



surface  
technologies



# HD Brazing<sup>®</sup>

a very advanced  
joining technique

# HD Brazing®

## High Temperature Brazing

HD Brazing® is a high temperature brazing technique which is developed by Aalberts Surface Technologies Eindhoven B.V.. High temperature brazing is an advanced brazing technique which, as the name already mentions, is performed at high temperatures (>800°C) in a protective atmosphere. Other brazing techniques are soft brazing (<450°C) and hard brazing (450-800°C). Advantage of high temperature brazing compared to soft and/or hard brazing is that a joint is created with higher strength and higher quality, without using fluxing agents. Because of that, no undesired surface reactions will appear and the parts remain very clean and bright after the brazing process. Also the parts, after the high temperature brazing process, can be hardened with almost every hardening technique like carburizing, nitriding, nitrocarburising or vacuum hardening. It is even possible to do the hardening and brazing in one process.

It is possible to create high quality connections which can resist high forces and which in many cases are superior to welding connections. Also very complex geometries, which cannot be designed with other techniques, can be realized with high temperature brazing.



# Possibilities

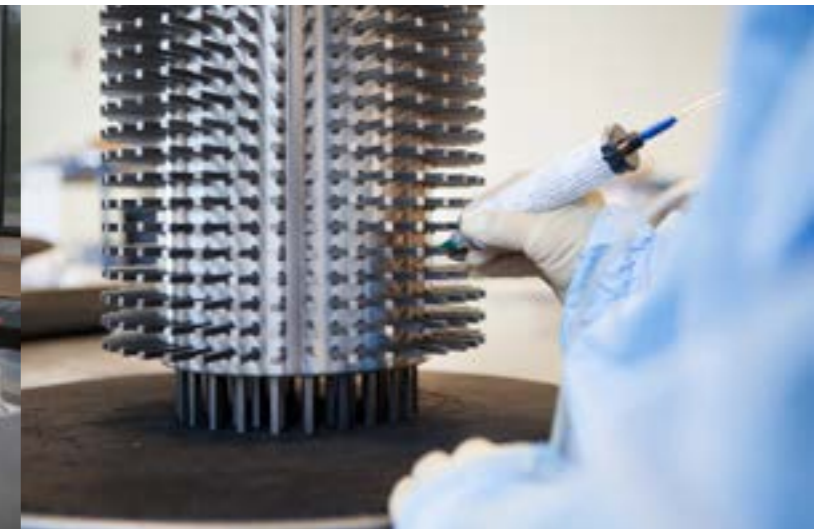
## Brazing alloys

Brazing alloys to based on: Ni, Ag, Cu, Ge, Au.

Aalberts Surface Technologies Eindhoven B.V has experience with a very broad range of brazing alloys and base materials in similar and dissimilar configurations. Also Aalberts Surface Technologies Eindhoven B.V can use very low magnetic or FDA-allowed brazing alloys.

## Possible Markets

- Aerospace Industry (Aalberts Surface Technologies Eindhoven B.V has accredited AS9100 and Nadcap)
- Automotive Industry
- Medical Industry
- Food Industry
- Semiconductor Industry
- Print Industry
- Energy Industry
- Tools & Dies Industry
- General Machinery
- Ultra High Vacuum scientific



## Vacuum Brazing

The brazing technique which Aalberts Surface Technologies Eindhoven B.V. mainly applies is vacuum brazing. This is a high temperature brazing technique in which the brazing process is performed in special vacuum furnaces. With this technique it is possible to braze almost every commonly used metals. Also it is possible to join different metals, ceramic or even metal and ceramic together.

During the brazing process a high vacuum creates a reducing atmosphere and prevents the building of oxides on the surface of the parts. Because no oxides are created, the surfaces remain bright and there is optimal wetting of the brazing material on the parts to be joined. No fluxing agents associated with conventional brazing are required. In an optimal design of the brazed assembly the created joints can be equal to or even stronger than the base material itself.

Aalberts Surface Technologies Eindhoven B.V. is specialist in vacuum brazing and has years of knowledge and experience in this field and delivers to high demand industries such as semiconductor and aerospace industries. Aalberts Surface Technologies Eindhoven B.V. is a competent and reliable partner with a proven track record processing customers components, advising on brazing at all levels from alloy selection to joint design including working within stringent accreditations such as AS9100 and Nadcap.

## Advantages of Vacuum Brazing

- Very strong and reproducible joints, equal to or even stronger the base material.
- Possible to join different materials (Example: metal-ceramic).
- Clean process, products remain metallic blank.
- Brazing without fluxing agents, therefore no undesired surface reactions.
- Brazing and hardening in one process possible.
- Part can be hardened with hardening processes after the brazing process.
- High degree of engineering freedom.
- Suited for single pieces and large quantities.
- Multiple joints in one brazing operation possible.
- Very clean hygienic contaminant-free joint suitable for food and medical industry.
- Ultra High Vacuum joint integrity.
- High dimensional accuracy.



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