TELSONIC
ULTRASONICS

Battery cell production for electric vehicles using SONIQTWIST® ultrasonic welding

PLASTIC WELDING | METAL WELDING | CUTTING | CLEANING | SIEVING

01 Ultrasonic welding systems from Telsonic in battery cell production (pole welding)

In the dynamic world of electric vehicles (EV), the efficient and high-quality production of battery cells is of crucial importance. With its SONIQTWIST® torsional ultrasonic welding process, Telsonic has established a key technology that is revolutionizing the production of cylindrical battery cells and proving essential to meet the growing demand for high-performance batteries for electric vehicles.

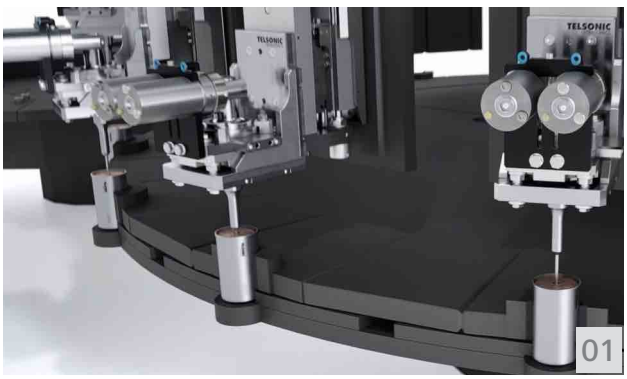
Significance of cylindrical battery cells

The automotive industry is increasingly favoring cylindrical battery cells due to their simple and cost-efficient mass production. An average electric vehicle contains 1,000 to 9,000 such cells, making a highly efficient production method essential to ensure quality, consistency and production speed. The SONIQTWIST® procedure from Telsonic offers an optimal solution here.

Advantages of the SONIQTWIST® procedure

SONIQTWIST® is particularly suitable for the complex architecture of cylindrical battery cells, each of which consists of an anode and cathode, which are wound separately into a cylindrical roll by a separator. In comparison to laser technology, which is impressive in terms of precision but reaches its limits when it comes to integration in high-speed production environments, SONIQTWIST® offers significant advantages:

Efficiency and speed: SONIQTWIST® enables fast (less than 200 ms) and high-quality production of up to 250 ppm, which is essential for the cost-effective mass production of battery cells.



This technology is not only more cost-effective than the various fusion welding processes, but also minimizes the risk of pore formation, splatter and hot cracks due to lower heat development.

Production monitoring and control:
the innovative Telso®Flex software from Telsonic enables efficient monitoring and logging of ultrasonic welding processes with data transparency and precise real-time control of the welding process.

Proven reliability and process security:
the SONIQTWIST® process has been used successfully in various other industries for many years. It is an established, reliable technology that is easy to integrate into production facilities.

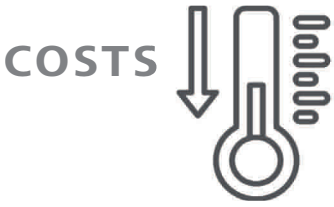
02 Jelly Roll Exhibit Show Room

Environmental friendliness and future prospects

In addition to productivity and quality, ultrasonic welding with SONIQTWIST® is also environmentally friendly. It is a demand-oriented system with low energy consumption that does not require protective equipment and does not produce any hazardous emissions or waste, nor does it need any additional materials. These aspects are in line with the environmental goals of e-mobility and make SONIQTWIST® a pioneering green technology in battery cell production for electric vehicles.

TOP 3 USPS OF THE SONIQTWIST® ULTRASONIC WELDING PROCESS

High efficiency and speed:
- Faster production
- More output



Cost advantage and lower heat development:
- Lower production costs
- Higher product quality.

Environmental friendliness:
- Supports sustainability goals
- Improves the company image.

Conclusion

The SONIQTWIST® ultrasonic welding process from Telsonic represents an innovation in the production of battery cells for electric vehicles. With its efficiency, speed, cost-effectiveness, proven reliability and environmental friendliness, it is ideally positioned to meet the challenges of the growing EV industry and make a decisive contribution to the sustainable mobility of the future.

By Axel Schneider, Head Business Development Battery at TELSONIC Ultrasonics