Ceramic-Metal-Joints

Vacuum brazing of all engineering ceramics

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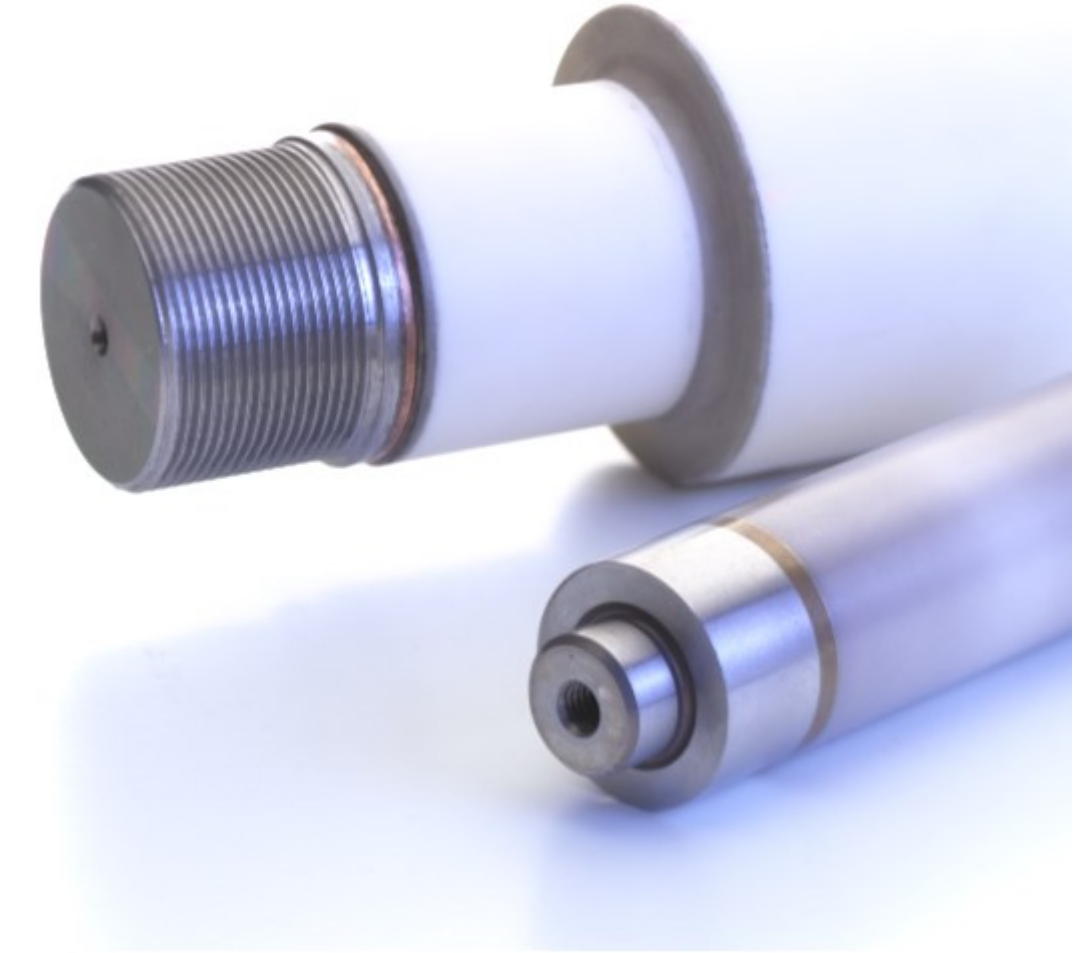

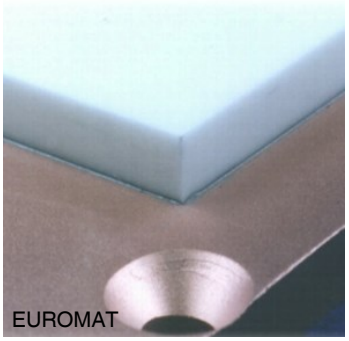
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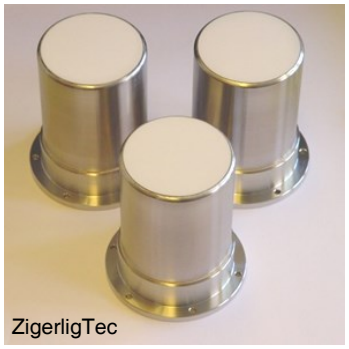
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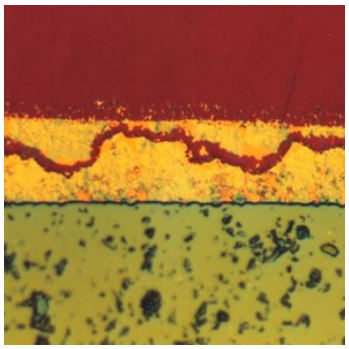

The use of active brazing alloys in a vacuum results in the direct wetting of oxide and non-oxide ceramics as well as the superhard materials cBN and diamonds. Besides joining, this process combination is also suitable for the metallization of ceramics and the application of functional structures onto ceramic substrates.

The fields of application of this production technology are manifold:

- Measuring and sensor technology
- Power electronics
- Mechanical engineering
- Grinding and cutting tools

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Ceramic meets metal

Freedom of design and functionality enabled by vacuum brazing

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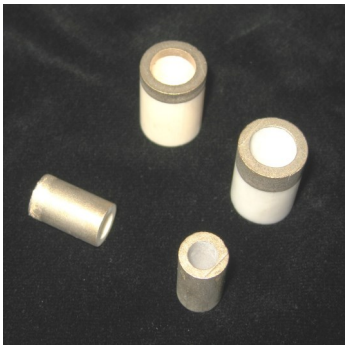
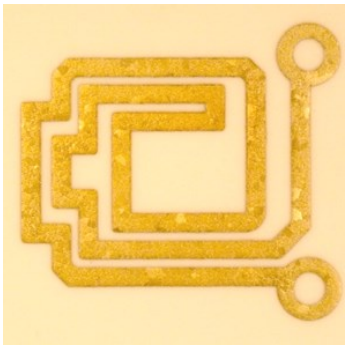
Competence:

Special applications require special component properties which often cannot be guaranteed with a single metallic material. Listemann offers vacuum brazing as a toll service, a joining technique universally to apply. In principle each high-performance ceramic can be firmly joined with almost every metallic engineering material. Specific materials properties can be used at a place where really needed.



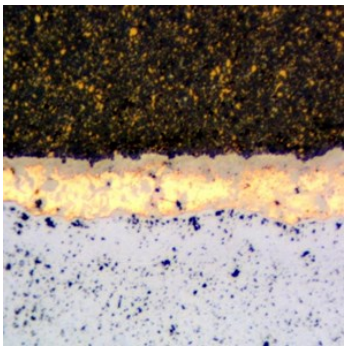
Customer benefit:

- Chemical bond which result in high mechanical strength even at elevated service temperatures.
- Broad range of material combinations possible between different ceramics as well as between ceramics and metals.
- Every high-performance ceramic can be brazed directly because active brazing does not require a prior metallization of the ceramic.
- Fluxless soldering in air atmosphere by using special S-Bond technology.



Properties:

By the use of active brazing alloys in vacuum atmosphere a direct wetting of oxide- and non oxide ceramics, even cBN and diamond can be achieved. Besides joining of structural components active brazing can be used to metalize ceramic surfaces or to generate functional structures on ceramic substrates.



Application areas:
Food and pharmaceutical industry, mechanical engineering, sensor and measuring technique, cutting tools, watch and jewellery industry, safety engineering.

Our service:

- Consulting in materials selection and component design
- Performing test brazing and sampling orders
- Brazing of serial components, up to mass production
- Proven experience in vacuum brazing of aluminia (Al_2O_3), ruby and sapphire, zirconia (ZrO_2), silicon carbide (SiC), boron carbide (B_4C); silicon nitride (Si_3N_4), boron nitride (hexBN, cBN); aluminum nitride (AlN), graphite, diamond, CFC, etc.

ISO 9001
BUREAU VERITAS
Certification

Whether electronic chip or power plant: Listemann offers material innovation for product and production in the fields of aerospace, energy and environmental technology, mechanical engineering as well as tool and mould making. Other demanding industries such as semiconductor or medical technology also benefit from our range of products. Our thermal manufacturing technologies enable components to be manufactured more efficiently and their service life to be extended. In this way, we secure competitive advantages for our customers.

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