Global Cement staff

# HARDTOP - In the right mould

*Global Cement* attended HARDTOP's Autumn party on 10 October 2013, held at the company's newly commissioned laboratory in Farsleben, Germany. Here we report on the events of the evening, including a tour of the facility, an introduction to HARDTOP's state-of-the-art apparatus and an outline of the company's new research capabilities.

Right - Picture 3:

HARDTOP'S Chris Hofmann (left) demonstrates the company's WinCast® Expert Finite Element Simulation software programme.

**Right - Picture 1:** HARDTOP's new laboratory facility in Farsleben.

Far right - Picture 4: The Oxford Instruments Foundry laboratory spectrometer for precise detection of relevant elements. HARDTOP Gießereitechnologie GmbH was established in September 1997 as an engineering company in Magdeburg, Germany, a location with a rich tradition of machinery manufacturing. The development of innovative wear-part solutions that are tailor-made for each application-specific case is reflected in the company's profile.







#### HARDTOP's Autumn party

On 10 October 2013 a cast of many industry experts converged on HARDTOP's autumn party, which was organised by proprietors Dr Armin Ißleib and Dipl-Ing Irina Ißleib-Lubojanksi on behalf of the company's newly-commissioned, fully-equipped laboratory in Farsleben near Magdeburg, Germany.

The convivial evening was an ideal opportunity to demonstrate the technical prowess of the company's laboratory facility to guests, many of whom had travelled across Europe to attend.

The company's profile encompasses cast wear parts for abrasive wear in a wide range of sectors as well as solutions in composite materials. Its focus is on process technology related to energy and cost-ef-

> ficient optimisation of wear parts of cast iron and steel materials.

> As a result of these longstanding developmental activities for specific wear-part solutions, the company has achieved high levels of competence in both national and international

markets. The ever-increasing market requirement for HARDTOP bi-metallic parts led to the decision in 2006 to systematically increase production capacity.

This allows a broad spectrum of material combinations, a wide range of individual weights as well as highly-specialised heat-treatment technologies. As such, the company can satisfy various customer requirements and specialities both at short notice and flexibly by utilising various mould and casting technologies.

In order satisfy future market demands, to secure market share and to embrace new areas of business, a new innovative service has been planned by the company. New market segments and areas of application are envisaged by HARDTOP, particularly in the field of special materials and combined production processes. With this in mind, complex, specific technical investigations, analyses and calculations are necessary. As well as specialist and scientific knowledge enhancement among the company's personnel, this also required an expansion of the company's laboratory facilities.

The basis for quality management at HARDTOP in research, development and foundry technology is the certification according to DIN EN ISO 9001:2008.

Below - Picture 2: Dipl-Ing Irina Ißleib-Lubojanksi welcomes HARDTOP's 100-plus guests to the company's autumn celebration.



#### Laboratory enhancements

Through the construction of a modern laboratory, HARDTOP now benefits from the following enhancements:

- Development of new fields of business through the application of HARDTOP bi-metal castings for new material combinations and special materials;
- Extended competences in the fields of foundry, material and wear technology;
- Improved structure and quality evaluation;
- Compact scientific know-how transfer;
- Further development of products to reinforce innovative capabilities;
- Development of technically-optimised process sequences when utilising special materials and combined production processes;
- Securing existing employment positions and creating new ones.

The aim is to process performance requirements with substantiated analytical methods for technical materials and additionally to offer third parties solutions in the form of ready-made products or samples.

### **Material investigations**

The newly commissioned laboratory primarily performs material investigations, which include:

- Structure analysis by reflective light and stereomicroscopy, layer density and microstructure evaluation (qualitative and quantitative metallography);
- Digital image processing to ascertain type, form, size and distribution of components;
- Assessment of fracture samples;
- Stationary and/or mobile hardness testing (macro hardness testing);
- Surface crack examination (colour penetration test, magnetic particle testing);
- CAD-supported component analysis with Win Cast<sup>®</sup> Expert Finite Element Simulation software,
- Spectral analysis.

## New services

The creation of services close to real production conditions in the new facilities on behalf of third parties is also envisaged and encompasses the following:

- Laboratory investigations into material analysis;
- Investigations into improvement of material properties;
- Investigations into increasing component safety (component optimisation);
- Investigations into composite materials.









**Right - Picture 6:** Partial view of the laboratory suite.

**Right - Picture 5:** Mitutoyo testing device.

**Right** - **Picture 7:** HARDTOP's 'widely-feared' Rhodesian Ridgeback security system.

Right - Picture 8: A traditional local miner's brass

band gave a grand live performance, one of the highlights of the evening.