AFRC
ADVANCED FORMING RESEARCH CENTRE
UNIVERSITY OF STRATHCLYDE

University of Strathclyde Glasgow

Advanced Forming Research Centre

Orchid Orthopedic Solutions

Project Information

Funding Stream: Innovate UK, Mechanical Conversion Mechanical Processes - feasibility studies

Project Type: Collaborative research and development

Problem

The Advanced Forming Research Centre (AFRC) was approached by Orchid Orthopedic Solutions to investigate reducing the cost of manufacturing orthopaedic implants. In order to achieve this, the potential of replacing titanium alloy Ti-6Al-4V ELI with the more cost effective pure titanium was investigated by AFRC researchers.

What we did

Researchers used the AFRC's patented severe plastic deformation process to produce ultrafine grained commercial purity titanium. The commercially pure titanium would be suitable for forging into a generic orthopaedic implant.

ORCHID

Result

Significant savings of up to 50% less expenditure were identified through using pure titanium. In addition, the forging temperature was reduced, the tool life was extended and chemical etching after forging was avoided. Based on these very positive results, both partners have decided to continue their partnership and explore further material and product options.

> "We were very satisfied with the results of this study. Working with the AFRC has allowed us to continue set the highest standards and strive for continuous improvement in all the products that we offer at Orchid Orthopedic Solutions."
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> Debbie Arnott, technical manager at Orchid Orthopedic Solutions

Contact us
Advanced Forming Research Centre
University of Strathclyde
Email: info@afrc.org.uk
Tel: +44 (0)141 534 5200
www.afrc.org.uk

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