NEWS RELEASE
10 January 2007
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DONCASTERS TO PLAY A PIVOTAL ROLE IN THE
IMPRESS INTEGRATED PROJECT

MELBOURNE, UK: International precision engineering group, Doncasters, has been selected as the foundry partner in a major pan-European applied materials project researching the use of high performance intermetallic materials to manufacture gas turbine blades for aero engines and power generation, and in fuel cell development.

Managed by the European Space Agency, the Intermetallic Materials Processing in Relation to Earth and Space Solidification (IMPRESS) project is a multi-disciplinary consortium of 42 research groups and companies and involves 160 leading scientists from 15 countries. The project has a five year €41 million budget over 2004-2009 and is co-funded by the European Commission under the 6th Framework Programme.

Doncasters is one of the major blade producers for aerospace and power generation industries with an excellent track record of working with alloys and metals that are difficult to shape and form. As foundry partner in the project, Doncasters’ Settas facility in Belgium has taken on the challenge of casting 40cm gas turbine blades and components for aero-engine and power generation in titanium aluminides (TiAl) which will have superior properties compared to nickel superalloys. Doncasters’ experts in the UK, Belgium and Germany are working closely with all the project partners to transfer knowledge into high quality breakthrough prototypes.
Cast titanium aluminides blades have the potential to revolutionise the European turbine and foundry industry. The combination of high-melting point, high strength and low density make titanium aluminides ideal for high-performance gas turbine blades. Using titanium aluminides could result in a 50% weight reduction of turbine components which in turn will lead to improved thrust-to-weight ratios of aero-engines, higher efficiency, reduced fuel consumption and lower exhaust emissions.

A unique component of the project is the experimentation in space, onboard sounding rockets and the International Space Station. These benchmark experiments, performed under near-weightless conditions, will generate material property data for TiAl, unattainable in laboratories on Earth. Such data is presently being used within the project to improve the computer modelling of advanced casting processes, such as those at Doncasters Settas.

Eric J. Lewis, CEO of the Doncasters Group, says: “Doncasters is committed to researching new technology and processes to advance manufacturing techniques and to improve performance. We already have significant expertise in superalloy precision investment casting processes and we are committed to long term research and development of titanium aluminides. Involvement in this prestigious project means that Doncasters remains at the forefront of the casting technology which will be used in the next generation of turbines for aero-engines and modern power stations.”

Dr. David J. Jarvis, IMPRESS Project Manager working in the Directorate for Human Spaceflight, Microgravity and Exploration at the European Space Agency, says: “We are very proud to have the industrial know-how and commitment of the Doncasters Group and the company’s inclusion within IMPRESS adds tremendous strength to the project. Doncasters’ work represents the first serious attempt world-wide to scale up the casting process to an industrial level, and we are confident that world-class results will follow.”
For further information on IMPRESS, please consult the project website at:
www.spaceflight.esa.int/impress

The Doncasters Group is a leading international manufacturer that supplies precision components and assemblies to the aerospace, power generation, specialty automotive and medical orthopaedic industries. Doncasters excels in working with alloys and metals that are difficult to shape and form.

The company’s unparalleled range of products and processes has been developed to offer customers a broad, vertically integrated capability. Core manufacturing processes include precision casting, forging, fabrication, machining and production of superalloys.

Key products include airfoils, structures, casings, rings, exhausts and combustion components for gas turbine applications, aerostructures and components for airframe applications, femoral knees, tibial trays, humeral stems, femoral hips and bone plates for orthopaedic applications and compressor and turbine wheels for the turbocharger market. The company offers well-developed supply chain integration solutions, delivering complex assemblies and engine-ready components to its customers.

Doncasters employs some 4,700 people at over 20 sites across Europe, the USA and Mexico. The Group has institutionalised lean manufacturing and Six Sigma principles throughout its operations.

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