GEMCO®

Newsletter Gemco nr. 12

"New ideas are more important than experience"

… is what I was reminded of by a renowned engineer at a congress, not long ago.

We are proud that at Gemco we have always striven to bring in new ideas for challenges in the production of castings.

Innovation and development is what we thrive on. An important focus point is ergonomics inside the foundry. Operators compare different working-conditions, it is therefore important to create a safe and health-friendly environment inside the foundry that keeps a valuable workforce content. Hence we designed and developed a pouring system for large castings, that primarily optimizes safety and ergonomics but also reduces the required manpower and improves the casting quality in highly productive environments.

In this edition of our newsletter -number 12 already- you can read about a few of the projects we recently performed as well as some of the projects that are currently being implemented by our customers. While Europe is awaiting its upturn, we are active in countries where demand for castings is healthy or rapidly recovering. At present, China, where the automotive industry is still strong, Mexico, USA and Russia are largely represented in the markets where we operate.

Furthermore, in this issue you will read about a development-cooperation between a foundry, a supplier of binders and an equipment supplier. This combination of companies and their cooperation is an example of a truly "open source development". In the near future we expect this development to make available, reclamation systems for inorganic bonded sand at an economical level. For a sustainable foundry industry, Gemco now offers solutions that render –new- foundries' performances of over 85% uptime with very limited waste streams.

Most of the time, conditions are determined by the choices within the lay-out and the way of building the foundry. With all above points, Gemco can be your partner. We look forward to serve you with new ideas!

Ir. Bas van Gemert
Managing Director

In this edition:

FOUNDRY

GEMCO®
CAST METAL TECHNOLOGY

COMPONENTA foundry facility in Orhangazhi

Componenta Corporation is one of the major European casting suppliers. Its trade is to offer solutions to their customer's challenges. The group's business involves engineering and manufacturing of iron and aluminium cast components. Componenta's customers can be found in the automotive, agricultural and off-road machinery and the machine building industry, worldwide. Componenta's operational structure consists of a Foundry division, Machine shop division and Aluminium division. The foundry division encompasses 7 iron foundries: 4 in Finland, 2 in the Netherlands and one in Turkey.

The iron casting business in Orhangazhi (Turkey) was incorporated in 2006 and produces many different grades of nodular and grey iron. Componeta Orhangazhi is ISO 9001, ISO 14001, ISO TS 16949 and OHSAS 18001 certificated. Parts for the agricultural, automotive, truck, construction- and machine building industry are produced in this plant for international OEM's and Tier 1's.

The foundry is equipped with seven different specialized automatic moulding lines (5 horizontal and 2 vertical), induction furnaces and a cold box core shop. The products can be supplied as cast, machined and painted.
Knight Wendling was mandated to perform an audit and assessment of the iron foundry in Orhangazhi. To accomplish the foundry's -further- development into one of the most competitive and effective casting solutions provider, the main objective was optimization of the foundry productivity. The assessment included the review of all processes from melting to shipping, process yield, effective production, scrap rates and overall productivity, a prospect of potential layout improvements and in that event, the required and appropriate investments.
With these benchmarks Knight Wendling presented a perspective on savings, necessary investments and a restructuring of the layout. Componenta then called on Knight Wendling to assist, in close cooperation with the Componenta team, with the implementation of the recommendations and improvements.

All pictures courtesy Componenta

Regional Foundry Survey

For a worldwide leading Tier 1 manufacturer of commercial vehicle parts, Knight Wendling conducted a regional foundry survey to identify green sand foundries with horizontal and vertical moulding lines that are able to produce high quality nodular and grey iron safety and brake-parts for commercial vehicle and truck industry. The client was in search of potential new suppliers, located in Eastern Europe, with the competence to meet their casting requirements.
Based on its in-depth expertise and an extensive data base, Knight Wendling proposed a selection of foundries which are capable to produce the products for the client. The criteria for the selection of potential suppliers and subject to survey were:

- Regional Impacts; such as economic performance or government efficiency in the country
- Equipment; e.g. moulding line, melting process, core shop technology
- Capacity, total and free
- Experience with the products

Subsequently, Knight Wendling presented nine foundries who would best match the profile of the ideal supplier for the client. The most probable candidates were extensively profiled / presented with detailed information about the equipment, the location, the ownership, client references and more. Several foundries are now entering into relations with the Tier 1 manufacturer.

Knight Wendling produces 10 to 15 surveys per year. An extensive worldwide network, extensive database and in-depth market expertise enable the company to provide comprehensive consulting services and engineering know-how.

Russian Ferrous Foundry Benchmarking monitors large potential to Improve Resource Efficiency

As we reported previously, a project consortium of GEMCO Engineers BV and Knight Wendling GmbH performed a consultancy project for the International Finance Corporation (IFC; member of The World Bank Group) titled 'Foundry Industry in Russia: Benchmarking and Development of a Reference Guide'. The IFC fosters sustainable growth in developing countries by supporting private sector development, by mobilizing private capital, and providing advisory and risk mitigation services to businesses and governments.
This first Russian cross-sector benchmarking study compared Russian and European foundry sectors. Benchmarking of Key Performance Indicators (KPI) such as process yield, OEE (Overall Equipment Effectiveness), energy consumption, labor productivity, TEEP (Total Effective Equipment Performance) and others, indicated large opportunities for improvement.
The report "Resource Efficiency of the Ferrous Foundry Industry" not only showcased efficiency potential, it also provided practical guidelines to individual foundries as well as to the broader sector.

PRACTICAL GUIDES ON RESOURCE EFFICIENCY IN THE FERROUS FOUNDRY INDUSTRY IN RUSSIA

1) Compendium of KPIs
- Seven selected KPIs
- 32 product categories
- Tables with KPIs

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2) Self Diagnostic Guide
- Questionnaire
- Instructions for data collection and calculation of KPIs

4) Benchmarking Study - Results
- KPIs values Russia (field research)
- KPIs values Europe (GEMCO data warehouse)
- Overall aggredated benchmark comparison)

3) Best Practice Guide
A Improving KPIs
B KPIs covering best-practice technologies and techniques
C "Best available" technologies

Since presentation and publication of the report Knight Wendling has carried out several technical and technological audits for foundries and forges in Russia, of which some supported by the IFC. More news about Russia will be presented in our next newsletter.

For more information please do not hesitate to contact Knight Wendling GmbH.

… a matter for CONGRATULATIONS !

On the 18th of May 2013, **Buderus Guss GmbH** celebrated the 100th Birthday of its Breidenbach works. A memorable event and an appropriate occasion for Gemco Engineers as well Knight Wendling GmbH to transmit a sincere "congratulation"

Buderus Guss is Europe's leading manufacturer of car brake discs and was incorporated in the Bosch Group in 2005. Since the 1st of January 2012 Buderus Guss is an independent division within **Bosch Chassis Systems Control**.
Buderus Guss GmbH, Breidenbach plant was founded in 1913 by Hessen Nassau Hüttenverein. Until the 1950's the product range was characterized by various cast iron products. From the 1950's on the Breidenbach facility began to focus on automotive castings. In 2002 the facility was extended with a second foundry complex, which marked the beginning of a success story as car brake disc supplier and development partner for the international automotive industry.
With a broad and balanced range of clients, an excellent workforce, ongoing development of foundry technique and Buderus newly developed carbide-coated disc (IDISC), we'd say "here's to the following 100 years"

Lars Steinheider, Managing Director Buderus Guss GmbH, during opening speech

Dr. Klaus Schmitz-Cohnen, Managing Director Knight Wendling, in an animated conversation with delegates of the German Foundry Association

All Pictures courtesy Buderus Guss

voestalpine Nortrak

voestalpine Nortrak is North America's leading designer, manufacturer and supplier of special trackwork materials. The company is a division of voestalpine VAE who is global market leader in technology for railways, metros and subways. The group includes 8 manufacturing facilities in North America and 28 plants located worldwide.

pictures courtesy voestalpine

voestalpine Nortrak's foundry facility in Decatur, Illinois, produces both ductile iron and manganese steel castings for use in railroad/trackwork. The company's aim for the Decatur foundry is to double the production capacity for the manganese steel castings.
Nortrak asked Gemco to perform an Engineering Review as well as a Concept Engineering for the capacity expansion, taking into account that any plans/design for the capacity expansion should be carried out in such a way that minimum interference occurs in the ongoing foundry operations. Projected maximum size of the castings will be of a casting weight of roughly 4,800 lbs. (2175 kg) and casting length of roughly 288 inches (7.3 m). After review of the existing foundry layout and evaluation of the current realistic maximum capacity for large manganese alloy casting, the design of a required foundry lay-out and determination of the required -additional- equipment, were established. Achieving optimum health-, safety- and environmental conditions are prerequisites in the project. The expansion project encompasses foundry logistics and process improvements as well as process changes.

A major process change is the introduction of a different sand system. Gemco will convert (turnkey delivery and installation) the existing Olivine sand system into a Silica Chromite No Bake sand system with Furane binder. The system includes a chromite separation plant, sand cooler and trim cooler/heaters. The new chromite sand system solves the issue of non- or decreased availability of USA olivine sand, plus the use of chromite sand improves the surface quality of the castings.

Nortrak decided to advance the Decatur expansion in 2 phases. Realization of Phase 1 of the project, and currently under way, consists of the conversion of the sand system and make-shift increase of the production by 35% while taking into account the near future objective of doubling the capacity.

Foundry Technology Transfer and Training

Yuci Hydraulic Industry Co.,Ltd. is a leading Chinese manufacturing company for hydraulic systems. Previously, the company cooperated with Japanese (Yuken) and US Companies (Vickers) to produce hydraulic systems in China.

At present, Yuci is setting up a complete new manufacturing plant for hydraulic pumps, valves, pistons, motors and other related products. Along with the new facility Yuci realizes a new foundry in order to supply the manufacturing plant with own castings. The new foundry will produce 30,000 t/py. of ductile and grey iron castings to the best European and ISO specifications.

Gemco was selected to advise on the lay-out and the equipment and to assist Yuci with the production of cast components in the new foundry. Gemco's scope of supply also includes the selection of the appropriate technology and detailed specification of raw materials as well as the design and testing of tooling. In addition to establishing a well designed and optimal equipped foundry, Yuci also aspires to form and put in place a well trained foundry staff with the required up-to-date know-how and skills to competently and efficiently operate the new foundry. For this purpose several of the company's top engineers received additional practice and training in Europe. Training took place at various European Institutes, toolmakers and with industry experts Furthermore, to take full advantage of local resources Gemco also assists

BMW Brilliance Automotive New Engine Plant

Gemco Engineers supports BMW Brilliance Automotive with the realization of their new foundry for the engine plant in Shenyang, China. BMW Brilliance Automotive Ltd. was founded in 2003 and is a joint venture of BMW Group and Brilliance China Automotive Holdings Ltd. Its operations include the production, sales and after-sales services of BMW automotives. The plant is located in Shenyang, Liaoning Province.

The new engine plant comprises the realization of a new foundry plant for which Gemco provides the Engineering and Project Management ("EPM"). The Greenfield Low Pressure Die Casting Foundry will produce Aluminium Motor blocks for BMW Brilliance Automotive Ltd. in Shenyang, China. The construction of the new facility started mid 2013 and start of production is scheduled for 2015.
Gemco's scope of services includes Project Schedule, Project Engineering, Procurement Assistance, Commissioning Coordination and the Project Management of the project.

pictures courtesy BMW Brillance

Aerial view of the site for the BMW Brilliance Automotive New Engine Plant in Shenyang, with the construction of the foundry currently under way (enlarged). The New Engine Plant is located next to BMW Brilliance Tiexi vehicle plant and high-speed testing circuit (on the right in the overall picture above)

Yuci with investigations and recommendations regarding local partners for all consumables and relevant supplies for metallurgical and raw materials as well as toolmakers and tool design facilities.

To achieve the specified/aspired production levels Gemco provides Yuci with specifications and recommendations on inspection and testing techniques, internal process controls and a full list and catalogue of work instructions and quality systems.

Gemco specialists will be working together with Yuci experts to achieve a smooth transition between start up and full production. This will include further training of Yuci personnel to work on the new plant and new equipment and achieve quality parameters as well as ensure that tooling is optimized and scrap reduction programs are running adequately.

The foundry is currently under construction and will start to supply castings in the 1st quarter of 2014.

The reclamation of inorganic bonded core-

The reclamation of moulding sand is for Gemco "state of the art" knowledge; we successfully operate our reclamation system for green sand and have implemented many chemical bonded sand reclamation systems in our foundry projects. There is however a new area in development on the replacement of chemical bonded sand for large castings by inorganic bonded (sodium silicate) sand.

The reclamation of inorganic (sodium silicate based) bonded sands for cores and for moulds is a different subject. Gemco is developing a reclamation system for this sand together with ASK and Componenta.

Sodium silicate ($Na_2SiO_3.nH_2O$) as a binder for core from (quartz) sand was widely used in the foundry industry until approximate 1970. The water has to be removed with an ester or by drying in order to form the bond. The amount of water in the binder system depends on the ratio between Na_2O and SiO_2, (Module) the lower the amount of Na_2O, the lesser water it can contain. The drawback is that the binder with a low module becomes less fluid.

This binder was cheap and commonly available but had quite some disadvantages, mainly the time for curing, the movement of the mould walls at specific temperatures (mould integrity), the disintegrating properties at the shake-out and the poor reclaimability of the waste sand. Because of the increasing requirement for automation, the increasing demands on castings accuracy and also the increased production volumes of production (and with that the increase of waste volumes) these negative aspects from the sodium silicate binders raised problems for the foundry industry.

As a solution, the binder supply industry came with the organic polyurethane amine cured binders for cores and the furan based binders for moulds. These binders gave a fast and controllable curing process, high mould integrity, excellent disintegrating properties and the waste sand is very well reclaimable. These binders where rapidly accepted by the foundries. The drawback was (and still is) the smell of the amine, the solvents and the burned organic components after pouring. Over the last 40 years these binders have been under development and been improved. In the meantime the 5th generation (or higher) of PU Cold Box binder is on the market and the development and improvements are continuing. However; they remain organic and its application is under serious (environmental) pressure during the last 10 years.

Consequently the same binder industry has resurrected the good old sodium silicate binder which is environmentally friendly and has no smell during or after the pouring of the metal. However it has to compete with the highly developed PU Cold Box systems and obviously there is a lack in development of some 30 years. In the years to come, the binder industry has to find solutions for the known disadvantages of the sodium silicate binder systems.
Reclaimability is one of the issues. It is evident that the inorganic binder system will only find its way into the market when the waste sand is easily reclaimable. As the "old" organic binders were reasonably reclaimable with a thermal / mechanical system, it is not so easy for the new binders. To overcome the drawback of the "old" organic binders, the chemical mechanisms of the bond must be modified. It is no longer acceptable to just remove the water fraction to form the bond but the binding chemistry has to be supported with "intermediates". In various publications these binding processes are described.
[8. Formstoff-Tage, Dr. Carolin Wallenhorst, ASK Chemicals or Dr.-Ing Hartmut Polzin TU Bergakademie Freiberg]

In a modern core or mould making process, the immediate strength of the core or mould in the mould box has to be high and reached quickly. For that reason binder suppliers

Ural Mining and Metallurgical Company is a vertically integrated Russian industrial holding that covers various activities. UMMC leads the Russian industrial economy in manufacturing, technologies and innovations. UMMC unites a number of mining, metallurgical and metal processing companies into one technological chain. The consolidation of operations enables UMMC to efficiently coordinate the activities from mining to final products with high added value. Geographically UMMC is spread over 10 Russian regions and present in 3 European countries.

Late 2010 UMMC first involved GEMCO for the Concept Engineering of a brownfield foundry project including the Feasibility Study of the project. The assignment applied to the existing facilities of Sukholozhskiy Non Ferrous Metals Works, which is one of the companies of the Holding. The works are located in the Sverdlovsk region. The target was the establishment of an advanced foundry that in future will take over the number of less efficient foundries of the Holding.

The choice was made for a practical and realistic stepwise project approach which eventually must lead to the production of 11,000 tons per year of high quality castings, operating the existing equipment combined and complemented with the new installations, along with advanced experience and technological knowhow. (The gradual investment enables the sales increase up to the investment level at the last stage)

and moulding sand

add additives and these additives affect the reclaimability of the sand.

De-coring of castings is always an issue in the foundry industry. Diagram 1 indicates the two levels of strength for a common sodium silicate binder. It shows that at some 600°C there is hardly any strength left. In fact this dip represents a change in the binder properties. At the dip all the (free) water has disappeared and there is hardly any core strength left. From that point onwards the increasing binder strength comes from glass based structures from the SiO_2 and builds a second level of strength at around 1100°C. For aluminium castings, the disintegrating properties are very suitable but for iron these have to be improved. Again additives are used to modify the strength behaviour of the binder.

Unfortunately, all these additives make the already difficult reclamation process of sodium silicate bonded sand even more difficult.

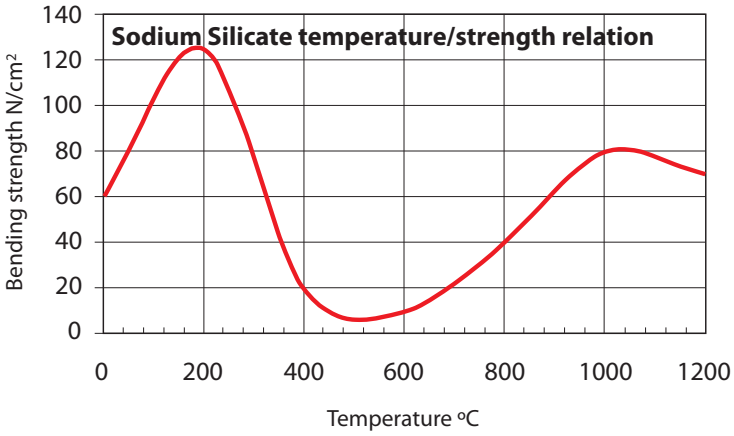


Diagram 1
Relation between temperature and the bending strength of sodium silicate bonded sand

Gemco has the expertise to reclaim (and re-use) return sands effectively. To reclaim these inorganic waste sands, ASK has contacted Gemco to support them with the technology for reclamation of the new developed inorganic binder for mould making. Within a year of trials and testing, this has resulted in a very acceptable quality of reclaimed sand on a laboratory scale basis.

Now we continue to test the binder and the reclamation process in actual foundry conditions.
Subsequently we have entered into a cooperation between ASK, Componenta Netherlands and Gemco to build a production line for ductile iron castings at Componenta in Hoensbroek.

The system was commissioned at the end of 2012, after which, testing under production circumstances could commence. Production circumstances allowed for optimization of the required different chemical components to increase the casting quality. Parallel to this, continuous running of regeneration cycles will allow the determination of the right quantity and composition of binder, catalyst and additives to be added.

The quality improvements made during this production have been very positive. Dimensions, surface quality and mould strength have been increased recently, to the level that commercial castings can be produced.

At present the casting produced with 100% reclaimed sand from the Sandcleaner obtains the highest quality. However, in order to optimize the feasibility of the process, testing proceeds so that the exact mixture of reclaimed-, old- and new sand can be established, to provide for the required casting quality as well as a competitive price per ton.

Early 2011, UMMC started with the implementation of the concept. For the realization, GEMCO was assigned the Project Engineering and Management of the project. GEMCO supports UMMC with detailed engineering, equipment purchasing and follow-up as well as project planning and technology transfer.
Additionally, in order to achieve increased cost efficiency GEMCO was in charge of the turn-key supply of a new Sand Regeneration System. The system was installed in 2012 in a live environment. This year the implementation of a new moulding line initiates. The production program of the facility will consist of iron and steel castings including the high quality manganese castings. The foundry will make such parts as excavator teeth, tracks, tooling for copper and lead ingots, and a wide variety of other products for mining and metallurgical industries.

More information on the project will follow in our following edition of the newsletter.

Rashad Iskenderov, Director CIS, Central & Eastern Europe

New No Bake Foundry, Mexico

BLACKHAWK DE MÉXICO, S.A., from Santa Catarina Nuevo León, México, is a gray and nodular iron foundry that serves clients in the North American market. The company sells its products directly to OEM's and component manufacturers (Heavy Truck, Farm Equipment and other).
Over recent years the company not only increased sales volumes, while maintaining high quality, it also developed the capacity to supply its clients with high value-added finished products, with the inclusion of machine finished products. Blackhawk uses internal resources as well as external suppliers.
As a result for the efforts, in 2009, Blackhawk was awarded the "Plant Engineering Award" as well as the "Metalcaster of the year" by the American Foundry Society. Blackhawk was the first ever metalcaster outside the USA to receive those AFS-awards.

In 2012 BLACKHAWK DE MÉXICO decided to increase its capacity with approximately 50% with a new No Bake facility. For the realization of this plan Blackhawk chose GEMCO to be its engineering partner.
The desired capacity increase will be obtained by building adjacent to the company's existing foundry facility. Installations shall include a no-bake molding line, electric induction melting and manual finishing department. The net production capacity will augment to 37,500 metric tons per year. Current product size ranges from 5 to 200 lbs, going up to 600 lbs within its new capacities later in the year.

GEMCO's scope of services includes Concept Engineering, Project Engineering, Procurement, Installation and Project Management.
The project is expected to be completed by late 2013.

Pictures courtesy Blackhawk de México

"for the upgrade and capacity increase of our foundry we decided for Gemco as our engineering partner. They are highly professional, creative, think with us and have a profound knowledge of the foundry business and technology'

Patricio Gil, CEO Blackhawk de México, about Gemco

Work in progress: adjacent to the existing building, at present the ground works have been completed. Building construction is under way and on schedule.

SANLUIS Rassini is a renowned designer, producer and supplier of automotive components and subcomponents. The company may count USA's best selling automobile manufacturers among its customers.

Within the SANLUIS Rassini group, **Rassini Brakes (Rassini Frenos)** designs and manufactures advanced braking system components for light and commercial vehicles, passenger cars and high performance applications. These components include discs, drums, assemblies and hubs. From design to prototype, casting to final machining, Rassini Frenos maintains the most advanced technology and latest generation of automated lines to meet the quality demands for today's new braking systems. The company supplies solutions to a wide range of car manufacturers through its Technical Center in Plymouth, Michigan (USA), Headquarters in Mexico City, seven production facilities throughout the American continent and three commercial offices in Europe and Asia.

Rassini Frenos and Gemco Engineers have worked together on several foundry projects over the past two decades. For the realization of this new foundry project, Rassini asked Gemco to provide Technical Engineering Services during the realization of this project. The new foundry operations will be accommodated within the existing premises which will be upgraded through adjustments as well as extensions to the building.
Gemco's scope of supply encompasses the Concept for the lay-out, Equipment Specification, Procurement Assistance, Installation Supervision and Commissioning Services. The foundry will produce brake-discs with a capacity of up to 6 mln products per year after completion of phase 2, depending on the product mix. The new foundry facility will incorporate the latest technologies to obtain a high level of automation, high efficiency and environmental friendliness.

SANLUIS® RASSINI

Excellence in Motion®

Product pictures courtesy RASSINI

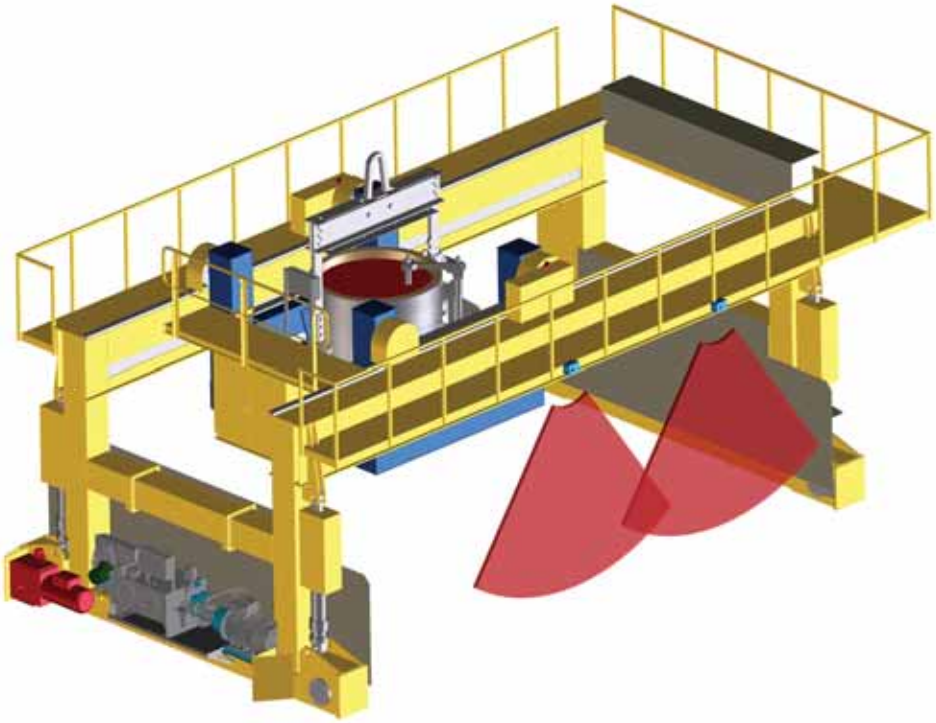
BRADKEN®

Bradken® is a leading global supplier of differentiated consumable and capital products to international markets. Bradken supplies fully machined cast iron, steel and other products to various markets of which the mining industry forms an important part. Bradken owns production facilities all across the globe and is expanding continuously. In 2007 a freight wagon workshop was completed in Xuzhou China, being Bradken's first manufacturing facility in China. In 2010 Bradken started engineering for the construction of a large greenfield steel foundry planned to produce crawler shoes and ground engaging tools for the mining industry.

Gemco was asked to assist Bradken with establishing the concept of the foundry. After completing the concept, Gemco assisted with the engineering-to-purchase and the follow-up with several suppliers of among others the moulding line, pouring machine, manipulators and heat-treatment furnaces.
Characteristic of the new foundry is its strong emphasis on safety and efficiency, expressed in its high degree of mechanization and automation.

Stage 1 of the Xuzhou Foundry in China is now complete and delivery of the first castings took place in January 2013. For Bradken it is a major milestone as it demonstrates the company's ability to undertake organic growth on a global scale. When fully operational, the foundry will have the capacity to produce 20,000 tonnes per year.

“... new ideas are more important than experience ....”



We highly value and treasure our experience but it is technical expertise, commitment to development, and the capacity to innovate, what we strive for. Ideas enable us to offer solutions in case projects require equipment/machinery that is not “off-the-shelf” nor “within range” available from customary foundry suppliers. This may occur in existing situations when modernization or expansion projects apply but also for a new to build foundry. You may need integration of several functions in just one piece of equipment or you require increased speed in combination with even higher safety or a higher level of automation and/or reduce manpower. In many different situations our engineers have produced innovative solutions for our customer’s specific requests.

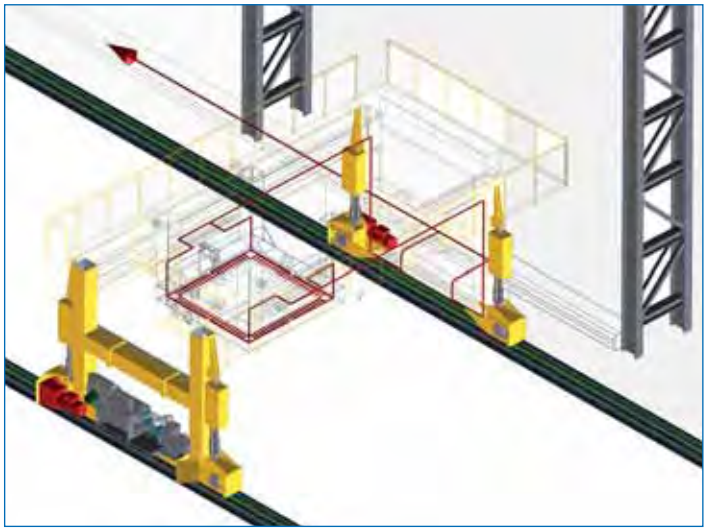
Safe, Quick, Accurate,

for pouring large castings in highly productive environments Gemco designed -and patented- a machine that optimizes safety, operates accurately, requires less manpower and improves the casting quality. Our clients expect that we encompass the best possible health, safety and environmental conditions. Operators are a valuable asset in any foundry operation so we do our utmost to provide safe and health-friendly circumstances in foundries.

Pouring Position Finder

the semi automated system transports liquid metal from the melting area to the pouring area/pouring line and was primarily designed to optimize safety. The pouring machine is equipped with a Pouring Position Finder.

In brief: The ladle is mounted on a rigid supporting structure, fitted with weighing cells and moves over the molding line. The PPF scans the molds with lasers to find the exact pouring positions at a minimum distance between the stopper rod ladle and the mold. The pouring machine automatically moves from mold to mold and each mold is filled safely and swiftly with the determined/required liquid metal. When the ladle is empty the machine returns to the pig out and will receive a new ladle.
The system is equipped with an integrated fume extraction directly above the pouring positing, keeping fume levels low. The system operates faster than an overhead crane resulting in less temperature loss of the liquid steel. Controlled speed, accuracy and pouring height will improve the quality and efficiency of your casting process.



Integrated fume extraction

For more information, do not hesitate to contact us, we’ll be glad to help you

Reliability, quality and efficiency “made in Germany”

On the northern edge of the HARZ region in Germany, midst a lovely hilly landscape on the bank of the river Bode, one finds the thousand year old town of Quedlinburg. It is also the hometown of Walzengiesserei & Hartgusswerk Quedlinburg GmbH.
The foundry has demonstrated its craftsmanship for over 140 years now. To this very date still, a knowledgeable and qualified team of experts complies with the requirements of numerous customers in a global market in which rolls and wear-resistant cast products have demonstrated their value in various sectors of industry.

Walzengiesserei & Hartgusswerk Quedlinburg GmbH selected GEMCO for the engineering and realization of a new centrifugal casting plant. The new plant is located right opposite their existing (foundry) works. The company produces -wear resistant- castings such as high quality rollers from nodular iron and cast iron in alloyed and non-alloyed grades for all industries. Since 1865, the company WHQ stands for reliability, quality, economy and efficiency "Made in Germany". The new foundry and new technology allows WHQ to secure their valuable assets such as their know-how and their capacity to innovate.

The aim of this project was to build a future-oriented roll foundry with the objective to produce specific parts of their product range more efficiently and economically, with the potential to double the production capacity. Since the foundry is located in the vicinity of a residential area, it was important to meticulously comply with the noise- and the emission legislations.
The planning of the new centrifugal casting facility began with the preparation for the approval of building permits (BimSch application). Simultaneously, the layout of the building, equipment and subsequent planning and specifications were determined.
The building construction was carried out by WHQ with decisive input from GEMCO. Furthermore, the scope of supply encompassed the complete foundry logistics and process-technical concept, the design and supply of equipment, the expandability, the coordination of all suppliers, the complete installation and commissioning.

A high cost factor in the existing works was the separation of the cast rolls into individual rings by rotary cutting, which is very labor-, material- and tooling intensive. For the new foundry, after careful investigation, analyses and cost calculation, GEMCO achieved to convert this operation into an unmanned 24-hour saw cutting production cell. The new saw-cutting also significantly reduces waste.

With the prospect to double the capacity of this competitive centrifugal foundry, expansion possibilities have already been taken into account in the planning and construction, including future utility requirements. It would require little effort and minimum time to realize further expansion of the facility.

WHQ and GEMCO worked in close cooperation, resulting in a successful realization of the new foundry facility.

Where to find us at upcoming events/fairs/congresses:

Targi Kielce 2013, International Fair of Technologies for Foundry metal, Kielce, Poland 25-27 September 2013

CIFE 2013, 10th China International Foundry Industry Exhibition, Beijing, China 16-18 October 2013

EUROGUSS 2014, Nuremberg, Germany 14-16 January, 2014

IFEX 2014, 10th International Exhibition on Foundry Technology, Gujarat, India 7-9 February, 2014

71st World Foundry Congress, Bilbao, Spain, 19-21 May 2014

Metal + Metallurgy China, Beijing, China. 19-22 May 2014

Metallurgy Litmash, Moscow, Russia, 3-6 June 2014

We look forward to seeing you there. More about our participation in upcoming events on our website: www.gemco.nl or facebook

Thank you for visiting us at CastExpo '13

GEMCO Cast Metal Technology consists of **GEMCO ENGINEERS B.V.**, and **KNIGHT WENDLING GmbH**. GEMCO Engineers was founded in 1978 by Jan van Gemert and has realized over 100 Greenfield and Brownfield foundries worldwide. Knight Wendling is a consulting firm originally founded in Switzerland by **Lester B. Knight** (Chicago) in 1955 and was renamed in 1983. Together we have a network of over 220 foundry experts covering all foundry disciplines and provide a complete range of services that encompass:

Study and Advice for Foundries & Castings Consumers
- Market Research (competitor, best- location, process, customer-base)
- Mergers & Acquisitions
- Due Diligence (technical / commercial)
- Assessments and Audits incl. SWOT
- Scrap Reduction / Efficiency Improvement Programs and Implementation
- New Product and Advanced Technology Selection & Implementation

Engineering and Management of Foundry Projects
- Master-planning Capital Investments (greenfield / brownfield)
- Operational and Financial Feasibility Analysis
- Energy and Logistic Simulations/Process Integration and Interface Engineering
- Risk Management and Project Control
- Contracting and Turnkey Deliveries

Dedicated Installations
- For Improvement of Ergonomics
- For Improvement of Safety and Environment
- For Efficiency Improvements
- For Restricted and Small Areas
- For Reduction of Manpower

We carry out approximately 80 projects in 20 countries for around 55 customers per year and build long-term relationships with the mission to make our customers successful.

What our customers say about us:

"we decided for Knight Wendling because of their foundry know-how and in-depth market expertise in the worldwide Metal Industry. Their involvement over recent years has been essential to determine the strategic direction of our company, maintain continuity and strengthen our position" ….

Gary Gigante,
CEO Waupaca Foundry Inc., about the cooperation with Knight Wendling

Successful Due Diligence & Sale of Sakthi Germany -out of bankruptcy- to MAT, saving 700 foundry jobs on two locations

Cost, Safety & Efficiency: Automatic Pouring for 30 tons steel in bottom-pour ladles on no-bake moulding line

Greenfield Brake disc Foundry Bosch-Buderus for 50,000 tons/year in Germany

Greenfield Ductile Iron Foundry for Georg Fischer for 60,000 tons/year in China

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