

Electron Beam Welding

This reliable, efficient and cost effective metal joining technique, with its extensive list of benefits, has become a formidable tool in today's competitive engineering market...

Bodycote has the largest subcontract Electron Beam Welding (EBW) capability in Europe, available from two centres of excellence at Skelmersdale and Cambridge, capable of providing a world-class EBW service to a wide range of markets and applications.

What is Electron Beam Welding?

Electron Beam Welding is a specialist metal joining technique used to create high integrity joints with minimal distortion. Electron Beam Welding fully fuses two parts using only parent metal; hence no need for filler metal, and the risk of non-fused joints becoming stress raisers is eliminated. The welding is carried out in a vacuum so that the weld zone can be considered as 'vacuum re-cast'.

Compared to alternative joining processes Electron Beam is characteristically a very efficient process as demonstrated by high weld depth to width ratios, consequently resulting in minimum heat inputs for any given depth of weld gaining minimal distortion.

High welding speeds are used, (of the order of 30" per minute upwards), which is another factor in reducing / eliminating distortion. The process copes well with a wide range of dissimilar materials allowing designers to bring value engineering to bear in selecting the right material for each aspect of the parts' functionality. In many cases, parts which have been heat treated and finished machined are joined in this way.

Typical examples of components which can be electron beam welded include gas turbine parts, gear assemblies, surgical instruments, pressure vessels, transmission shafts, diesel injectors, hydraulic components, medical prostheses and many more.

Components can be post-weld heat treated using our extensive vacuum and controlled atmosphere equipment within the same facility.

Advantages of Electron Beam Welding:

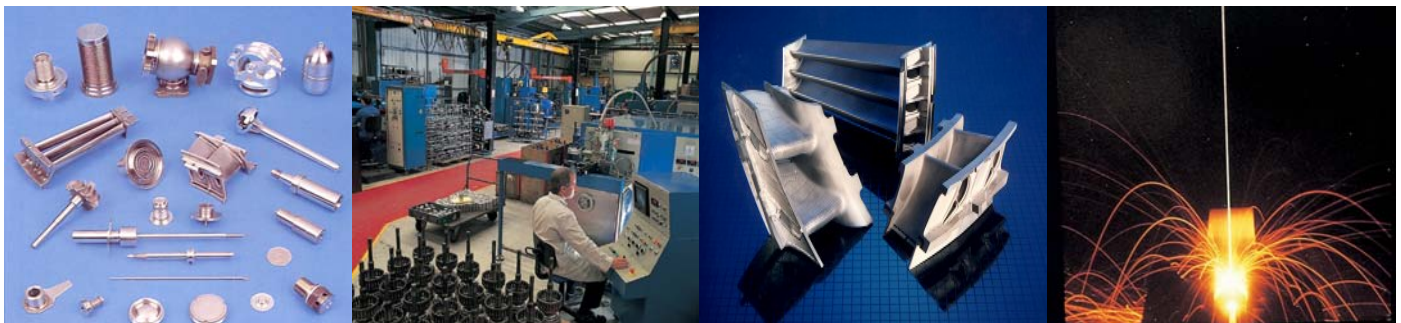
- Vacuum process, yields clean reproducible, high integrity joints.
- Low heat input with minimal distortion and a narrow heat-affected zone.
- Weld penetration range from 0.025 – 200mm.
- Sections of dissimilar size can be welded.
- Metals of dissimilar melting points and thermal conductivities can be welded.
- Quantities from one-off development to large production batches can be accommodated.
- 14 machines – working range up to 10' x 8' x 8' (full vacuum).

Bodycote – A Complete Solution:

- Materials selection.
- Joint design.
- Tooling design and manufacture.
- Post-weld testing.
- Materials engineering.

Markets served:

- Aerospace
- Power Generation
- Space
- Vacuum Systems
- Medical
- Automotive



Electron Beam Welding

World-class service and quality...

Service when it's needed

The Skelmersdale and Cambridge facilities supply a high quality Electron Beam Welding service on a 24/7 basis, giving customers the option to have their welding carried out at their convenience. This cost-effective alternative to an in-house facility gives Bodycote and its customers the edge when meeting the ever-increasing demands of today's market place.

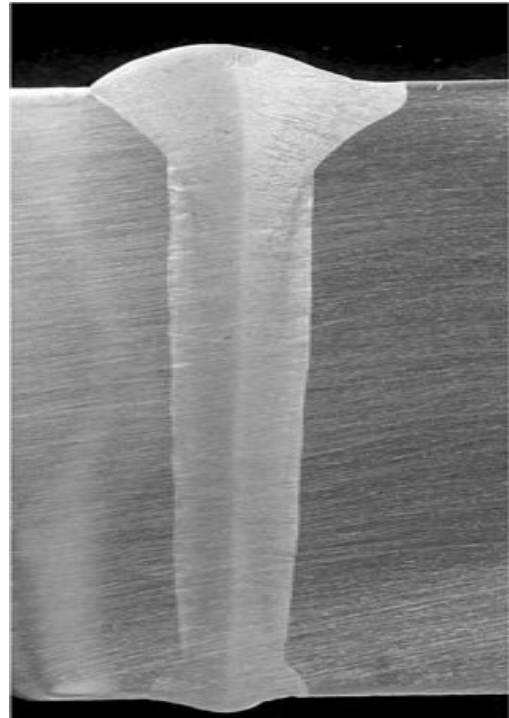
Project management teams are on hand to discuss your individual requirements, assist in solving your specific problems and to suggest methods of improving your engineering projects.

Quality Accreditation

To support their commitment to a completely reliable service, Bodycote Skelmersdale and Cambridge have attained specific quality accreditations including ISO 9001:2000 and Nadcap accreditation (Skelmersdale facility).

Environmental Accreditation

Bodycote Skelmersdale and Cambridge hold ISO 14001 accreditation.



Bodycote also has UK heat treatment facilities at the following locations:

<i>Birmingham</i>	<i>T +44 (0)121 358 7266</i>	<i>F +44 (0)121 358 0478</i>
<i>Chard</i>	<i>T +44 (0)1460 67957</i>	<i>F +44 (0)1460 67962</i>
<i>Cheltenham</i>	<i>T +44 (0)1452 714440</i>	<i>F +44 (0)1452 856097</i>
<i>Coventry</i>	<i>T +44 (0)2476 367786</i>	<i>F +44 (0)2476 368158</i>
<i>Derby</i>	<i>T +44 (0)1332 275800</i>	<i>F +44 (0)1332 767785</i>
<i>Gillingham</i>	<i>T +44 (0)1634 376313</i>	<i>F +44 (0)1634 371969</i>

<i>Macclesfield</i>	<i>T +44 (0)1625 501888</i>	<i>F +44 (0)1625 505310</i>
<i>Morden</i>	<i>T +44 (0)208 337 7744</i>	<i>F +44 (0)208 330 2699</i>
<i>Rotherham</i>	<i>T +44 (0)1709 361047</i>	<i>F +44 (0)1709 828529</i>
<i>Stillington</i>	<i>T +44 (0)1740 630353</i>	<i>F +44 (0)1740 630075</i>
<i>Stockport</i>	<i>T +44 (0)161 483 0511</i>	<i>F +44 (0)161 483 5450</i>
<i>Woodford</i>	<i>T +44 (0)161 440 0288</i>	<i>F +44 (0)161 440 8017</i>



Bodycote Heat Treatments Ltd
18 Westgate
Skelmersdale
Lancashire
WN8 8AZ

Tel: +44 (0)1695 721361
Fax: +44 (0)1695 50105
E-mail: andrew.corless@bodycote.com

General E-mail: infotp@bodycote.com

Bodycote Heat Treatments Ltd
Denny Industrial Estate
Waterbeach
Cambridge
CB25 9QR

Tel: +44 (0)1223 860741
Fax: +44 (0)1223 863498
E-mail: brett.collard@bodycote.com

Web: www.bodycote.com