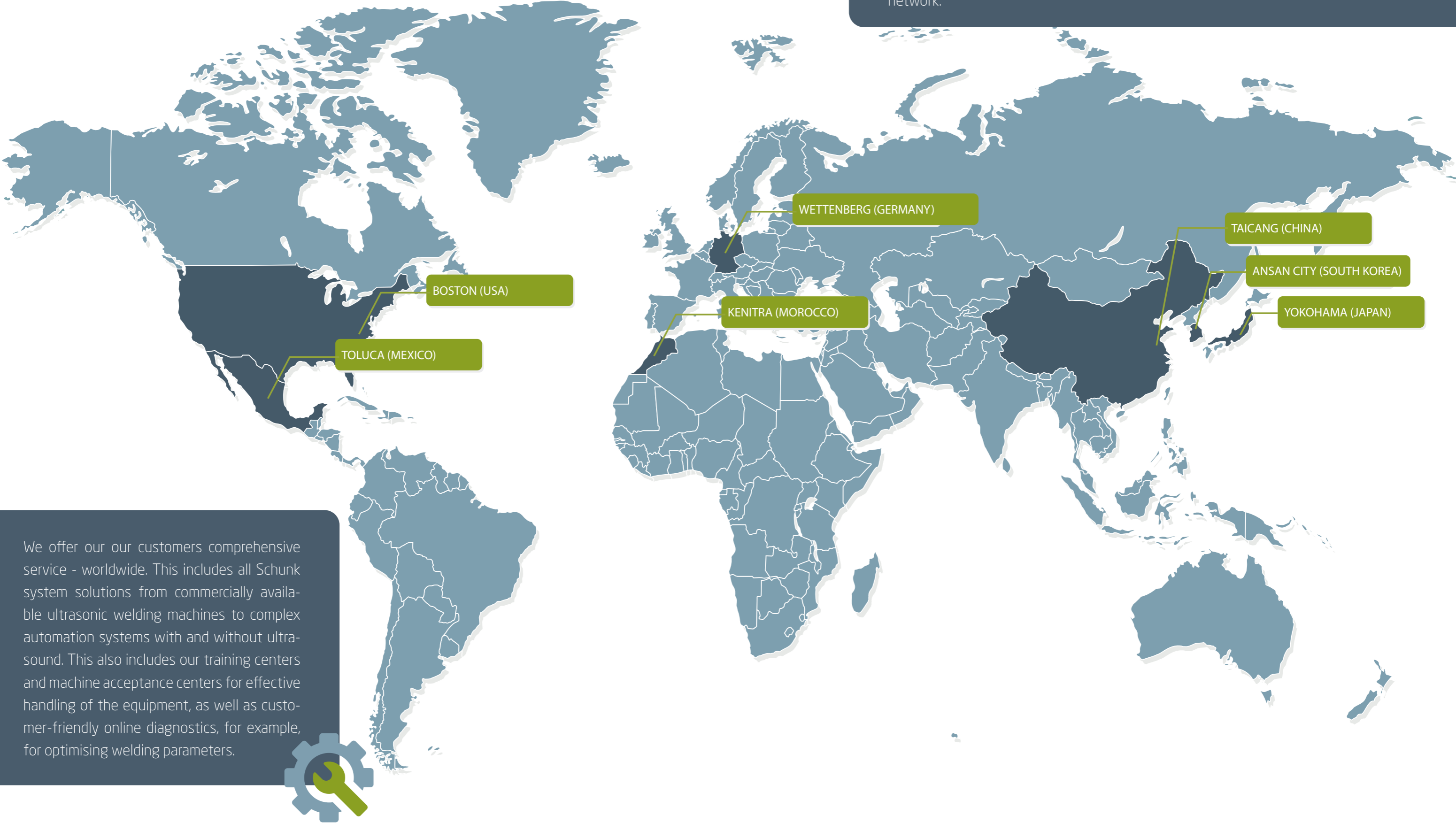
ULTRASONIC METAL WELDING



WELCOME TO SCHUNK SONOSYSTEMS!

SCHUNK SONOSYSTEMS IS THE MARKET AND INNOVATION LEADER FOR ULTRASONIC METAL WELDING.

Our 400 employees worldwide develop and produce our innovative ultrasonic welding equipment - and together with our representatives we are always close to our customers. In addition to our headquarters in Wetztenberg (Germany), we have locations in Boston (USA), Toluca (Mexico), Kenitra (Morocco), Taicang (Jiangsu Province, China), Ansan City (South Korea) and Yokohama (Japan). Furthermore we have a worldwide sales and service network.



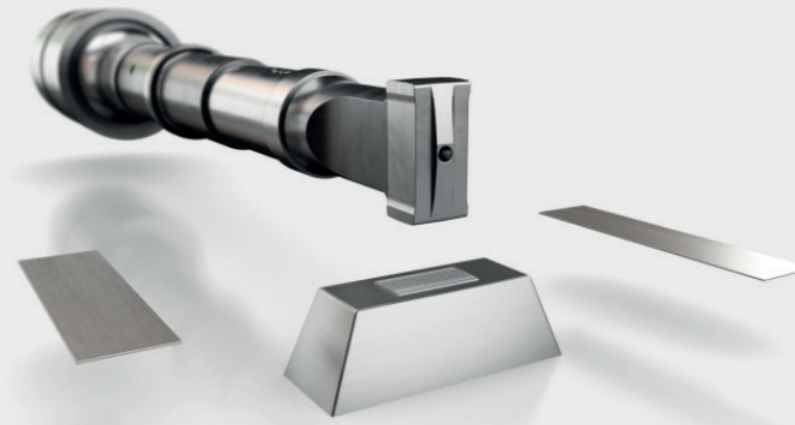
We offer our our customers comprehensive service - worldwide. This includes all Schunk system solutions from commercially available ultrasonic welding machines to complex automation systems with and without ultrasound. This also includes our training centers and machine acceptance centers for effective handling of the equipment, as well as customer-friendly online diagnostics, for example, for optimising welding parameters.



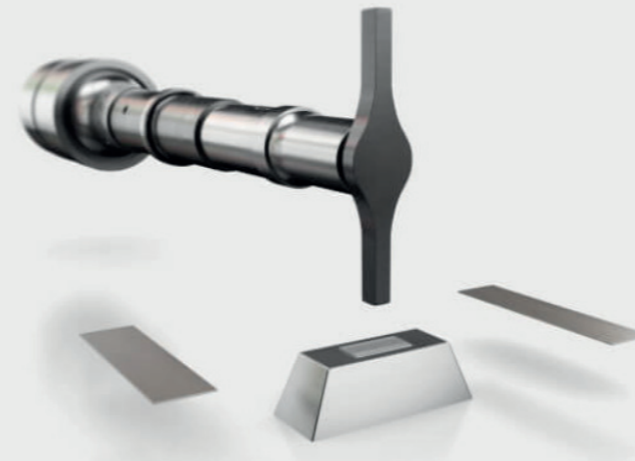
OUR TECHNOLOGY

Ultrasonic welding is a cutting-edge technique that bonds metals through the use of ultrasound. In addition to copper and aluminium connections, metal-glass connections are also possible.

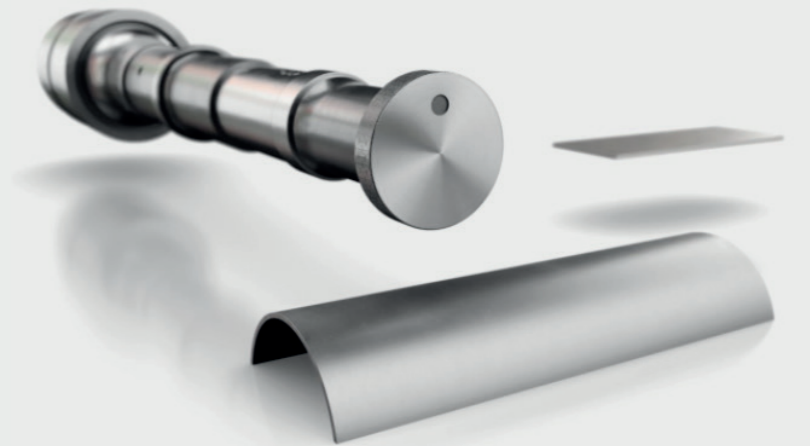
The materials are placed on top of each other and moved against each other at low pressure and high-frequency mechanical vibrations. In a fraction of a second, a permanent, strong and metallurgically pure bond with excellent physical properties is created.



The most common application for ultrasonic metal welding is the so-called **spot welding**. The size of the welding spot can range between a few square millimeters up to 280 square millimeters.



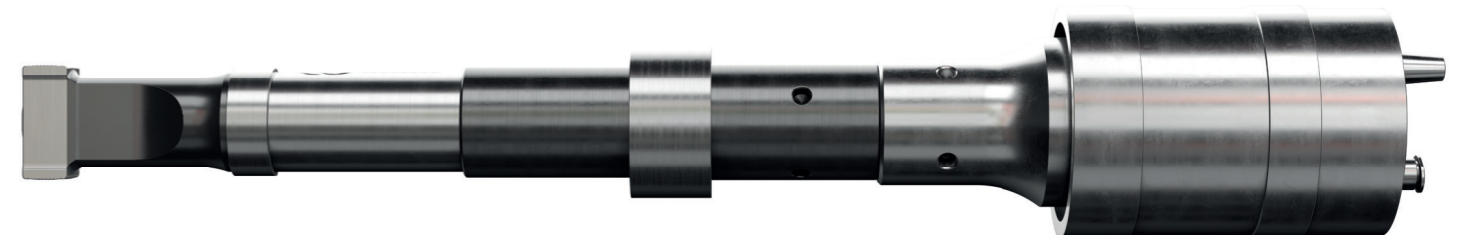
Bending horns are often used for welding spots difficult to reach. In contrast to a standard sonotrode producing longitudinal oscillation, the bending sonotrode is induced to generate flexural oscillation in the center by the vibration oscillator system.



Roll seam welding produces a linear continuous metallic seam weld. Common applications include solar thermal power, photovoltaics and composite pipe production.

The advantages

- Without thermal load of the components
- No additional materials necessary
- High-quality and economically superior alternative to other welding processes
- Very good electronic monitoring of the welding process possible
- Complete system solutions from a single source

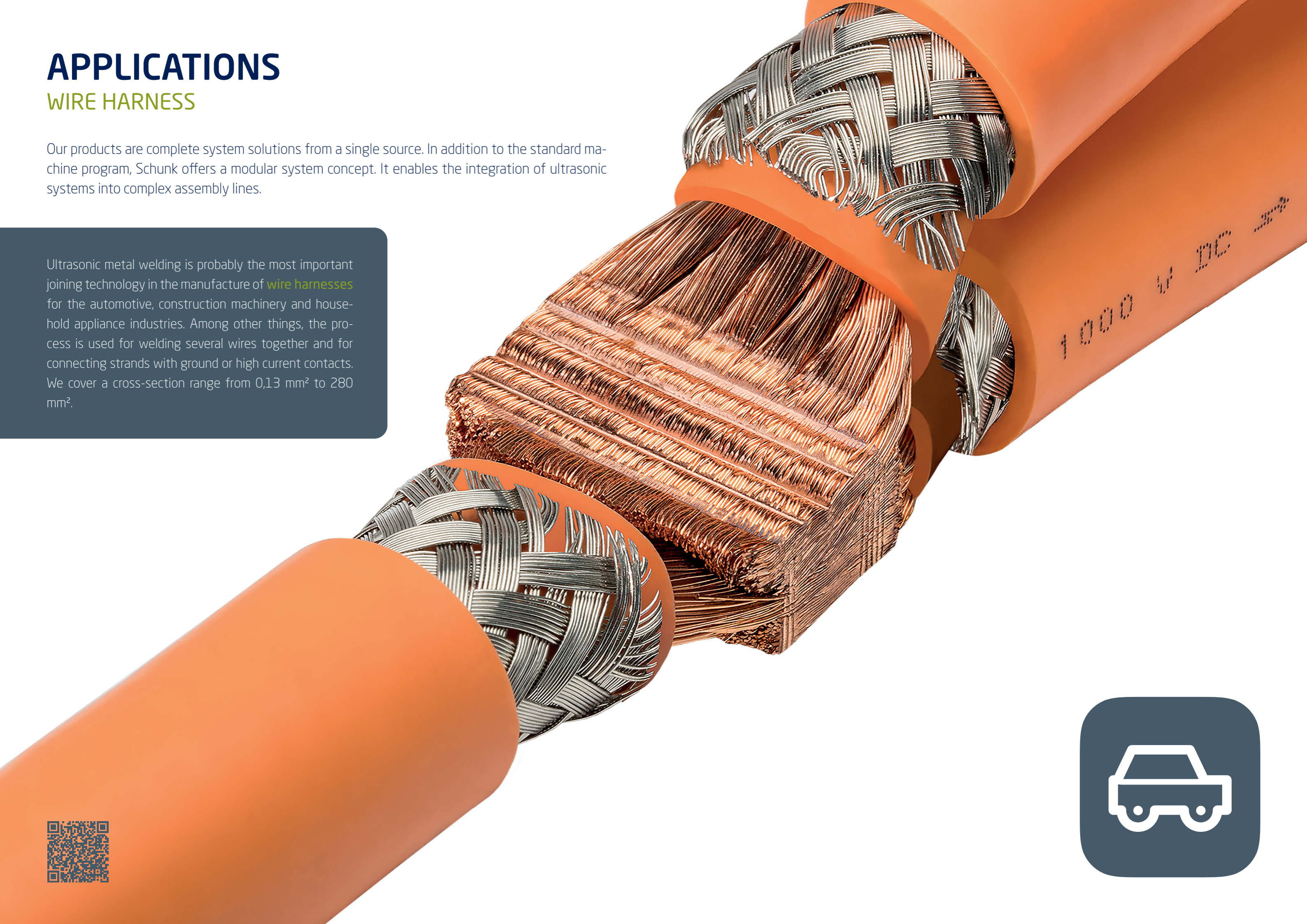


APPLICATIONS

WIRE HARNESS

Our products are complete system solutions from a single source. In addition to the standard machine program, Schunk offers a modular system concept. It enables the integration of ultrasonic systems into complex assembly lines.

Ultrasonic metal welding is probably the most important joining technology in the manufacture of **wire harnesses** for the automotive, construction machinery and household appliance industries. Among other things, the process is used for welding several wires together and for connecting strands with ground or high current contacts. We cover a cross-section range from 0,13 mm² to 280 mm².



APPLICATIONS

BATTERY TECHNOLOGY

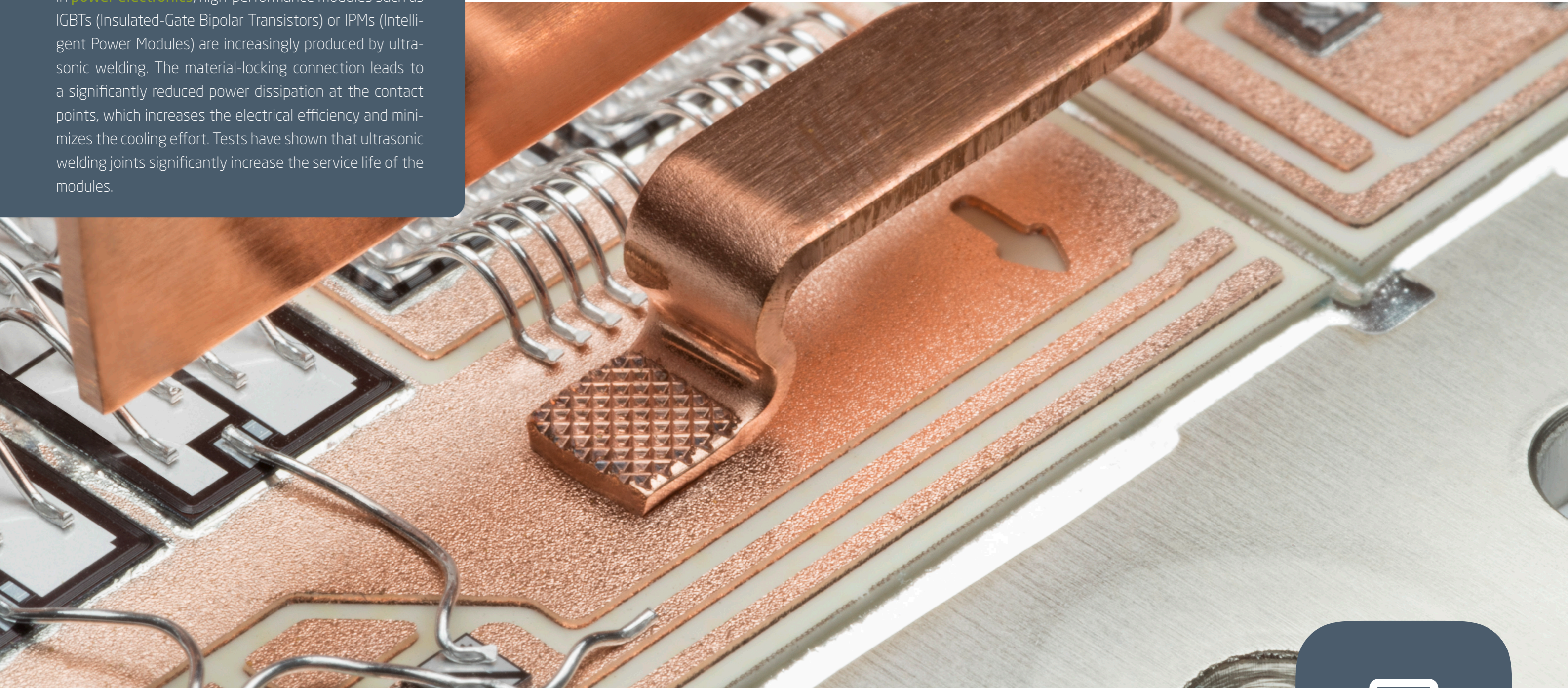
Li-Ion cells have become widely accepted in **battery technology**. Schunk covers the complete range of applications from cell production to wiring and battery contacting. For Li-Ion cells, this includes ultrasonic welding of thin-walled Al and Cu foils as well as high-current contacting and cable elements.



APPLICATIONS

POWER ELECTRONICS

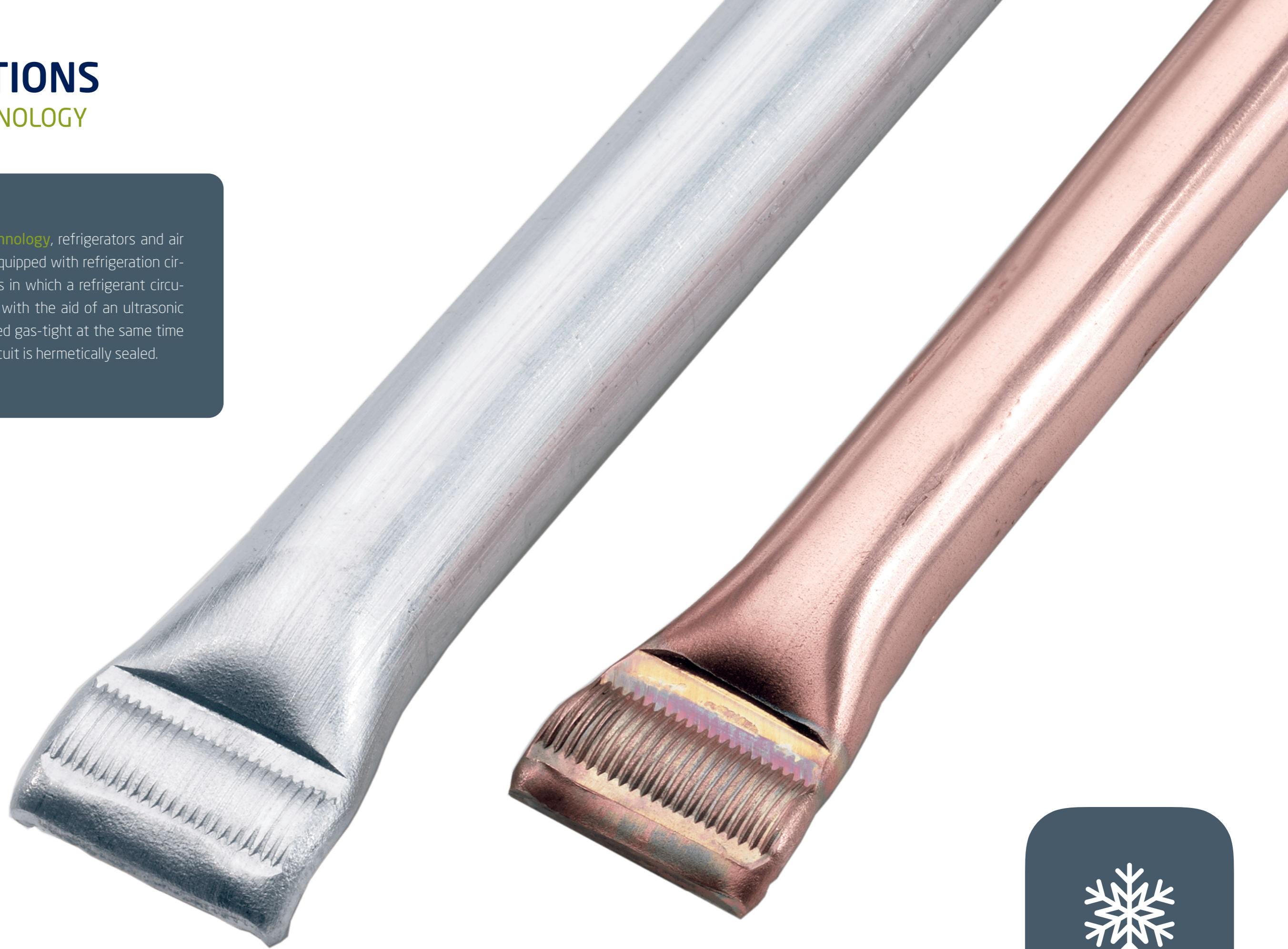
In **power electronics**, high-performance modules such as IGBTs (Insulated-Gate Bipolar Transistors) or IPMs (Intelligent Power Modules) are increasingly produced by ultrasonic welding. The material-locking connection leads to a significantly reduced power dissipation at the contact points, which increases the electrical efficiency and minimizes the cooling effort. Tests have shown that ultrasonic welding joints significantly increase the service life of the modules.



APPLICATIONS

COOLING TECHNOLOGY

In the field of **cooling technology**, refrigerators and air conditioning systems are equipped with refrigeration circuits made of copper tubes in which a refrigerant circulates. These tubes are cut with the aid of an ultrasonic welding machine and welded gas-tight at the same time so that the refrigeration circuit is hermetically sealed.



OUR EXPERIENCE

We have many years of experience in the field of ultrasonic welding. Through continuous cooperation with our customers and partners in the automotive industry, we know their needs very well. From the very first day, our goal has been the perfect connection. Millions of times. Worldwide.

1913 FOUNDATION SCHUNK & EBE

On October 27, 1913 the businessman Ludwig Schunk and the mechanical engineer Karl Ebe founded the Schunk & Ebe OHG in Fulda, Germany. At this time the company produces and sells carbon brushes for dynamos and motors, which are mainly used in industry as well as in trams and long-distance trains.

1980 ENTRY IN ULTRASONIC WELDING TECHNOLOGY

Schunk takes over Niebuhr Ultraschalltechnik GmbH, today's Schunk Sonosystems division. This lays the foundation for success in areas such as automotive, refrigeration and solar technology.

1990 INTERNATIONAL BREAKTHROUGH IN ULTRASONIC WELDING TECHNOLOGY

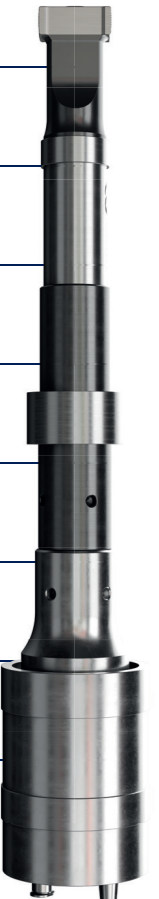
At the beginning of the 1990s Schunk Ultraschalltechnik introduced ultrasonic metal welding of wire harnesses in automobiles. The outstanding properties of the resulting joints help ultrasonic welding to achieve an international breakthrough in the automotive industry.

1997 ACQUISITION OF STAPLA ULTRASCHALLTECHNIK (D) AND STAPLA ULTRASONICS (USA) BY SCHUNK SONOSYSTEMS

2007 MERGER OF SCHUNK ULTRASCHALLTECHNIK AND STAPLA ULTRASCHALLTECHNIK TO SCHUNK SONOSYSTEMS

2016 ACQUISITION OF ULTRASONICS STECKMANN BY SCHUNK SONOSYSTEMS

NOTES





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