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## New Magnesium Casting Quality Control Strategic Technology

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### Executive Summary

Casting manufacturers, specialising in Magnesium based products, can derive a significant benefit from MAGCAST Technology. MAGCAST Technology is owned by a consortium of European organisations, each a world leader in their field. This system provides a new inspection method for high volume manufacturing processes.

The introduction of MAGCAST Technology into your manufacturing environment would modernise your production facility & provide economic advantage, through improved yield and reduction of waste resources.

Competitive advantage can be obtained by an early involvement with MAGCAST at its development phase by contacting:

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## Magcast Technology

MAGCAST Technology is a new integrated inspection sensor system for porosity QC of Magnesium castings. This technology is being developed to improve production yield by real time modification of the manufacturing process.

The Magcast project is a European initiative to develop digital radiography of Magnesium casts. This multi-million Euro project involves companies & research organisations from across Europe, including experts in digital radiography, x-ray tube manufacturers, NDT specialists, software engineers and Magnesium casting manufacturers. The final product will be integrated into Magnesium casting process lines. Advanced defect detection software will examine the digital radiographs for faults such as porosity, and will provide real time feedback for SPC and Six Sigma purposes. The system can be configured to automatically modify the process, if the standard of castings falls below a preset level. The aim of this system is to improve the quality of Magnesium castings, provide real time digital radiographs for QA, and to eliminate unnecessary waste of materials and time.

Magnesium alloys are approximately 60% lighter than LM24 aluminium casting alloys and 80% lighter than steel. However, despite the tremendous advantages offered by Magnesium castings, their use in various industries is being hindered by the difficulty of casting Magnesium components of consistently acceptable quality due to internal porosity - particularly in thin walled, and complex shaped castings.

Internal porosity is a problem in itself and is also the main determinant of the structural integrity and corrosion resistance of the components. In continuous production, the problem is in controlling the casting process to consistently keep porosity to an acceptably low level. This requires a system capable of rapidly detecting and quantifying internal porosity in cast parts. If a critical increase in porosity is not detected early enough, the manufacturing plant will incur high scrap and operating costs. This contributes to high component costs and a difficulty in satisfying demand for the mass production industries.

This project will overcome the problem by delivering a digital radiography system that will be fully integrated with a casting production line. The result will be an ability to rapidly detect an out of control process, with respect to porosity, and hence improve real-time control. This will enable the system to intervene rapidly in a continuous casting process, to restore control before the production of large quantities of scrap.

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