

CHANGES

Over recent years the cast metal industry has been through an unprecedented period of change and restructuring. Increasingly high raw material costs has forced many casting producers to re-negotiate prices with their customers; M&A lead to the formation of large casting producer groups; the shift of production from Western Europe to Eastern Europe and from the US to Mid and South America; strong growth of casting demand in China has caused many EU/US foundry groups to set up production facilities close to their customers, these are just some of the topics that have contributed to these changes.

Talking about changes, GEMCO has been able to take on some major challenges in 2004. With the signing of several new contracts in which we take the responsibility for the realization, start up and ramp up, we see a new way of turn-key contracting for the cast metals industry. We have restructured our consultancy group, which is now stronger than ever. We have opened an office in Russia and reinforced and established new partnerships throughout the world. Our customers awarded us with exciting projects, some of which you can read about in this edition of our newsletter.

2005 will again offer many challenges. Groups that are able to rise to the challenges, that provide answers and demonstrate vision will be the leaders of tomorrow. It is our goal to continue to assist you in your challenges in a professional and efficient manner.

Bas van Gemert



GEMCO wishes CAMISA successful operations.



Camisa, new foundry in Saltillo, Mexico



Rubén Rodríguez, Director Division Autopartes Condumex (at the right) and Jos Ritzen, GEMCO

Also in this edition:

CONSULTING, the role of mergers and acquisitions

BREMBO, new foundry in Poland

HANDTMANN, new lost foam facility

SAINT GOBAIN, expansion in China

ZMZ/SEVERSTAL, turnaround management

EKU, on a mission

and more



Reshaping the Casting Industry – The Role of Mergers & Acquisitions



On the occasion of the 66th WFC in Istanbul, Dr. Klaus Schmitz-Cohnen held a presentation on **Major Trends** experienced in the industry, the role of **Mergers & Acquisitions**, the possible impact of **Private Equity Ownership**. The following are excerpts from that presentation:



‘Statistics for North America and Europe show the impact of consolidation on the industry. Over the past 6 years there has been:

- ❑ 11% decline in the number of production units
- ❑ 1% reduction in tonnes output

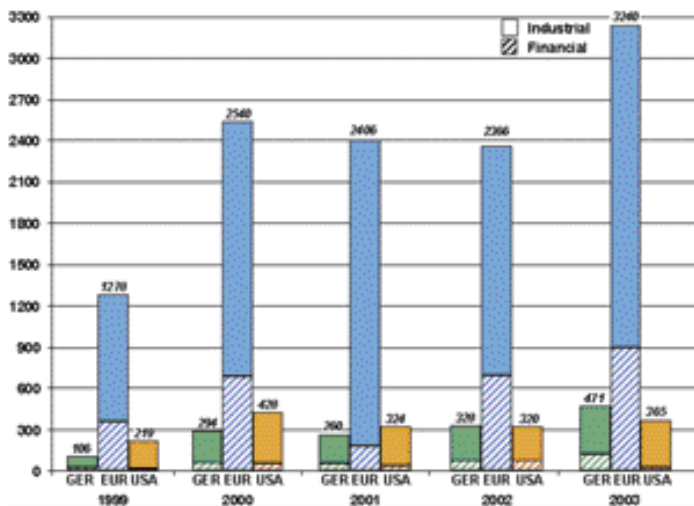
Indicating that the remaining producers are larger units with higher output levels. However, the foundry industry is still fragmented. And in nearly all market sectors even the major companies are considerably smaller than their customers. Forecasts for market development imply a continuing pattern of change.’

‘A significant new factor has emerged in recent years: **Private Equity** and **Venture Capital Firms** as large shareholders, especially in the US and Europe. This new type of owner can give more independence and focus to the company’s management. Especially where it had been a part of a larger possibly more diverse group. However, most private equity and venture capital firms are not long-term owners (typical exit after 5-7 years).’

‘Despite present economic conditions, it is still possible to realize value from castings business with a good track record and robust prospects.

There are risks involved in any acquisition but these will be minimized with detailed planning and assessment of synergies. M&A will continue to play an important and positive role in the evolution of the castings industry provided it is well executed with a sound industrial and commercial rationale.’

Figure: number of deals



KnightWending Cast Metals GmbH

An important driver behind the changing industry structure has been a sharp rise in the number of mergers and acquisitions in the foundry sector

MAJOR TRENDS IN THE CAST METALS INDUSTRY

Castings industry highly fragmented; comprised of many local and regional competitors

Consolidation

- ❑ more than 10.000 casting companies worldwide, with approx.100 having revenues of more than US\$ 100 million, total casting business size of approx.150 billion US\$
- ❑ principal competitive factors include quality, price, service and engineering
- ❑ OEM and major supplier pressure will continue to drive consolidation

Outsourcing expected to continue

Outsourcing

- ❑ OEMs now view component operations as capital-intensive and too costly versus outside suppliers
- ❑ independent suppliers are taking on product engineering and design responsibilities
- ❑ OEMs have begun outsourcing in-house die casting
- ❑ captive casting operations currently under review

Advanced process technology enables production of more complex parts from lighter alloys

Technology

- ❑ advanced techniques (e.g. lost foam and squeeze casting) reduce labour intensive machining
- ❑ castings face ongoing competition from steel stampings and hydroforming (notably in chassis)
- ❑ process control technology improving productivity

Fuel efficiency standards key driver of non-ferrous metals penetration

Materials

- ❑ aluminium and magnesium steadily replacing iron
- ❑ growth in aluminium mainly driven by lighter weight, better strength-to-weight ratio and improved styling characteristics
- ❑ magnesium offers further advantages over aluminium including lighter weight, greater design flexibility, shorter casting cycles, improved die life and closer tolerances

3D view of the new foundry



BREMBO to invest in a new Greenfield foundry in Poland

BREMBO is leader in the design, development and production of Original Equipment, racing-, high performance- and aftermarket brake systems and components for the worldwide automotive and motorcycle industries. The Group is headquartered in Curno, near Bergamo in Italy and currently operates in 14 countries on 4 continents. At present BREMBO employs over 3900 people, of whom 10% are engineers and product specialists who are entirely dedicated to research and development.

'Excellence' is the one criterion the company employs and it has, since its foundation, enabled the company to build an impressive track record of success. In line with the company's vertical strategy, to manufacture the most important components of their sold product as much as possible in-house, BREMBO has decided to invest in a cast iron foundry project. The new casting facility will be built in annex to their recently new built machining facility in Dabrowa, Poland and will make the company even more competitive in the future.

GEMCO has been awarded the **Turn-Key contract** for the realization of this new greenfield foundry project. Preceding the decision in favor of this multi million investment, GEMCO conducted an in-depth feasibility study that included process analysis, economical analysis and the conceptual engineering works for the project.

GEMCO is committed to build this state of the art dedicated brake disc foundry and is responsible for the engineering and general contracting of the project. An important part of the turn-key scope of supply is our guaranteed performance and ramp up of the plant (integrating firm guarantees on total production performance, uptime, and scrap rate). The construction works started on September 9th. Commissioning of the plant and the first pour are scheduled for mid 2005.



The Foundation-Stone ceremony



Construction site in Poland

HANDTMANN invests in a new LOST FOAM facility

The entrepreneurial spirit of the Handtmann family from Biberach in Germany, has sustained the modern Handtmann Group of Companies for four generations. The Handtmann Group combines over 130 years of tradition with modern management. Corporate objectives are pursued with patience and perseverance, long-term and continuous growth is considered to be far more important than short-term success. During 2003, 2000 employees generated over 360 million Euros turnover.

Technological innovation is a key factor in the company's success, beginning with professional innovation management. As the company states: "novelties do not occur by accident". Application of this philosophy in all their divisions allowed Handtmann to also become an authority in the "Lost Foam" aluminium casting process, with which the company has been able to achieve technological leadership in Germany and Europe. Handtmann's dedicated aluminium Lost Foam division is a key supplier to the automotive industry and may count Audi, BMW, Daimler Chrysler, General Motors and VW among its clients.



Handtmann, Biberach, Germany

handtmann
Ideas for the future.

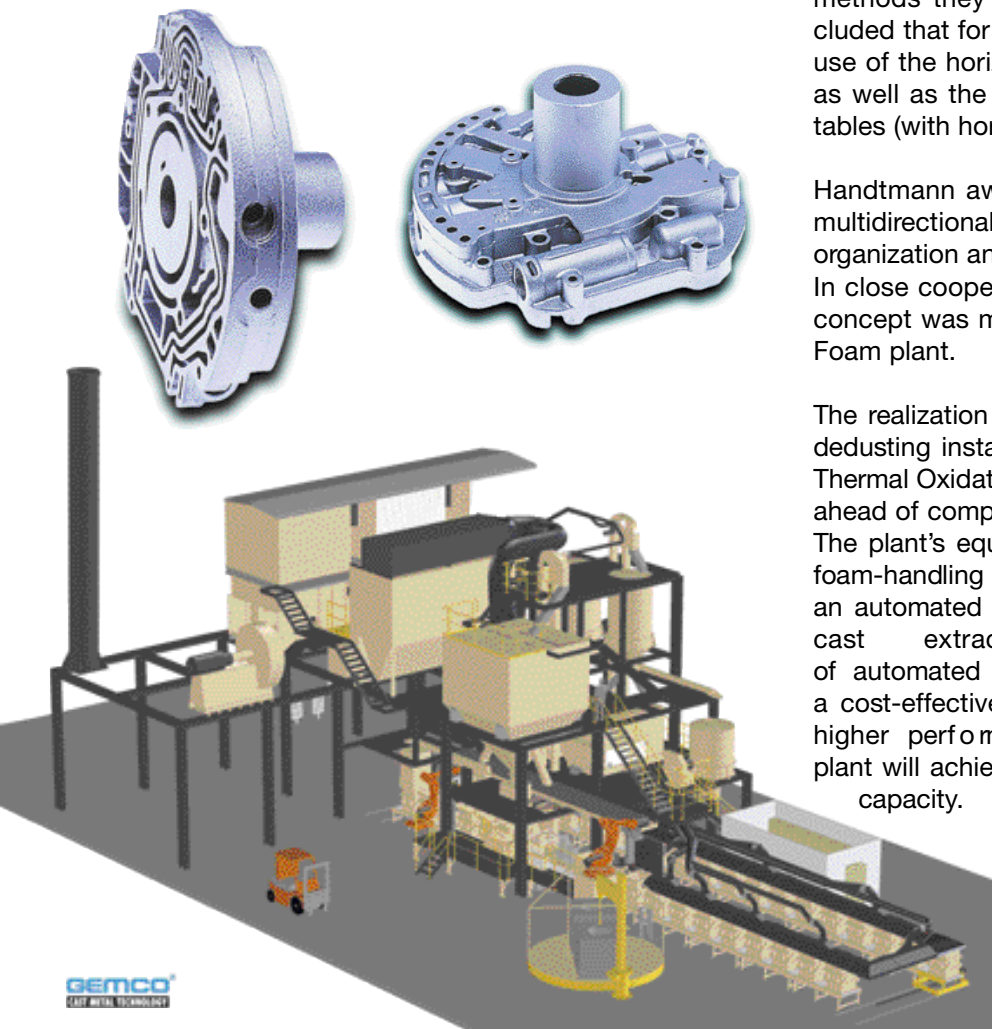
In June 2004, the Cast Metal Division of the Handtmann Group decided to invest in a new Lost Foam plant. Anticipating the decision, Handtmann carefully measured the efficiency of the different compacting tables applying methods they developed themselves. Handtmann concluded that for their new Lost Foam facility it would make use of the horizontal compacting tables already in place, as well as the new generation so called 2D-compacting tables (with horizontal and vertical vibrating directions).

Handtmann awarded **GEMCO**, who first developed the multidirectional compacting table, with the turnkey project organization and engineering of the Lost Foam project.

In close cooperation between Handtmann and Gemco, a concept was made for the new specific Handtmann Lost Foam plant.

The realization includes some special features, such as a dedusting installation in combination with a Regenerative Thermal Oxidation Unit (RTO), which puts the plant already ahead of compliance with future environmental standards. The plant's equipment includes a foam transport system, foam-handling robot, pouring robot in combination with an automated turning platform with tilting holders and a cast extraction robot. The high level of automated operations allows for a cost-effective production due to a higher performance per hour. The plant will achieve a 40 flask per hour capacity.

At Gemco, contact:
Hans Flipse,
project manager,
hans.flipse@gemco.nl



New foundry facility Ma'anshan

CHINA

Saint-Gobain Group operates a number of businesses and divisions, grouped into three competence centres: Glass, High Performance Materials and Housing. Saint Gobain Pipelines is a division of the Housing competence centre. The pipelines division is the world's leading equipment manufacturer in complete ductile iron pipe systems. Each of Saint Gobain Business Sectors is ranked among the world leaders, if not world leader. Saint Gobain's operations and divisions can be found worldwide, presently in 45 countries.

Saint-Gobain Pipelines decided to expand their already existing production site, located in Ma'anshan, near Nanjing, China, with a new foundry facility. The new plant would be entirely destined to produce high quality ductile iron pipe fittings.

June 2003 Saint-Gobain PAM awarded **GEMCO** with the Turn-Key contract for the realization of the new production facility in Ma'anshan. The project concerned a foundry for pipe fitting components, including moulding line, coreshop and peripheral equipment, testing equipment and finishing installation. Furthermore, GEMCO was asked to complete the facility in China with a new sand plant. Criteria for a successful project were: compliance with Saint-Gobain's **quality** standards, achievement of the required **performance** standards, operational machine **safety** according to **EC regulations** and a sound start up of the new facility



New facility, filter area sand plant and sand drying system

The overall scope of supply called for a flawless coordination and required utmost efficiency, accuracy and perfect timing. The Sand Plant was built in China; however -for quality and performance reasons- the mixer was sourced in Europe and integrated in the plant in China. During the realization of the project, Saint-Gobain also awarded GEMCO the supply of a new Sand Drying System. The available sand proved to contain too high moisture- and dust levels for cold box process application. The sand drying installation permits the use of a lesser quality sand whilst achieving consistent sand quality.

GEMCO's responsibility encompassed the assigning and supervision of Chinese subcontractors for the installation of the new equipment, as well as detailed expediting in order to achieve milestones as planned. Key decisions had to be taken. Close cooperation between Saint-Gobain and



Views mouldmaster in new production facility

GEMCO was based on open and constructive communication and the teams joined forces to overcome any differences with local opinion on time and quality. Quality and performance of both machinery and workforce skills were the decisive factors. Adequate selection, when and where to employ either European or Chinese engineering, produced a concept on European level for process, operational and maintenance accessibility as well as equipment safety. Worldwide expertise in foundry projects enabled GEMCO to deliver an optimal solution with overall guarantee on quality and output. Immediately after start up the plant was certified according German standards.



Christian Besse, General Manager at Saint-Gobain (Ma'anshan) Foundry Co. Ltd., receives commemorative plate from Johan van Geeren, GEMCO, on the official opening of the new production facility.

Turn-Around Management

RUSSIA

Zavolzhye Motorny Zavod (Zavolzhye Motor Plant ZMZ) is a daughter company of the expanding SeverstalAuto Company in Moscow, and a major manufacturer of complete 4-cylinder engines for passenger cars, light utility vehicles and off-roaders. The company is situated approximately 600 kilometres east of Moscow in the Zavolzhye, Nizhnij Novgorod region.

ZMZ produces engines mainly for the Russian automotive industry. The volume of production is about 280 thousand engines per year. At the present time the company, including daughter companies, employs approximately 17.000 persons. ZMZ production facilities include **gravity die-casting** and **high-pressure die-casting** foundries, which combined employ around 1.500 people and whose current production capacity represents roughly 20.000 tons of good castings per year. In July 2005 the foundry business will be separated in a daughter company in order to operate independently, so as to become attractive as a supplier of quality castings that meet European quality standards, accepted to both Russian and international clients.

GEMCO initiated its cooperation with ZMZ in the autumn of 2003 with an **Overall Efficiency Evaluation** with specific attention for possibilities of general scrap and cost reduction as well as productivity improvement in the two aluminium die-casting foundries. The outcome of the efficiency evaluation revealed that the general productivity of both foundries was not optimal, whilst the manning level in the indirect-productive departments turned out to be extremely high. The study also revealed that the existing organizational structure and reporting system would not be adequate to operate successfully as an independent company in an open market situation.

SeverstalAuto and ZMZ decided for a follow-up on the study and requested GEMCO to extend its cooperation for the implementation of the recommended measures for foundry optimization. The **Management Technical Support Project** involves an interim management performed by GEMCO. The "turnaround" management comprises a team of experienced foundry consultants and foundry shop floor specialists headed by a senior project director.

The first results of the project are very promising. In certain



Zavolzhye Motor Plant ZMZ

СеверСтальАвто

areas productivity has already doubled. A financial reporting system has been defined and is now partially installed, and will be fully implemented for all required management levels. A revised product cost determination has been implemented along with the adoption of a re-defined organization structure. As a result of a new cost centre structure several management levels within ZMZ now have full costing responsibility. Furthermore, the general manning levels have been reduced, with emphasis on indirect-productive personnel.



Engine by ZMZ

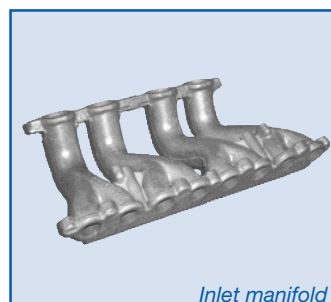
Other results to date include the creation of a production reporting system and re-certification of the quality management system in accordance with ISO 9001. In 2005 the foundry will be certified in accordance with ISO 16949. GEMCO has also given support and training in purchasing procedures and enforced marketing and sales activities for the two foundries.

The implementation of a project of this extent requires strong managerial skills and determination from both ZMZ and GEMCO but will result in successful independent operations.

At Gemco, contact: Alphons Wijnen,
Area Manager Central & Eastern Europe, e-mail a.wijnen@gemco.nl



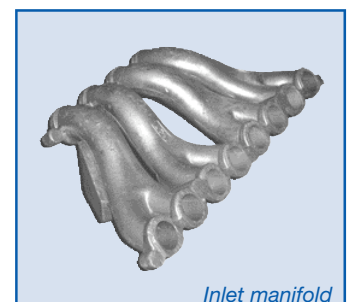
Cylinderhead



Inlet manifold



Waterpump housing



Inlet manifold

Gravity die-casting

TURKEY

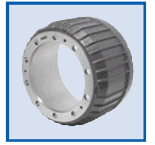
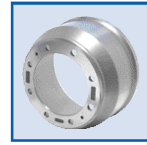


on a mission

Kartal, Istanbul, Turkey: EKU is a recognized brand name in the automotive industry as a manufacturer of brake drums for trucks, trailers and buses.

The company serves both the domestic and international OEM's and the replacement market. In response to the market trend and to strengthen its position, EKU has added brake discs to its product line. The company is committed to become a major player in the global automotive industry and a preferred brand for OEM and after-market as brake drums and brake disc manufacturer. Capital investment must enable EKU to increase their yearly output and reach up to 1.000.000 finished products, achieving superior levels of product quality and consistency, as well as operational productivity and efficiency.

EKU asked GEMCO, to perform a **market survey** on Western Europe and North America, focussing on the market segment in which EKU operates. We continue to service EKU with dedicated tasks such as **concept engineering, feasibility studies** and **project implementation**.



From left to right:

Sami Şişman, EKU foundry plant manager; Bernd Leipner, Gemco; Eckehart Proll and Jan van Wijk, Gemco; Adnan Şentürk, General Manager Teknoden; Rahmi Kılıç, president EKU; Mehmet Döğeroğlu, director EKU; Johan van Garven, Gemco; Cangiz Akyaol, president Teknoden; Aylin Ertem, managing director MetaMak.



Grundfos Management A/S Bjerringbro

East European Supplier Survey

Grundfos Corporation, a global producer of pumps for various applications, made a turnover in 2003 of 1,5 billion Euro with 12.000 employees. The European production is located in Italy, France, Hungary, Germany, Denmark, England and Finland. Grundfos uses about 30.000 – 35.000 tons of cast iron parts per year for various pump housings and other applications.

To maintain their strong position in a very competitive market, Grundfos is interested in strategic partnerships with companies in medium to low cost countries. Potential partners should control commercial and technical processes for the product range and should be adequately equipped. In order to prepare for a partnership, Grundfos assigned GEMCO with the investigation of the Eastern European Market, including the countries Czech Republic, Hungary, Poland, Romania, Russia, Ukraine, Lithuania and Slovenia, Croatia and Bulgaria.

The study focused on identification and segmentation of potential suppliers located in Eastern Europe. Using internal information from Knight Wendling and Grundfos they were ranked according to their capabilities.

The approach was to produce a list that identified all potential suppliers according following criteria:

- Industrial foundries (exclusive suppliers which work only for the automotive industry)
- Casting capacity min. 5.000 tons /year (some exceptions for potential small foundries)
- Minimum 50 employees
- At least one moulding line (plus hand-moulding if any)
- Alloying match Grundfos product portfolio (wholly or partly)
- Experience with export (as possible)
- Focus on casting weight from 35 to 200 kg

The list contained 67 foundries, whereof 21 were located in Czech republic, 19 in Hungary, 10 in Poland, 7 in Ukraine, 4 in Russia, 3 in Slovenia, 2 in Romania, 1 in Croatia, 1 in Bulgaria and 1 in Lithuania.

To qualify for the short list, the foundries were then ranked according a point system. Where Rank = (Factor x points) attributed and added for specific criteria; Export, Quality system, Environmental System, Technique according number of moulding lines, capacity and product complexity.

The ranking lead to a choice of 6 foundries, to be evaluated in detail, by visits and examination.

DENMARK



MAN B&W Alpha Diesel A/S, a leading producer of two and four stroke diesel engines for ships, operates an in-house foundry on their premises in **Frederikshavn, Denmark**. The foundry produces about 2.500 t/year iron castings with a 50% share in grey and 50% in nodular iron. About 80% of the products produced are for internal use, 20% are destined to external customers. The main products are cylinder heads, front-end boxes, rear-end boxes, main bearing cabs and other aggregates for large ship- and stationary diesel engines. In order to secure the future competitiveness, MAN B&W Alpha Diesel assigned **GEMCO** with an investigation of the **profitability** and **competitiveness** of the foundry.



Pictures MAN B&W

The result of the investigation showed that, based on market prices and with a product portfolio, fitting to the technology installed, the foundry is profitable as well as competitive. However, improvement potential has been identified in work- and material flow. The foundry has seen continual growth in sales over the years, but the foundry layout has not been reviewed or changed since it was installed. Internal transportation of cores, moulds and castings, storage of moulds and cores and the throughput of castings in the fettling were identified as areas for improvement.

Based on the results of the study, GEMCO was assigned to perform a pre-engineering for the new foundry concept.

The pre-engineering included:

- Relocation of the core shop for larger cores
- Redesign and –construction of the core shooters for medium and small cores.
- Redesign of the moulding plant, including roller band, sand mixers and mould assembly.
- Redesign of the mould storage and pouring area
- Redesign and reorganization of the fettling shop



The study was accomplished in 2003. Completion of the project includes GEMCO's assignment for the project management and the realization phase of the project, and is expected to be carried out in 2005.

Thank you, to those who have contributed to our successful participations in 2004.



Gemco Engineers B.V.
Engineers & Contractors
Science Park Eindhoven
P.O. Box 1713
5602 BS Eindhoven
The Netherlands
Tel. : +31 40 264 36 43
Fax : +31 40 264 36 40
e-mail: eng@gemco.nl

Knight Wendling Cast Metals GmbH*
Consulting & Engineering
Heinz-Schmöle-Strasse 12
D-40227 Düsseldorf, Germany
Tel.: +49 (0)211-77 00 6-0
Fax: +49 (0)211-77 00 6-77
e-mail: info@knightwendling.de

*a Gemco company

www.gemco.nl

GEMCO[®]
CAST METAL TECHNOLOGY