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‘GOING WITH THE GAIN’ ... THE RAUTOMEAD MANTRA IN NEW INITIATIVE WITH BRUNEL UNIVERSITY

Continuous casting technology specialist Rautomead Limited of Dundee, Scotland has revealed the latest initiative for the company’s new ‘Advancing Metals Technology’ division: a further collaboration with the ‘Brunel Centre for Advanced Solidification Technology’ (BCAST) unit at Brunel University. The initiative follows hard on the heels of an ongoing highly innovative and successful project in which Rautomead’s new division is working closely with key BCAST department personnel on the development of an entirely new process for extruding aluminium alloys in the semi-solid state that deliver significant gains such as reducing energy consumption and improving grain structure.

The new initiative, conducted under the auspices of Director of BCAST Professor Zhongyun Fan, has some extremely ambitious objectives. Based around the trialling of a number of different methodologies to reduce or refine grain size in the casting of copper and copper alloys, these trial methodologies include the use of melt shearing (the physical shearing of the molten material), the use of refining materials (colloquially referred to as ‘salt and pepper’), and the use of ultrasonics. Prior to the project in question, very little development work of this nature had ever been undertaken in the field of copper alloys, thus these experiments, conducted by a number of different teams at Brunel in conjunction with Rautomead, were often embarking upon virgin territory.

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KEY GAINS

The project's objectives extend way beyond those of a mere academic exercise since, for a customer, the ability to control grain size and ultimately cast at a smaller size will deliver a number of key gains, principally better mechanical properties and significantly less downstream processing, with consequent savings in time, space and energy consumption, making the casting process significantly more valuable.

As Rautomead Managing Director Brian Frame explains: 'In common with all of the projects undertaken by our new 'Advancing Metals Technology' division, this latest collaboration with Brunel University has a very practical application and focus, with some very ambitious objectives, and provides further evidence of our company's drive to investigate and develop more efficient and cost effective production techniques. The key to the success of these ventures lies in our ability to pool our resources with those of our customers and academic institutions such as Brunel in order to approach a problem from an entirely different angle'.

ADVANCING METALS TECHNOLOGY

'Advancing Metals Technology' is a new and scientifically-based metals research and development division within Rautomead, with a specific focus on the scientific exploration and development of non-ferrous metals and processes, to drive improvements in metallurgical efficiency in a wide range of global production processes and end-user applications.

In addition to pursuing in-house research projects, the new division's mandate covers the involvement in a wide range of individual projects with universities and research groups in the UK and overseas, of which the ongoing collaboration with BCAST is a high profile and highly successful example. Further collaborations will be sought with both existing and prospective customers, with the goal of providing new and innovative processes and products within the non-ferrous metals technology market.

Through harnessing its market-leading expertise in the field of graphite technology and transferring the skills it has developed in continuous casting as the basis for these collaborations, the division's objectives consist of developing imaginative and economical technological solutions with operating systems that will offer the end user significant application improvements in the next generation of Rautomead machines. Specific objectives consist of innovating technologies which are clean, safe and environmentally-friendly, shorten the manufacturing process, provide economies on the small to medium scale, recycle materials, reduce operating costs and enhance product quality.

CASTING AROUND FOR THE RIGHT PARTNERS

The selection of BCAST as a suitable partner represents, for Rautomead, the result of a long and exhaustive search for a research partner whose vision and innovative thinking in the field of academic research would prove to be the perfect complement for Rautomead's practical experience and expertise in the commercial world of molten metal technology. Meanwhile the 'Advancing Metals Technology' division's search for further suitable partners, both in academia and industry, continues. As Brian Frame says: 'We have believed for some time that the wide range of skills we have developed over the years provides the potential for applications that go way beyond our core business of continuous casting. And this new initiative, with input from the relevant research partners, is providing us with a unique opportunity to demonstrate just that'.

CONTINUOUS IMPROVEMENT IN CONTINUOUS CASTING TECHNOLOGY

For over 30 years, Rautomead Limited has established a reputation as a global innovator and specialist in the design, manufacture and provision of continuous casting equipment for copper, copper alloys and precious metals and as a valued partner on turnkey projects for specialist upstream and downstream product manufacturers. There are currently over 330 Rautomead machines in operation in over 45 different countries all around the world.

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