

Innovative technology for industrial ultrasonic applications

Offering solutions to users

PLASTIC WELDING

METAL WELDING

CUTTING

CLEANING

SCREENING



01

Interview between Ellen-Christine Reiff, Redaktionsbüro Stutensee, and Dr. Axel Vietze, CEO of the Telsonic Group.

The Swiss Telsonic Group has been offering its technological solutions through representation in Europe, America and Asia since 1966. Constant innovations help ensure that, in many applications, the company has achieved an advance that offers added value to users. With its more than 250 highly-qualified staff, the owner-managed family firm has specialised in plastic and metal welding as well as ultrasonic cleaning and screening. Current trends mean that these competencies are strongly in demand, e.g. for lightweight construction.

The main sectors of activity for the Swiss ultrasonic specialists are the automotive, packaging and medical industries. «As a pioneer in ultrasonic technology, we develop and sell production-ready ultrasonic solutions worldwide. Our in-depth development and production capabilities allow us to react rapidly to customer requests. Our focus here is on cooperation with users and system-builders,» sums up CEO & Chairman Dr. Axel Vietze. Competitiveness is assured by production sites in Switzerland and Serbia, which have been optimised according to LEAN principles. Thanks to its strong customer orientation, the company has grown constantly in recent years. Its product range includes ultrasonic generators, converters, actuators, mechanical assemblies, controllers, semi-automatic machines and a full range of acoustic tools. Even at the prototype stage, the FEM-supported development of ultrasonic welding sonotrodes accompanies the development of applications, leading to innovative tool designs. The effort put into mass production pays off in tools that have a homogeneous amplitude distribution with low power loss in the protection class required.



02

01 Electromobility – a topical subject, supported by industrial ultrasonic applications

02 Dr. Axel Vietze, CEO & Chairman of the Telsonic Gruppe

How is the technology developed at Telsonic different to that of its competitors?

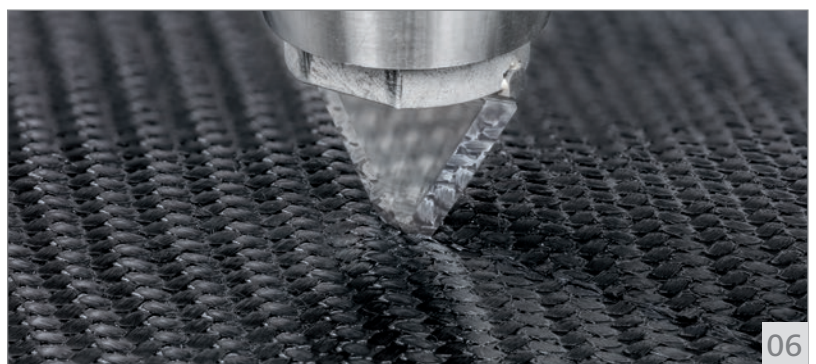
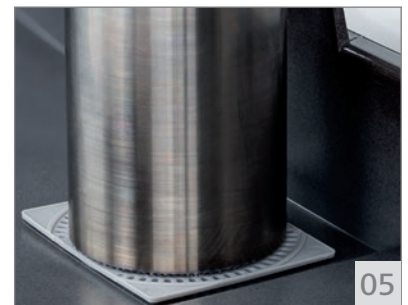
The SONIQTWIST® and PowerWheel® torsional welding technologies, offered as a complement to longitudinal welding, are unique throughout the world. Particularly gentle and powerful, they solve complex application problems for all industries. Among other things, this patented process permits better access to the application areas that cannot be reached with the longitudinal process. Telsonic also asserts its market leadership in high-output generators (5 kW and up), whose uses include metal welding and cut-n-seal of textiles.

Are there any topical trends in industrial ultrasonics?

Lightweight construction is an important trend in the automotive industry. Telsonic's SONIQTWIST® technology supports thin-wall technology, which is used, for example, in vehicle bumpers made from polypropylene (PP). This patented and extremely gentle welding process enables wall strength to be significantly reduced without visible marks on Class A surfaces of already lacquered vehicle parts. As well as cutting down on weight, it enables significant cost savings.

In the composites application field, pressure-free and cold cutting is much in demand. Telsonic ultrasonic cutting systems achieve outstanding results with a clean cut, giving them an advantage over water jet and laser cutting. In these applications, the water penetration or burn traces they leave behind are often unwanted. In addition, ultrasonic welding systems need no additional resources and require little energy. Ultrasonic-optimised hard metal blades increase material throughput thanks to high cutting speed. Tools are also subject to less stress and have a longer service life.

At Telsonic, electromobility is divided into the application areas of batteries, IGBT (power electronics), battery and high voltage cables. In battery manufacture, ultrasonic screening systems from the SONOSCREEN®plus range ensure homogeneous powder consistency for the manufacture of electrodes. During cell assembly, the conductor foils are bonded with the cell conductors (pouch cell) or with the contact terminals (e.g. round cell) using the longitudinal or the torsional high-power welding process, depending on the application. In ultrasonic welding on metal-coated ceramic substrates, as used in power electronics (IGBT modules), the gentle torsional welding process has an advantage over traditional longitudinal welding, because it subjects the material to less stress. Telsonic ultrasonic systems have been welding battery cables for many years now and are in series production worldwide with well-known manufacturers of electrical systems. One of Telsonic's success fields is PowerWheel® torsional high-powered welding for bonding battery and high-voltage cables made from copper or aluminium, particularly with large cable cross-sections. The reliable process of welding cable strands in the prefabrication of vehicle cable harnesses is characterised by growing quality requirements in autonomous driving – a current topic in quality monitoring. To this end, the Telsonic Quality Control Center (TQCC) provides a solution that can be integrated into the production process and networked with MES systems, thereby meeting the requirements of Industry 4.0. The general quality characteristics of the ultrasonic welding process are low contact resistance and low mechanical and thermal stress during the welding process.



- 03 Vehicle bumpers with ultrasonically welded sensor brackets
- 04 Sensor brackets for parking distance sensors, torsionally welded with SONIQTWIST®
- 05 Ultrasonic sonotrode welds sensor bracket to bumper
- 06 Ultrasonic cutting of a carbon-fibre mat

