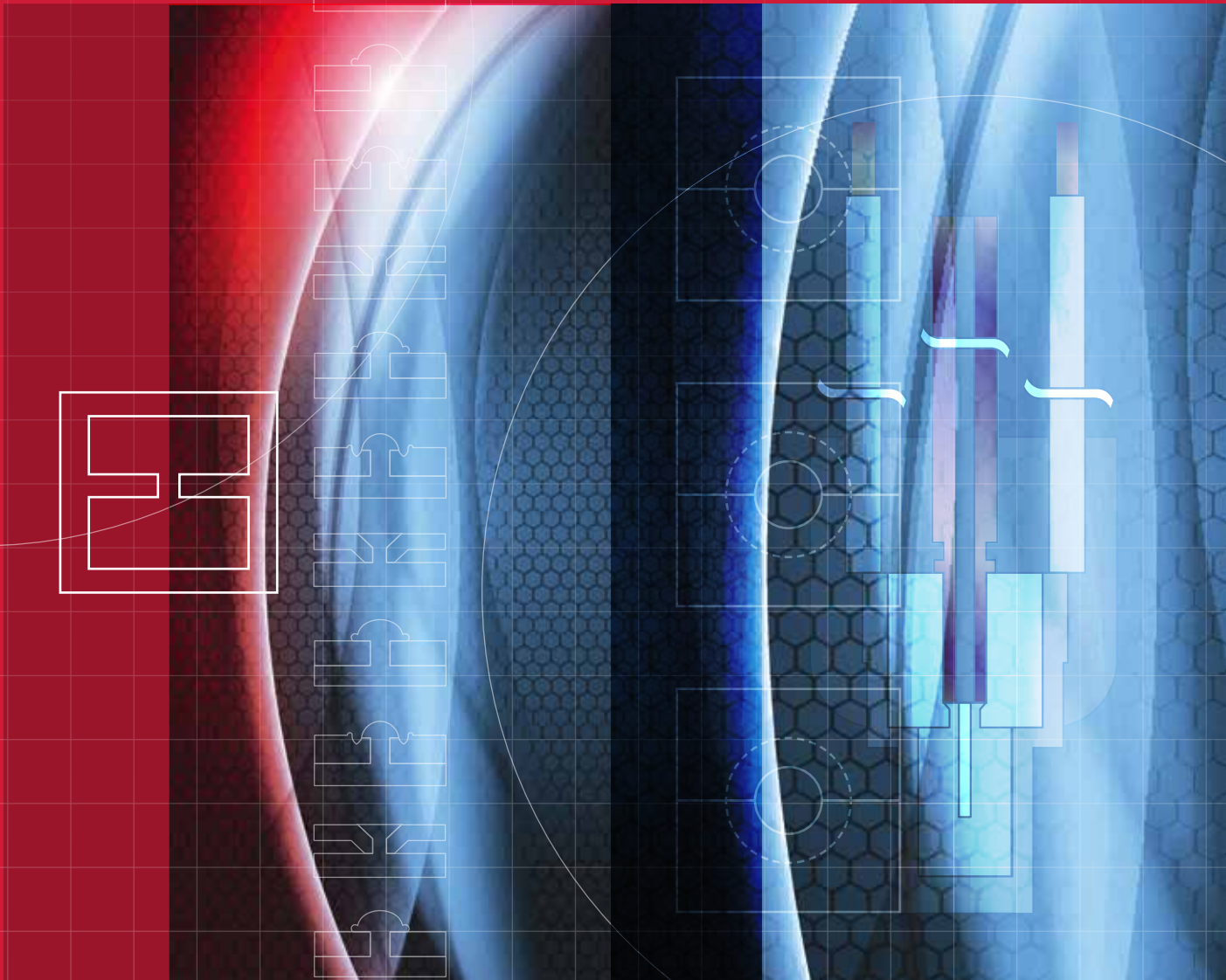


HTE

plastics joining solutions



company overview



plastics engineering and
automation solutions





HTE are a custom automation solutions company specialising in the design and manufacturing of bespoke plastic welding and component joining equipment.

The core technologies integrated into HTE machinery are derived from advanced joining and assembly technologies widely applied in Japanese industries. The staff at HTE have experience in applying these technologies in Ireland, UK and Europe since 1987.

Through combination of experiences, HTE have developed into an Advanced Plastics Application Engineering Solutions Provider that has a comprehensive applications' understanding of:



- Plastic injection mould tool design
- Mould tool maintenance
- Plastic injection moulding
- Plastic injection moulding materials
- Plastic assembly processes
- Plastic surface painting and finishing

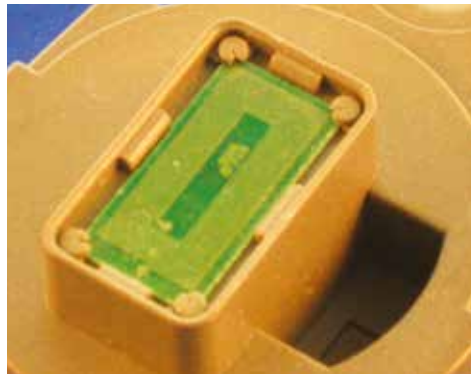
HTE personnel have an extensive background working in mass production environments. This has developed their core ethos and values evolving the company into a customer-focused, stand-alone, autonomous business unit providing plastics engineering and automation solutions to a wide range of industries.

Centre-stage in the design & manufacture of the HTE equipment range is the engineering application of Japanese technology, branded in Europe as **PulseStaker**.



PulseStaker

The PulseStaker is HTE's patented heat staking technology which provides instantaneous heating and cooling. PulseStaker provides high levels of safety, consistent product quality and delivers significant energy savings. PulseStaker technology can be implemented in varying levels of sophistication according to customer requirements. From simple time controlled open loop systems to sophisticated closed loop systems with temperature feedback; HTE's value added engineered solutions deliver consistently.

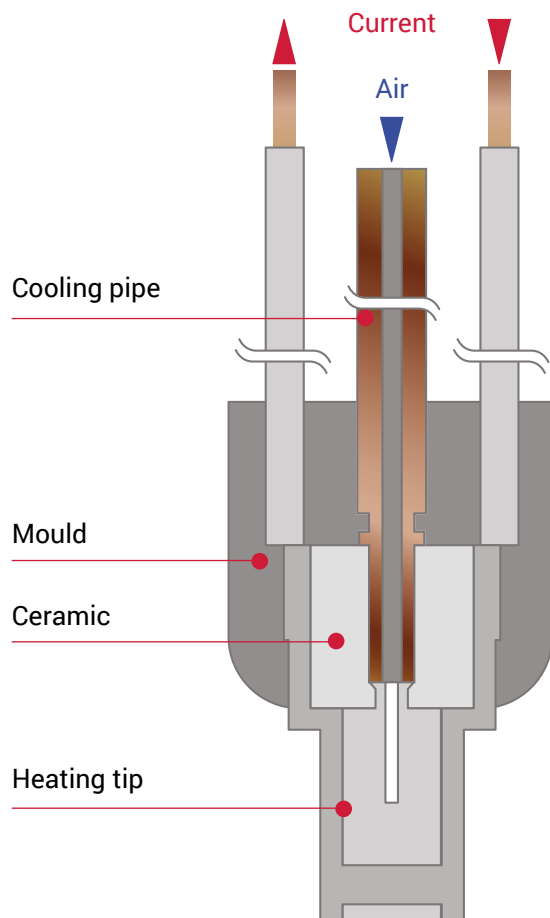


Benefits of PulseStaker

- 1** No vibration damage, burning smells, or burn marks combined with well-formed finishes.
- 2** Localised heating & cooling prevents damage to nearby components.
- 3** Adjustable heating and cooling cycle times delivering an optimised process.
- 4** Optimised heating process of polymer reducing internal stresses.
- 5** Wide range of heating tip shapes and forms, suitable for all applications.
- 6** Capital investment costs lower when compared with other joining technologies.
- 7** Damage to Class A surfaces removed due to the non-vibration properties of PulseStaker.



PULSESTAKER
Plastic Joining Solutions



PulseStaker technology is available in desktop apparatus, integration modules and large free standing machinery. HTE provide bespoke machinery design, fulfilling customer requirements.


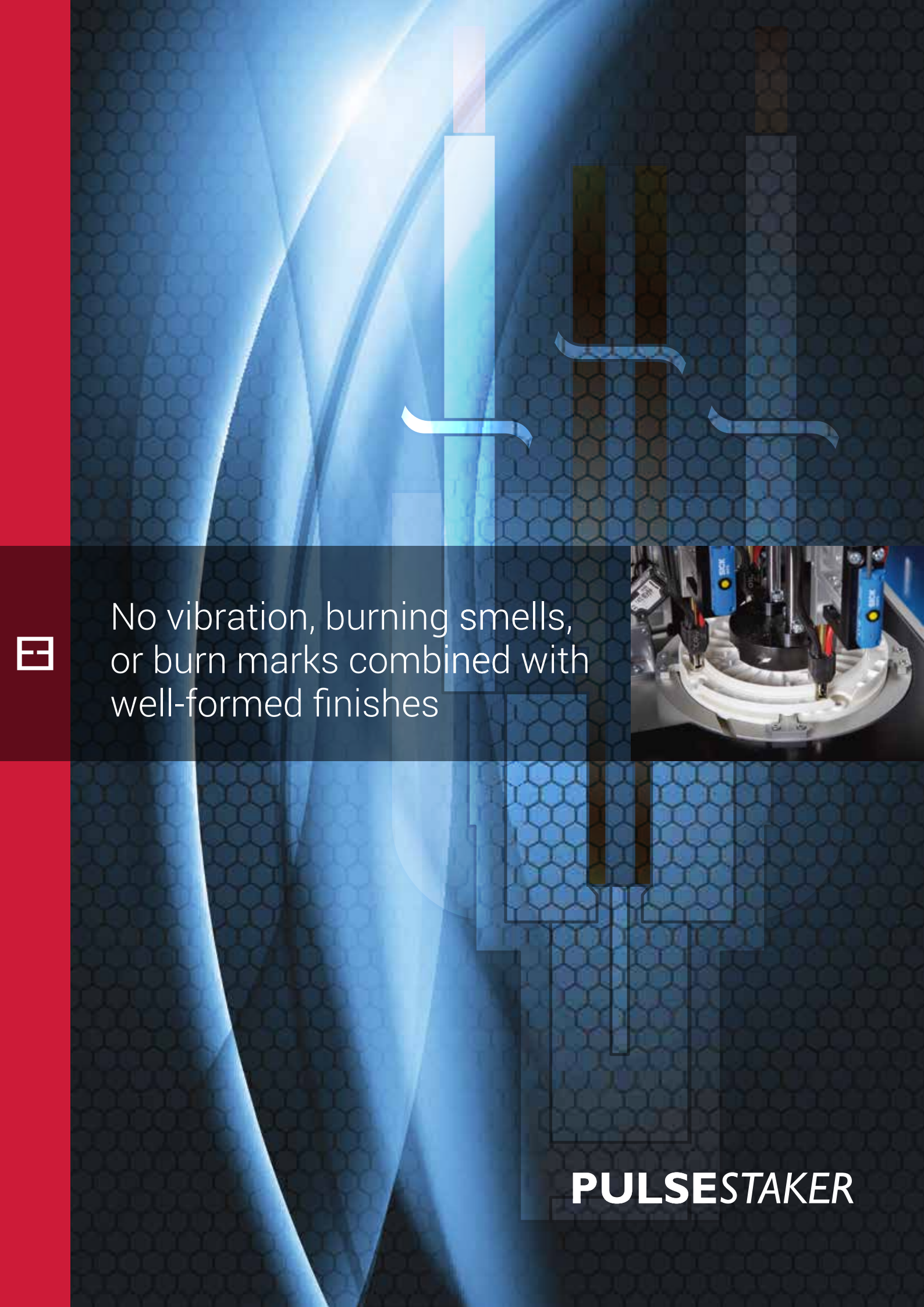
PulseStaker Heating Tip Structure

The diagram on the left is the structure of the PulseStaker heating tip. When an electric current flows through the heating tip, the electrical resistance creates heating effect.

The thermoplastic stake boss is softened and a rivet head can be formed. After this a jet of compressed air cools the tip.

Multiple points including multiple polymers can be staked simultaneously. Cycle time is influenced by the volume of polymer to be reformed.





No vibration, burning smells,
or burn marks combined with
well-formed finishes

PULSESTAKER

Applications for PulseStaker



1



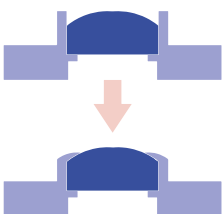
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1 Flat Head Tip Welding

This application is used in the assembly of battery terminals and metal plate fixing.

2 Polymer to Polymer and other Materials

The most common application is where the material with the boss is thermoplastic. Applications include automotive door rims, keyboard buttons, retaining metal shims and holding circuit boards.

3 Polymer to Polymer

This is similar to the previous application except that both materials are the same and the stake point is deeper. This creates an ideal seal. The application is used in the assembly of cooling pot lids and fishing reels.

4 Bonding

A fibrous material without a hole in the material. The application is used in the assembly of sound damping material to automotive pillars, doors and panels.

5 Rim Swaging

To lock parts in position. This application is used in the assembly of camera lenses and retaining bearings.





6 Sealing Holes

This application is used in the assembly of relay cases, blow moulding gates and security sealing.

7 Embedding Parts

Including bolts or pins, sealing holes or access to screws. This application is used in the assembly of cellular phones and automotive components.

8 Polymer to Mesh

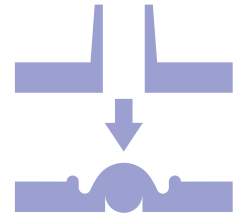
This application is used to bond a mesh without making a hole in the mesh. The application is used in the assembly of automotive louvred covers or filter fixing.

9 Polymer to Polymer welding

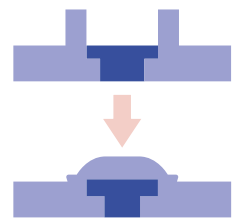
This application is used to weld two polymers together. A hole in one piece facilitates a weld where it contacts the adjacent polymer.

10 Breathable Membrane

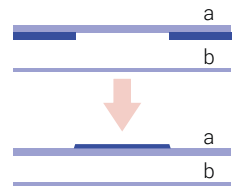
Attachment of breathable membrane to plastic parts.



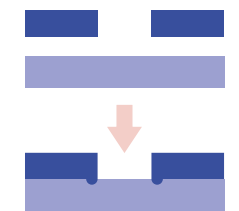
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Pulse Fusion



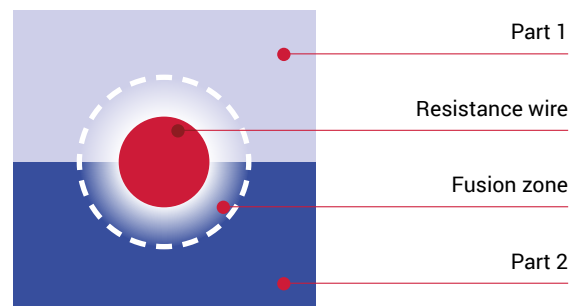


Pulse Fusion

Pulse Fusion is a technique to bond thermoplastic parts together.

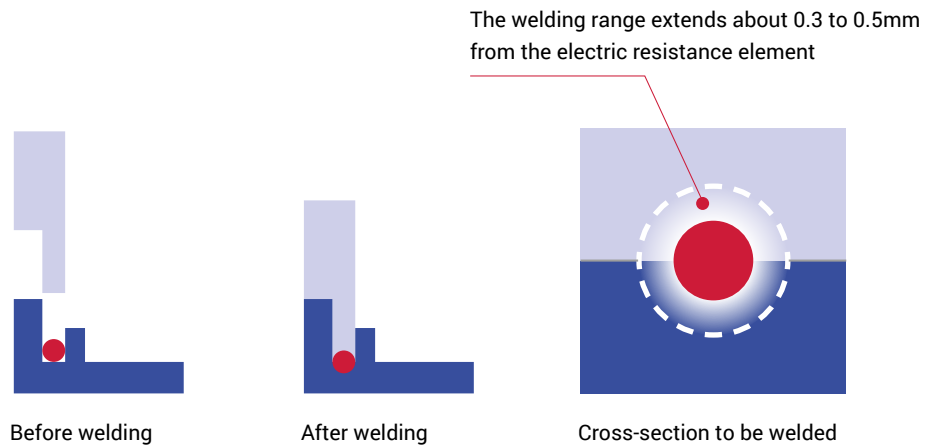
The main point of the method is to use a resistance wire to create local heating. This heating causes the two plastic parts to melt in the area of contact with the wire. The application of pressure pushes the two parts together to create a fusion zone around the wire.

In most applications of this technology, the wire remains between the two components but in some applications it is possible to remove the wire.



The features of this system are:

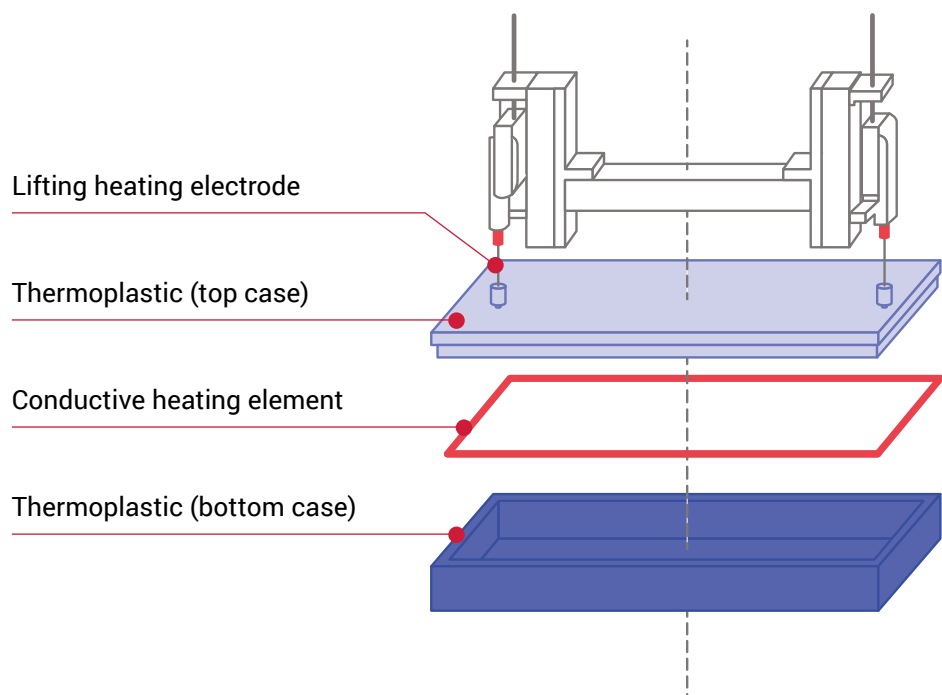
- Because of the uniform heating, a uniform joint strength will be achieved.
- No significant energy is induced into the product. This eliminates damage to cosmetic surfaces and delicate components.
- Can achieve a gas and watertight seal.
- The process is reversible. The enclosure can be opened and high cost components repaired / reused / recycled.



The benefits of this system are:

Manufacturing costs are reduced. This is achieved by:

- Lower reject rates
- Consistent joint strengths
- Capital investment cost reduced





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