



COLDBOND® fulfils your exacting requirements

Fluxless low-temperature bonding, soldering, metallizing and sintering of metals, light metals, non-ferrous metals, ceramics and glass as well as heat-sensitive materials and workpieces

>> Fields of application: electronics, optics, sensor technology, medical technology and thermal management

The fluxless metallurgical bonding of materials at 140 °C is very challenging. Oxide deposits generally prevent wetting of the surfaces that are to be soldered. There are no fluxes which can break down and/or dissolve the oxides. These deposits must also definitely be avoided in the case of exacting requirements, e.g. relating to the purity of the components or the quality of the soldered joints. Furthermore, stress issues have to be considered, in particular when it comes to creating a secure bond between materials with differing coefficients of thermal expansion. In addition, important requirements in the process are good thermal conductivity, no evaporation or emission of organic components in the clean room or vacuum, joints that can be desoldered, resistance to ageing, and recyclability.

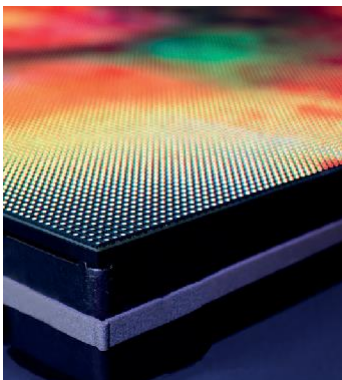
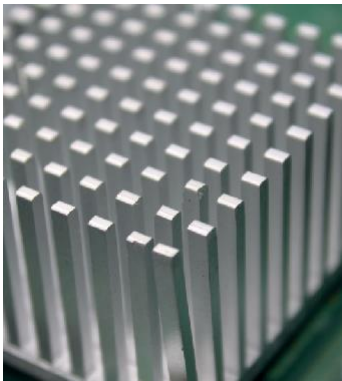
Our innovative COLDBOND® procedures master these challenges!

euromat

COLDBOND® capabilities

COLDBOND® provides top-quality process technology solutions for these demanding tasks, based on its features:

- >> Vacuum and active-gas soldering from 140 °C to 450 °C
- >> Suitable for metals, light metals, ceramics and glasses as well as heat-sensitive components such as TEG or LED modules, foils or moulds, fibres or contacts
- >> Customised adaptation to component shapes and combinations of materials
- >> No subsequent cleaning of components needed (by avoiding the use of fluxes)
- >> Reproducible, reliable and economic process control
- >> Can be used for sample batches as well as small and large production runs
- >> Bonding processes lead-free as per RoHS



What materials are used for COLDBOND®?

The solders used are In, Bi, Sn or Au/Sn solders.

Preforms are generally preferred to solder pastes. Materials which are difficult to wet such as light metals, ceramics or glass are metallized in advance, e.g. with Ni, Ag, Au or Pt. The solder must be produced to a very high standard. For instance, overlaid solders should not be used. "Fresh" solders are normally used which meet exacting purity standards.

The surfaces of the components must be very clean prior to the soldering process, and they are therefore thoroughly cleaned beforehand. The components are handled in conditions similar to those of a clean room. This prevents any contamination of the components, e.g. due to finger grease or dust.

Cutting-edge materials and applications are always used

The very latest developments in nano- and micro-materials are implemented in the COLDBOND® process, based on In, Sn, Ag, Cu, Ni or even soft-active soldering – e.g. with Ti and rare-earth elements. Furthermore, in addition to these versions of solder, pressurised (5 MPa to 35 MPa) and pressureless sintering is possible. Sintering with Cu- and Ag-pastes has become increasingly established as a reliable form of bonding technology over recent years. With COLDBOND® Active Atmosphere this can now also be carried out in a vacuum or in active-gas. This is done using sinter pastes made by established suppliers as well as products which we ourselves have developed and which are customised, e.g. to match specific customer requirements. Other COLDBOND® procedures use ultrasonic energy both with and without filler materials.

Current applications are in the fields of electronics, sensor technology and optics. Another field is opening up in the use of heat-sensitive materials for mould making, heating and refrigeration units, thermal management, wire/foil bonding systems, membranes, metal foams and structures, or for medical technology applications.

Bespoke solutions

EUROMAT's COLDBOND® procedures provide customised application development and process qualification solutions as well as a high-quality-bonding, soldering and sintering service. As well as manufacturing facilities, our site includes a well-equipped laboratory and also destructive and non-destructive testing facilities.