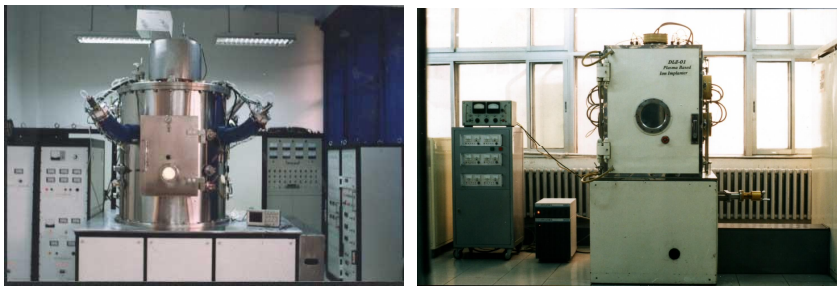
等离子体基离子注入与沉积技术与装备

Technique and equipment for plasma based ion implantation and deposition

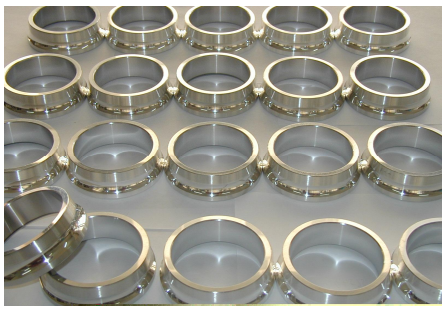
将等离子体源离子注入与真空气相沉积技术结合，通过离子注入的界面混合，可以提高膜基结合力，具有低温、大面积、批量处理的特点，尤其适合于精密零部件的表面改性。建立了等离子体基离子注入与沉积理论，解决了离子注入与沉积层的均匀性控制技术、特殊形状复杂结构零件的表面改性处理技术、大面积金属等离子体发生技术和表面改性层性能控制技术。获得授权发明专利 20 余项，研制了近 10 台套装备，成果已应用于载人航天、重大装备、精密机械等领域。

Plasma based ion implantation and deposition (PBII&D) is a batch surface modification technique by combing plasma source ion implantation and physical vapor deposition. It has the advantages of low processing temperature, large area treatment and good adhesion between the substrate and coating. The technique is especially suitable to precision working parts. A series achievement were obtained such as theoretical results in PBII&D, techniques for controlling the uniformity and the properties of modified layer, methods to modify complicated shape working parts and so on. We have achieved 20 invention patents and developed about 10 sets PBII&D installation. The research results have been applied to the fields of aerospace, key equipment and precision machinery.



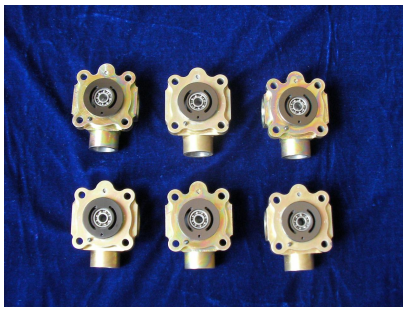
等离子体基离子注入与沉积设备

Plasma base ion implantation and deposition installations



等离子体基离子注入与沉积处理的高速精密轴承

High speed bearing surface modified by PBII&D



等离子体基离子注入与沉积整体处理的精密部件

Precision component parts surface modified by PBII&D