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Rautomead advises on maximising foundry business opportunities in current economic climate

As the impact of the global financial crisis spreads further down into the retail, service and manufacturing industries, continuous casting technology specialists, Rautomead Limited, have investigated how organisations across the global metals processing sector may better position themselves to take advantage of renewed growth when the green shoots of recovery begin to appear.

The technology provided by Rautomead Limited is designed to present non-ferrous metals processing companies with the expertise, equipment and know-how to produce their own semi-finished "near net shape" bars and hollow sections in-house. Committed to assisting organisations of all sizes in acquiring the continuous casting equipment essential for success, Rautomead has also recently introduced a range of market initiatives, including a technology funding programme that could significantly benefit organisations looking to invest in new machinery. (photo 1: hollow bronze billet production).

Robust strategy

"A robust survival strategy is essential for the ongoing well-being of any foundry business at the moment," comments Rautomead Sales Manager, Guy Henderson. "Such a strategy," he adds, "may be achieved by ensuring a measured reduction in processing cost, upgrading or modernising existing manufacturing equipment and continuing to invest in new technologies. At the same time, it is important to fully consider the benefits of in-house production, move away from low margin - higher volume products, and seek out opportunities to develop new product alloys and section shapes."

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More efficient, more controlled manufacturing

In the foundry sector, the continuous casting operation can often replace existing processes to provide a much more efficient, economic and controlled manufacturing sequence. Examples include:

- Continuous casting of lengths of hollow bronze bearing alloys as opposed to static casting of individual hollow pieces.
- Continuous casting of small diameter alloy wires in place of billet casting and extrusion or bar casting and rolling.
- Continuous casting of copper wire rod for continuous rotary extrusion to strip in place of billet casting and conventional extrusion.

(photo 2: horizontal continuous casting line)

Evolving technology

Rautomead Limited has been supplying continuous casting equipment to the non-ferrous metals industry for more than thirty years. The technology has continuously evolved and been modified, adapted and improved to meet the ever-more-demanding requirements of the industry.

Continuous casting technology currently exists for:

- Horizontal continuous casting of solid or hollow billets.
- Upward vertical continuous casting of small diameter hollow bars and shapes.
- Upward vertical continuous casting of alloy wires.
- Horizontal casting with QDC (Quick Die Change) technology for batch production.
- Horizontal and vertical (downwards) casting for small batches of high purity materials used in the electronics and jewellery industries.

Economies on a small scale

The fact that continuous casting can be economic on a relatively small scale (50 – 500 tonnes per month) has led to opportunities for producers to install this technology at locations where metal-making activity was previously not possible and where process scrap arisings and off cuts required to be sold to others for recycling.

Ability to react and respond

As a result, new users have been able to become independent from large metals producers and take complete control of their product quality and cost. Ownership of their own metal manufacturing equipment has enabled these organisations to develop techniques for the production of new alloys and sections shapes; equipping themselves with the flexibility to react and respond to changes in market demand, to expand their product range and to diversify into offering products to a wider range of industry sectors.

Upgrades and retro-fits

As an organisation, Rautomead Limited invests significantly in new product development and provides extensive retrofit and upgrade opportunities. Recent innovations in casting die tooling, withdrawal pulling systems, operation and data recording software are developed primarily for use in conjunction with new Rautomead furnace technology. However, opportunities exist to retrofit the latest designs onto existing Rautomead machines and also adapt the technology to enhance the operation of furnaces originally manufactured by different suppliers.

Research and Development

In today's economic climate, organisations may be advised to consider all opportunities, even where this involves researching the ability to produce new materials and products. Where there is a requirement to develop new die/cooler designs or to adapt the continuous casting technology to attempt to process new alloys or section shape combinations, the Rautomead R&D facility and engineering team may be commissioned to undertake such evaluation.

<u>Recent projects undertaken by Rautomead include:</u>

- ECO Brass casting - to develop the tooling design and identify the horizontal continuous casting parameters capable of producing high quality, near net shape bars and hollows in ECO brass alloy whilst achieving an economic casting die life.

- Superior Quality (SQ) copper rod production - to develop techniques and tooling designs for the upwards vertical continuous casting of SQ oxygen-free copper wire rod; the objective of the exercise being to minimise, or eliminate, the "micro cracks" that occur at the pulse mark of conventional continuous cast wire rods.
- Development of specialist casting die tooling designed to overcome the problems associated with Zinc bar processing.
- Development of Quick Die Change (QDC) technology - to enable casting dies to be changed without requiring the casting furnace to be cooled down. Granted a European Patent in 2008, this technology is specifically designed for use with continuous casting systems that use graphite crucibles for containment of the liquid metal and can reduce casting die change time from 30 hours to one hour. QDC is available on various new Rautomead horizontal casting models, as well as being a retrofit opportunity on several machines already in service.

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