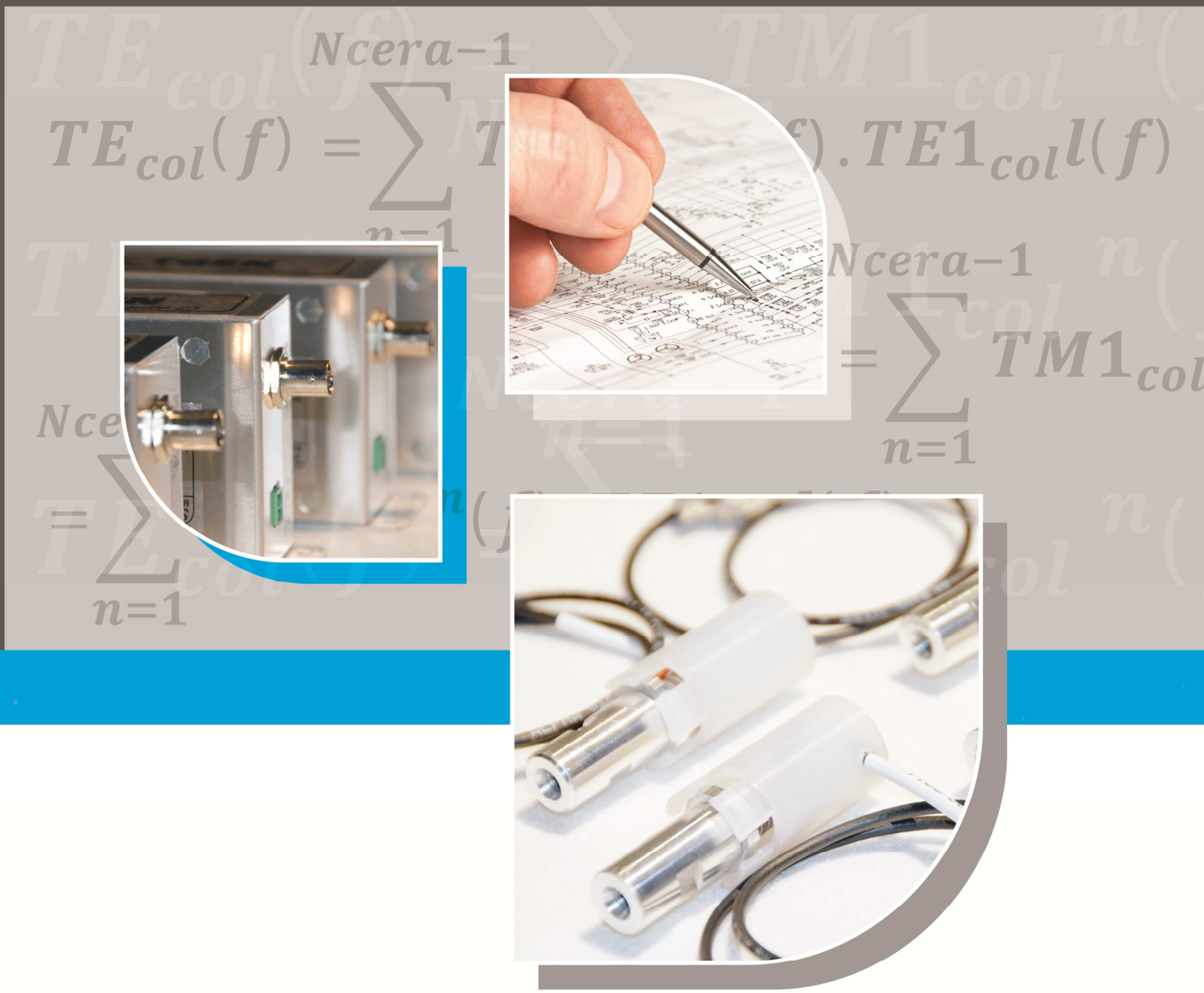
THE ART OF ULTRASONIC TECHNOLOGY



Ultrasonic welding/cutting of plastic parts

SinapTec®
ULTRASONIC TECHNOLOGY

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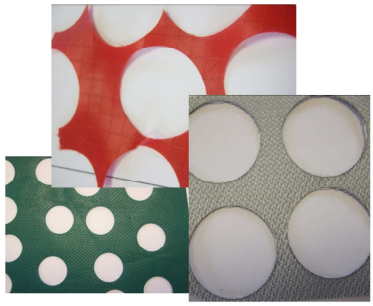
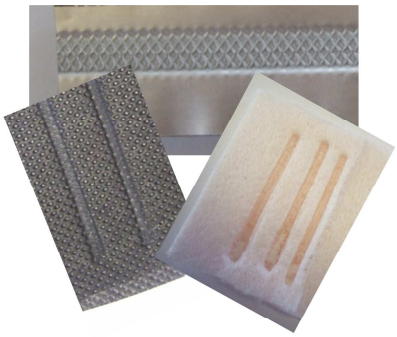
▪ Find out more



Ultrasonic assembly applies to all types of heat-fused materials, plastic and technical textiles in the car, plastics, packaging and textile industries. The process can weld closely and/or cut, deburr, punch, etc.

The ultrasonic welding or cutting equipment includes an electronic generator and a transducer (electro-mechanical converter). This sends the ultrasonic vibrations to the tool which is then pressed against the part to be processed. The heat then produces a close weld between the materials or a very clean cut depending on the tool chosen.



The sonotrode (tool) is designed specifically for the application: the type of plastic used for parts, the geometry of the contact area between the two parts.

Cutting, for example, takes place directly on the contact surface between the sonotrode and the part.

When welding, the energy is transmitted to the contact area between the two plastic parts. The profile of the interface joint between the parts is therefore decisive for a successful assembly. The overlapping material concentrates the energy. A low spot is reserved for the melted material to avoid burrs.

The load pressure application cycle when the ultrasonic vibration is being applied, then when the material is cooling, must also be finely tuned and controlled.

Specific support

As the use of an ultrasonic solution is relatively complex and specific to each requirement, our service includes support that is tailored to the specific expectations of our clients and to the maturity of the project:

- Drafting the specifications in partnership with our customers to specify the requirements.
- Custom design and adaptation of equipment described below depending on the application.
- Training in the use of our equipment.
- Monitoring of the equipment's user and configuration protocols.

Examples of applications

Sewing machine for hospital mattress covers

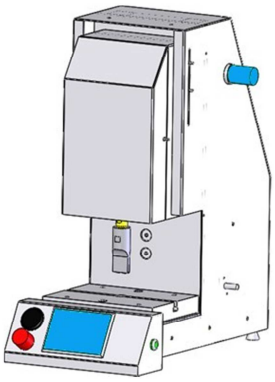


Table press for blister sealing

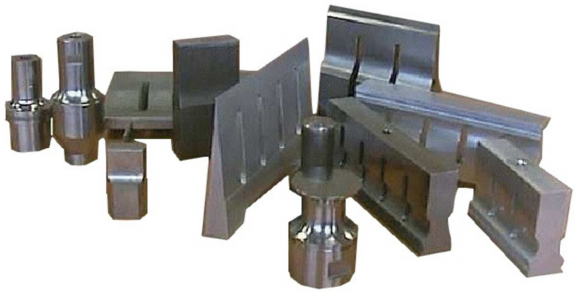
Cutting and forming climbing rope

Manual welding tool

Continuous welding machine for garden chair canvas

- Ultrasonic transducers

The transducers are designed and adjusted to the application. They are available in different frequencies and powers. They can operate continuously or in a cycle.



The sonotrode (tool) is custom made after dimensioning by our team of engineers.

Frequency	20, 30 or 35 kHz
Ultrasonic power	100 to 1000 W
Sonotrode	Shape and dimension upon request. Titanium
Transducer cooling method	Compressed air 3 to 5 bar by connection for 6 mm dia. pipe
Options	Flange Specific counter-tool for continuous welding

- Ultrasonic generators

Power generators in the NexTgen range are set for and adapted to the set transducer/sonotrode.

Model	Continuous effective power	Maximum power for short cycle time	Power supply
inside 25	25 W	25 W	24 V_{DC}
inside 150	150 W	300 W	
inside 200	200 W	400 W	120/230 V_{AC}
inside 500	500 W	1000 W	
inside 1200	1200 W	2400 W	
inside 2000	2000 W	4000 W	

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