Dynamic Concept provides engineering solutions

MQP, a UK based company, has recently entered into an agreement with a Canadian company, Dynamic Concept, to represent it in Europe. The two companies see this collaboration as an ideal means to bring engineering expertise to European casthouses and smelters. By Michael Bryant*

Dynamic Concept focuses on improving and updating already installed production line and facilities using the latest technologies. The company looks for ways to improve and customise the existing equipment rather than trying to supply off-the-shelf solutions.

A major resource at Dynamic's plant in Saguenay is the well equipped assembling and testing shop. Here the R&D projects currently being carried out use advanced techniques such as 3D simulation and thermal analysis. The company also has access to an experimental casting facility able to cast DC slabs where improved mould designs can be evaluated.

Casting pit technology
Prominent amongst Dynamic Concept's activities is their programme of work focussing on providing upgrades and solutions for DC casting. The benefits in this area are:

- Full automation using laser technology - here the objective is an operator free process bringing major benefits from improvement of operation safety, recovery improvement and slab or ingot product quality.
- Automated and programmable mould lubrication - now often manual and not programmable.
- Table mould densification thereby increasing the number of moulds on a pit allowing increased production capacity. Adding two moulds to a 14 strand T bar table brings a 15% increase in capacity, as at Alcoa Deschambault, Quebec.
- New moulds - state-of-art technology and improved designs.
- Unitised tooling - allows preparation to be carried out remote from the casting pit to achieve increased casting pit utilisation. It also gives precise alignment of the casting table assembly and bottom block eliminating operator adjustment.
- Overall the above upgrades together can result in up to +25% increased production.

Examples of projects completed in DC casting at two plants in North America:

Alcoa, Deschambault
The plant wished to raise its production capacity by 15% without major investment in a new casting line and asked Dynamic Concept to evaluate the options. After an extensive analysis, covering all aspects that might be impacted by two possible schemes envisaged, it was decided to proceed with a project which involved keeping the same mould dimensions and increasing the number of moulds on the casting table. One significant advantage of the table densification option was that no training of employees nor operational adjustments to the existing equipment, such as the sawing system, would be needed.

The next stage of the project involved on-site collection of data and measurements, conception & design, and detailed engineering work. This was followed by manufacturing, assembling and dry testing.

Finally, the new densified casting table was supplied to the Deschambault casthouse and installed with an experienced Dynamic Concept team overseeing its installation.

The commissioning programme went smoothly from the first cast; a huge compliment to all involved in the project. The Deschambault plant now has one of the few casthouses in the world capable of casting vertically.

Alcoa plans to install a second densified table at Deschambault; identical to the first. This will allow more flexibility to its operations, particularly in regards to the goal of increasing the number of alloys produced at the site.

Usine Laterrière, Quebec
Dynamic Concept carried out a major casting pit refurbishment project at Usine Laterrière in Canada that resulted in the production of their largest ever DC cast slabs measuring 584mm thick, 2,518mm width, 807mm length.

Contact
www.dynamic-concept.ca
www.mqpltd.com

* Marketing manager, MQP Ltd, UK