



Preventative maintenance is to the fore at the Bergamo operation, where molten aluminium is transformed into brake component castings

Mobile maintenance

Patrick Raleigh reports on a new e-maintenance strategy at Brembo

WITHIN THE NEXT TWO TO THREE YEARS, BREMBO SpA maintenance manager Vladimiro Carminati expects to be able to monitor and control production, and activate maintenance operations at the automotive brake major's plants via mobile phone.

The concept is part of Project e-Maintenance, which is initially being introduced at the Italian group's two production sites in Bergamo: one housing a foundry, die casting and machining operations; the other for finishing and assembly of final products.

The integrated maintenance plan, which features the use of a CARL Source CMMS engineering tool, from CARL Software of Lyon, France, is eventually to be introduced at all Brembo sites. The €830-million-turnover group currently employs around 5,400 people at 36 production and business sites worldwide.

Brembo's maintenance effort is focused particularly on its aluminium smelting furnaces, metal casting, heat-treatment and robotic-cutting facilities. The maintenance effort, said Carminati, is around 60% preventative, with emphasis on predictive techniques using infrared thermography, oils analysis and vibrational analysis.

Under the project, the vision is that the Brembo maintenance team will be able to remotely activate these

maintenance operations, and control the production at all Brembo sites with a simple click on a smartphone screen.

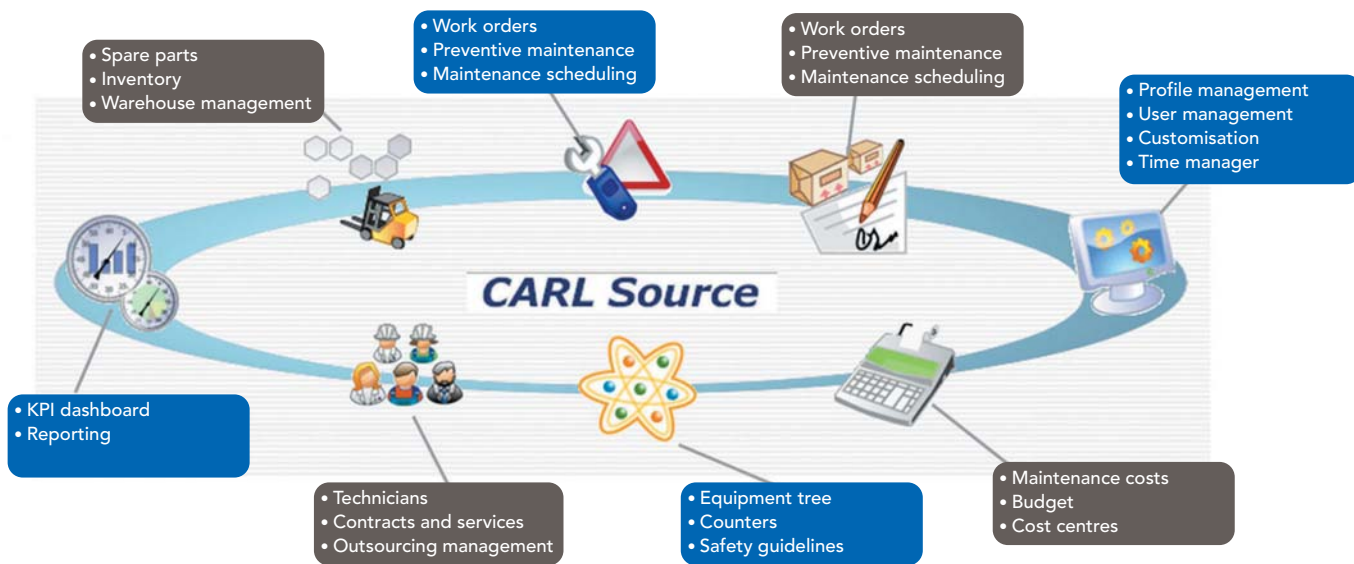
The introduction of CARL Software started about 18 months ago. It has included exporting standardised data from the previous IBM AS/400 server to the new CMMS, and interfacing this with Brembo's ERP software, Microsoft Axapta.

According to Carminati, the new CMMS has, to date, facilitated greater maintenance reporting and analysis of failures by machine, based on lean manufacturing parameters TRS (synthetic efficiency ratio) and MTBF (mean time between failures).

More accurate estimates of equipment availability for each day of the week have enabled Brembo to better schedule preventive maintenance activities. The software has also been customised to automatically process and track corrective work requests.

Brembo also aims to use CARL Source to optimise plant performance by integrating the supervision and control of production processes. Other goals include centralised data acquisition on the server via Ethernet to monitor the running status of each machine, and linking the CMMS to SCADA systems to monitor both alarms and energy efficiency in real time. ▶

“ Brembo also aims to use CARL Source to optimise plant performance by integrating the supervision and control of production processes



This broad project remit reflects how downtime issues are quite well under control at the Bergamo facilities. Breakdowns are now down to 1.3–1.8% of scheduled uptime, compared to around 5% prior to the introduction of Total Productive Maintenance and standardised maintenance methods and procedures over recent years.

In the foundry, for example, 60% of maintenance activity is now anticipated and planned by the maintenance department, 35% involves corrective maintenance on the equipment, while the remaining 5% involves predictive maintenance.

“We know very well the optimised [maintenance] frequencies,” said Carminati, who heads a 15-strong team of engineers, electricians and mechanics each with specialised skills in their field.

“If the same breakdown occurs twice we take time to analyse and resolve the issue definitively, rather than use a temporary solution to quickly restart production. Increasingly this [approach] is being applied to any new breakdown.”

The maintenance boss, therefore, believes that any further uptime improvements would involve a big effort for relatively small savings, and instead sees spare parts management as the current best way to deliver maintenance-related savings.

Warehouse spare parts for the Bergamo foundry, machining and assembly operations are often “not mapped,” with consignments spread over three different sites, said Carminati. “There is not enough communication between the warehouses,” added the maintenance manager, whose goal is to create a single warehouse for all spare parts. The current target, though, is to use the CMMS to cut the inventory costs of the

total value for automotive spare parts stock by 10%. To this end, Brembo is developing a CARL Source PDA application to manage inventory and stock movements.

At present, a problem for the small senior maintenance team at Bergamo is to find time to develop such projects, particularly as it also has to manage the start-up of a new plant in the Czech Republic. The new facility integrates the foundry and machining and assembly operations in a single factory, but, noted Carminati, specific maintenance competencies are often needed, particularly in the foundry.

“Unlike machining and assembly, it is not easy to find people on the market who can manage maintenance of machines in a foundry, which requires a totally different approach with many specific competencies.

“If a machine breaks down in the Czech plant there is a maintenance department [available], but we still have to manage the installation of equipment from Italy. We spend a lot of time on that activity,” he said.

Carminati aims to install CARL Source to help troubleshoot problems at the new plant — noting how useful the smart phone functionality would be for Brembo’s thinly stretched senior maintenance team.

“The eventual challenge is to try and fix a model for all areas of Brembo, but, that this a far off dream,” said Carminati. “We need the commitment from top management,” he stressed. “We need them to see that they should invest in maintenance and see this as a source of profit not cost, and, for example, that reducing [maintenance] costs is the same as reducing the cost of the product.”

▲ The CMMS software is at the heart of the Project e-Maintenance initiative

■ Brembo’s products are employed by many major automotive companies



“ Unlike machining and assembly, it is not easy to find people on the market who can manage maintenance of machines in a foundry, which requires a totally different approach