CADfix®

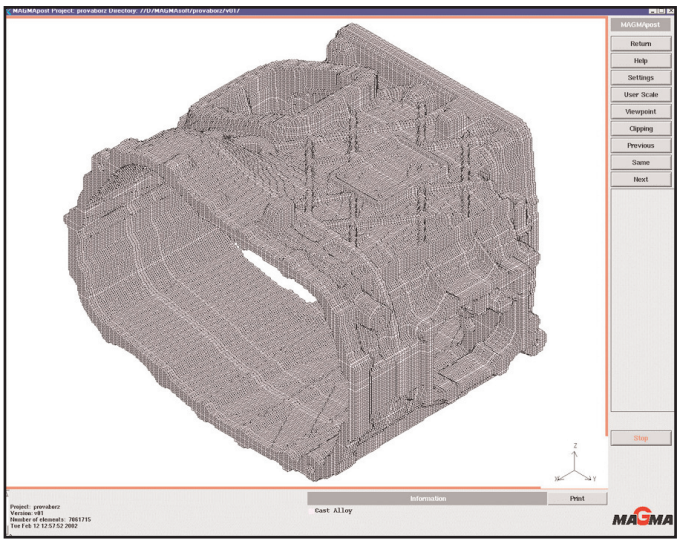
ITI TranscenData

Petroni: Moulding a better future with CADfix

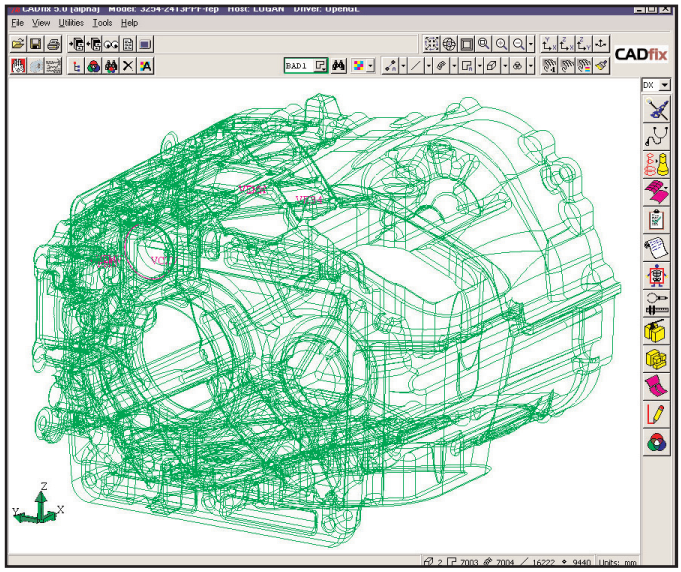
For decades the mould and die industry has been the supporting base for manufacturing. While Germany has long been the European leader in terms of production share, Italy has leapt ahead over the last decade. As a major player in this increase in production, Petroni S.p.A. has worked with the most advanced production and computer simulation technologies. These technologies allow faster machining times and considerable improvements in quality.

Petroni was founded in 1965 and is based in Bologna, Italy. The company produces die casting moulds for light aluminium and ultra-light magnesium alloys and has expanded and developed over the years to become one of the biggest die manufacturers in Europe. Approximately 90 percent of its production is aimed at foreign markets: Germany, England, France, Spain, Australia, Korea, Brazil, USA and Japan are some of its most important markets.

In order to create these moulds Petroni regularly uses information taken from CAD files. Unfortunately, taking the information from the native files can be a slow and arduous process and had been causing problems throughout the



Mesh of a gearbox cast in MAGMA

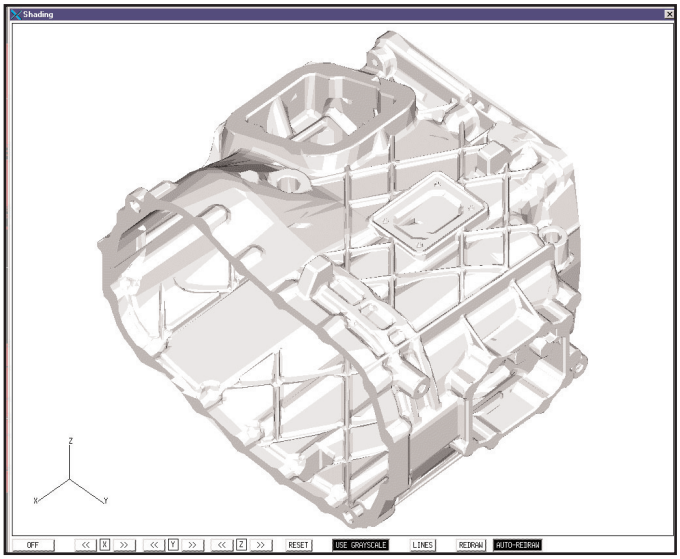


Healing and translation in CADfix

analysis cycle. The difficulties that the engineers and analysts at Petroni had been experiencing were linked to the exchange of CAD model data from native files to formats suitable for analysis. CAD file transfer is often a problem for the engineering industry but when the target system is an analysis application this problem is exacerbated by the introduction of a further set of downstream requirements that the translated information has to meet.

A Magmasoft training session provided the Petroni engineers with a welcome solution to these problems. While undergoing the training at Engin Soft, the largest private Italian CAD reseller and consultancy, Petroni engineers saw CADfix translating files and avoiding many of the issues that they had been experiencing. Angela Chirico, Analysis Engineer at Petroni says: “The CADfix interoperability tools were quite clearly able to resolve a number of the problems we had previously suffered. It was the answer to our file translation predicament.”

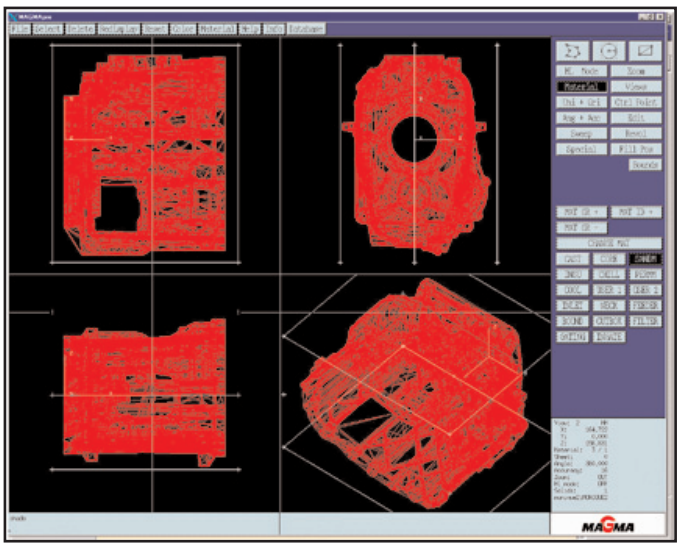
In an effort to reduce the time required to resolve CAD data interoperability issues, Petroni implemented CADfix. CADfix is the leading data interoperability tool from TranscenData Europe. It is able to address a variety of problems inherent in information and file transfer between different CAD systems. Miss Chirico, explains: “Before using CADfix the translation process of the CAD model to the simulator was a lengthy one. The CAD files would arrive in their original format from the client and have to be imported into Catia V4 for any necessary reworking. Following this step, the file would then have to be converted into an STL file before being passed into Magmasoft for the casting process simulations.”



Gearbox in MAGMA 3D viewer

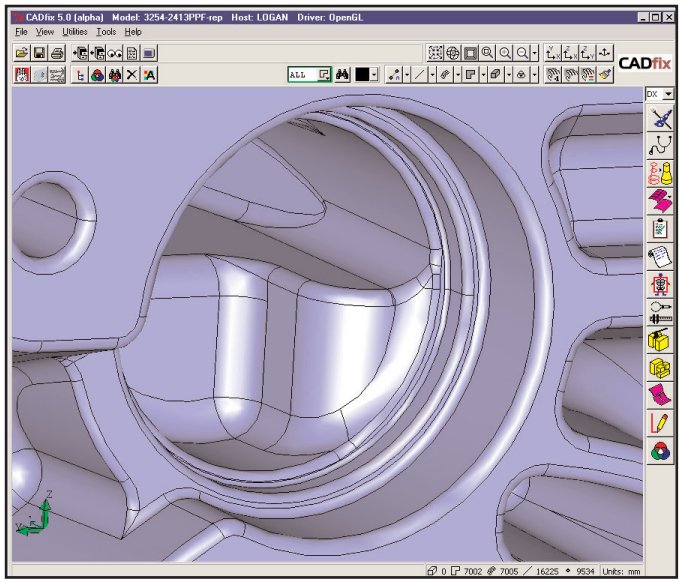
Problems were occurring in the initial transfer into Catia from the various CAD systems used by the clients, as Miss Chirico goes on to explain: “It was taking hours and even days of work to repair the CAD models before we could begin to use them. Some models had to be completely closed to a volume in Catia before we could think about translating it into the STL file format needed for the Magamasoft simulations.”

CADfix allows engineers at Petroni to run automatic repair programs on source CAD files, often received as IGES files. The automatic repair process builds the solid model, reducing the time needed from days of work to less than one hour. CADfix’s value became apparent to everyone involved in a recent engine block project. Says Miss Chirico: “With the original IGES file we examined the model after the repair process and found a number of problem surfaces remaining. Addressing these problems would have taken several days. However, in CADfix it only took an additional 30 minutes to interactively defeature the model and remove the unnecessary modelling artefacts.”



Gearbox in MAGMA’s preprocessor

This allowed Petroni to import the repaired IGES file into Catia in a considerably improved condition after less than two hours of reworking. A binary STL file could then be generated and used directly in Magmasoft for all the analysis work. Miss Chirico says: “Although we still have to use Catia to generate the geometry for the moulds, CADfix has almost completely resolved the transfer problems we had been suffering. In the case of the IGES file transfer, even though the model was over 85 MB the time taken to repair and transfer the file was reduced from the predicted three days to under two hours while simultaneously improving the quality of the geometry. At the same time CADfix can also generate the models in STL format or translate native Catia files directly into STL for the simulations. What this means to us at Petroni is significant time savings, a reduction in time to market, an increase in quality and ultimately, greater client satisfaction.”



Detailed editing in CADfix

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