

电子束重熔结晶控制技术

Electron beam remelting controlling technology

基于 EBW 熔池物理行为规律的研究，阐明了电子束重熔再结晶过程与金属结构超导性能之间的对应关系，突破了焊缝跟踪技术、焊接过程可视化技术、电子束加热过程控制、焊接变形控制技术等关键技术，打破了国际上美、德、日对该类产品的技术垄断，在国家重大科学工程如超导加速器、核聚变装置的研制上得到了应用。

On the basis of the understanding of physical behaviors of the weld pool of electron beam welding (EBW), the relationship between recrystallizing process of the EBW weld metal and superconduct property of the metal component welded was depicted. A series of key technologies has been broken through, such as weld tracking technology, visual method for welding process, process control of EBW, weld distortion control technology. We have had the manufacturing technologies for this kind of product.



1.3G 射频超导加速腔焊接产品件
1.3G Radio-frequency superconducting
accelerator chamber welded



强流质子射频超导加速器腔体焊接件
Proton radio-frequency superconducting
accelerator chamber



400M 射频超导加速腔焊接件
400M Radio-frequency superconducting
accelerator chamber