Press release

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Application: Sensor holder in car bumper

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SONIQTWIST® torsional technology is used to weld sensor holder to painted car bumper

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Reliable results without a trace

(Erlangen) Holders for the sensors of car parking assist systems are welded to fully paint-coated thin-walled bumpers. The weld must be completely invisible from the outside. Nevertheless, the weld has to be firm, reliable and durable. A first-tier supplier has opted for the SONIQTWIST® torsional ultrasonic welding system made by the Swiss TELSONIC AG and is achieving top results. With this system it is even possible to reduce the bumper thickness by 20%. The OEM is so pleased with the system that he has now released it for other brands.

"When the sensor holders are welded to the fully paint-coated bumpers, the weld must be completely invisible from the outside", explains Wolfgang Ott, Head of the Plastic Welding Department at TELSONIC. Nevertheless it is imperative that the process of connecting the plastic clip to the bumper is absolutely reliable. After all, the clip has to hold the sensors for the distance control and parking assist system. In the same way, the retractable headlight cleaning system has to be attached to the car body beneath the Xenon headlights.

Fully automatic, firm and reliable

The world's third-largest bumper manufacturer relies on the SONIQTWIST® torsional ultrasonic welding process made by TELSONIC AG, Switzerland. The system achieves strong welds that easily and reliably comply with the 250 to 300 Newton strength requirement without the sonotrode penetrating into the bumpers' substrate. The reliable connection process relies entirely on boundary friction between the holder and the bumper. The process does not produce any visible blemishes or marks on the exposed side of the bumper.

In previous trials with welding processes by other suppliers some deformations were caused by the sonotrode and the values for strength varied a great deal. In some cases the bumper was punched through. Alternative bonding processes showed

weaknesses when exposed to temperature fluctuations with extremes of heat or cold. Some sensors even dropped off thus disabling the system. The result was that bumpers got damaged.

But not so with the SONIQTWIST® torsional jointing technology. Ultrasonic heads with a 1.2 -2.4 kW rating, fitted to a fully automatic bespoke system or a robot with several actuator units, weld the sensor holders to the pre-punched recesses in the paint-coated bumpers in a reliable process with full repeat accuracy. The cycle time required for the welding process is not more than about 200 - 300 ms. A German car manufacturer has successfully introduced the fully automatic jointing process, which is suitable for serial production, for the models of its premium brand and has now released it for other brands.

Reducing weight and costs

A welcome side effect of the process has become extremely important for the OEM: because SONIQTWIST® works with boundary friction and does not leave any marks on the outside, the thickness of the bumper could be reduced. For this ultrasonic welding process developed by TELSONIC, the thickness of the material can be between 2.5 and 3.0 mm. Compared to the previous thickness of 3.4 mm and over, considerable savings and, importantly, a significant weight reduction can be achieved, which in turn can reduce the CO_2 emissions. In this way SONIQTWIST® helps manufacturers to comply with the respective EU standards.

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((Company information on TELSONIC AG))

Pioneer and technology leader in Switzerland

TELSONIC AG is a pioneer in ultrasonics technology. The company, which was founded in 1966, has subsidiaries in Germany, England, South-East Europe, China and the USA, is part of a joint venture in India and has agencies in many countries. Today, TELSONIC is one of the leading ultrasonics companies worldwide and owns numerous patents. Ultrasonics technology is used for welding, cut-and-seal welding, cleaning and screening as well as in chemical processes and packaging. Having introduced the Torsional Welding Power Wheel, TELSONIC has again achieved leadership in technology. The technology has spawned new solutions in many automotive engineering applications and has paved the way for numerous potential savings.

Image No. 34-01 TC_.jpg.
Ultrasonic heads with a 1.2 -2.4 kW rating, fitted to a fully automatic system, weld the sensor holders to paint-coated bumpers in a reliable process with full repeat accuracy.

Image No. 34-02 TC_AS-Sensorhalter.jpg.
TELSONIC's SONIQTWIST® process is used to weld sensor holders firmly and reliably to paint-coated bumpers without leaving any marks.