

WE OPERATE INTERNATIONALLY

PSTproducts is the market and technology leader in the field of EMPT machine systems for the product-specific industrial manufacturing.

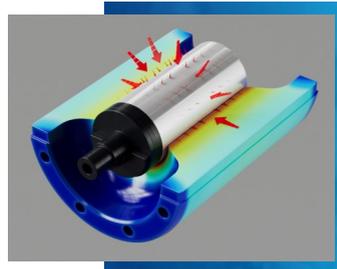
Electromagnetic Pulse Technology (EMPT) is an innovative welding, joining, forming and cutting technology. It provides significant technical and economic advantages compared to the well-known classic processes. PSTproducts is the first company worldwide to offer EMPT machine systems that meet the requirements of industrial mass production.

In order for PSTproducts to continue its successful growth, each individual must contribute his or her expertise and services to the satisfaction of our customers and the company, and constantly develop them further. The way we interact with each other is characterised by high esteem, mutual understanding, openness and fairness. Our aim is to have satisfied customers and employees who drive our constant growth.

Economic independence is our ultimate goal. We want to remain independent. Growth which is driven by our own resources is decisive for this. The willingness to commit oneself to the company in good times as well as in bad applies equally to everyone in the company. We are committed to achieving this together with all our abilities and great deal of passion.



Main Principles of the electromagnetic pulse technology (EMPT)



Two parallel conductors, carrying counter-flowing currents, repel each other. This principle is applied in the electromagnetic pulse technology to a tubular structure (tubes, closed sections etc.), which is inserted into an electrical coil. In this situation, both the tube and the coil represent an electrical conductor. A field shaper concentrates the magnetic field, targeting the magnetic field onto the area to be deformed and reduces the forces to be reacted by the coil. A sophisticated pulse generator produces the necessary magnetic pressure in the coil. If an alternating current is applied to

the coil, this induces a counter rotating eddy current in the tubular structure. This is effectively repelled by the coil and accelerated by the pulsed current. Thus a compressive force is applied in a radial direction.

EMPT Crimping

Joining by mechanical interlock avoids problems that can occur during mechanical crimping due to material variation and coaxial misalignment.

In addition, as the process is non-contact, the joint has no surface damage nor any material migration and coatings remain intact. These factors make the process an ideal choice for high voltage cables in e-mobility applications.



EMPT Welding

If a product has special demands such as high strength or leak tightness, EMPT welding, i.e. atomic bonding, is required. High integrity welds can be achieved with EMPT in metallic structures without applying thermal stresses nor creating a heat affected zone, therefore creating neither changes to the micro structure nor material property changes. An additional benefit of this technology is the high strength of the joint. The strength is equal to the strength of the softer work piece material.

Even metals with very dissimilar melting points such as aluminium and steel can be joined on an atomic level.



EMPT Forming

Tubular structures of virtually any shape can be compressed or expanded by EMPT, so enabling structures to be processed at a much lower cost. These are similar to those made by hydro forming, while simultaneously being cut.

The quality of sheared edges is extremely high, with no burrs. In addition, highly controlled geometry is possible, due to the lack of spring-back due to the high forming rates.



ADVANTAGES OF EMPT

- ✓ 35µs processing time
- ✓ No heat-affected zones
- ✓ Atomic bonding (solid phase weld)
- ✓ No distortion
- ✓ Contactless
- ✓ No intermetallic phases
- ✓ Leakfree and heliumtight connections
- ✓ High repeatability and reliability
- ✓ No shielding gas required
- ✓ Ease of automation
- ✓ Weld length up to 2m with one pulse





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Also located in:



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