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TECHNOLOGY DESCRIPTION

The electron beam is a highly efficient and simple tool for complex welding, hardening or micro drilling work. Electron beam welding is suitable for all electrically conductive materials which can be welded with conventional arc processes (electrode, MIG/MAG and TIG) as well as for welding combinations of different materials. Due to the vacuum condition, oxygen-sensitive materials can also be welded, especially aluminium, stainless steel, titanium, niobium and tantalum. Weld depths of up to several hundred millimetres are possible.



INNOVATIVE ASPECTS

The electron beam welding offers many advantages in comparison to conventional methods:

- Easy automation of joining processes (totally digitalised process)
- Flexibility: the electron beam can be shaped as desired via the action of magnetic fields and enables the welding of geometrically complex components.
- Deep, narrow and parallel seams. Processing in a vacuum results in high-quality weld seams and clean workpieces.
- Suitable for all standard and mechanically demanding metals (Al, Ti, duplex steels, etc.), heavy duty components, workpieces with a wall thickness > 150 mm, etc.



TECHNOLOGY READINESS (in space application)

TRL 7-9 (2024)

COUNTRY OF ORIGIN

Germany

LATEST UPDATE

06/2024

TAGS #electron beam #welding #vacuum #automated #hardening #deep seam

APPLICATION AREAS

Aviation	Energy	Electrical & Electronic Engineering	Construction & Civil Engineering	Infrastructure & Smart Cities	Mechanical Engineering	Transport & Logistics
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TECH CARD

