

“BEING PART OF THE SOLUTION”

Welcome to the 8th edition of our newsletter.

What makes our business the more interesting is the insight it provides in global developments on a much larger scale. Our work is developed or based on analysis of trends, strategies and global forecasts. Our privileged position in the foundry industry often allows us a preview of things to come...

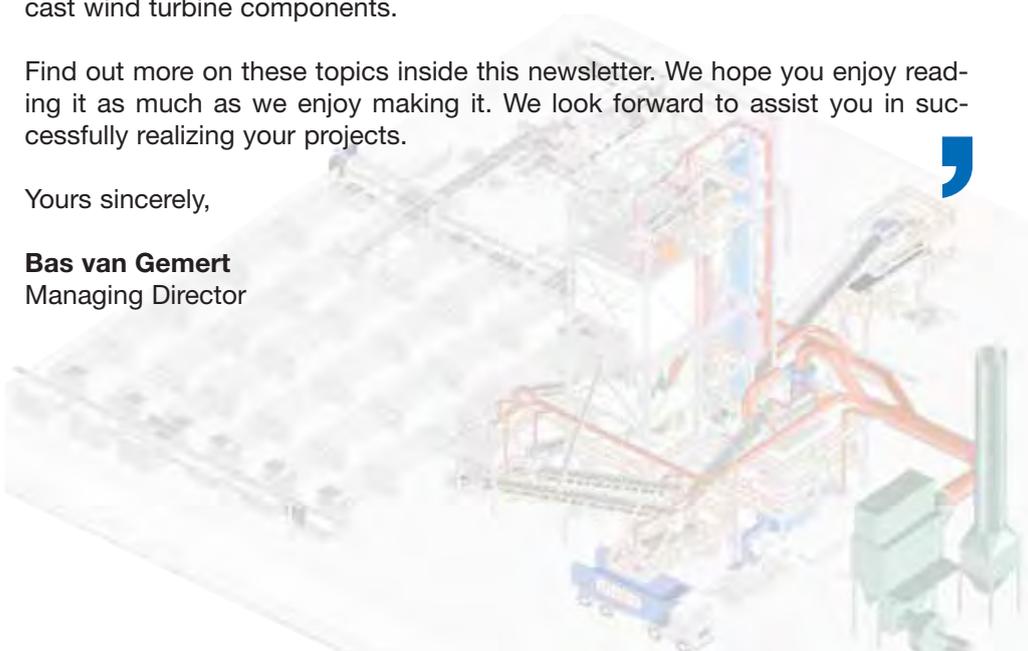
Recently, BAXI France awarded us the contract to realize a specially engineered solution for the shake-out, cooling and finishing on the end of the line, and at Atlantis Foundries the “critical phase” is nearly finished. To be an active participant in the foundry installation process offers great satisfaction.

The vulnerability of the oil and gas’ infrastructure has pushed the world to explore and develop other sources of energy. The impressive growth in the wind energy industry has its impact in the foundry industry where it reflects on the large casting “jobbing foundries”. This development requires a “new” type of foundry that could not contrast more to the high volume and highly automated foundries that supply the automotive industry. We took the challenge and put our expertise and capabilities to work for the modular design of a foundry for cast wind turbine components.

Find out more on these topics inside this newsletter. We hope you enjoy reading it as much as we enjoy making it. We look forward to assist you in successfully realizing your projects.

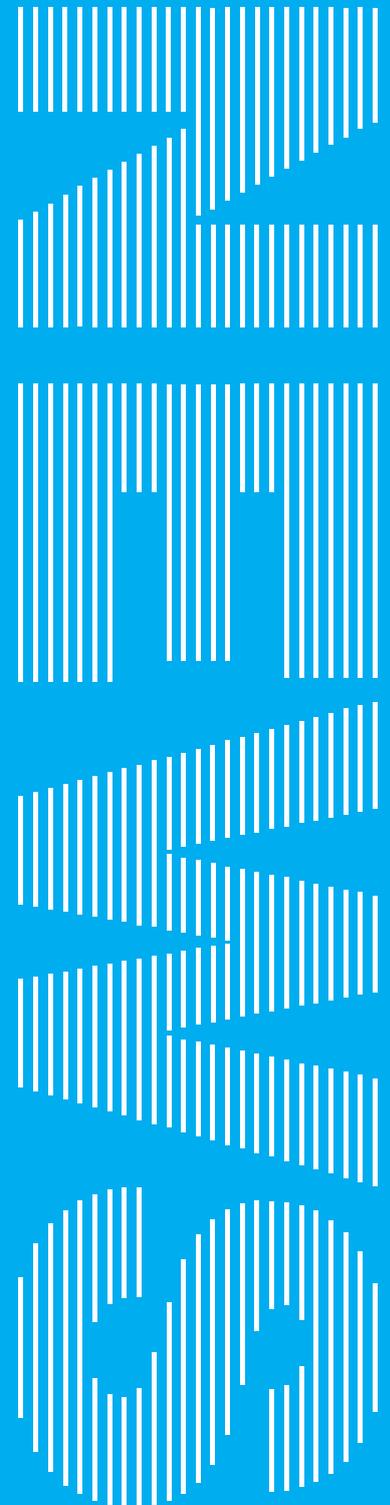
Yours sincerely,

Bas van Gemert
Managing Director



Also in this edition:

*HPDC, Operational Audit & Evaluation of Business Potential
Russian Federation & Ukraine
Simulation: Foundry Logistics
Atlantis Foundries, work in progress
Wind energy
and more...*



HIGH PRESSURE DIE CASTING

EUROGUSS 2006, 7-9 .03.2006

EUROGUSS is the place where die-casting customers, producers and related industries meet. The 2006 edition was again a very successful event, which confirmed the continuous growth in this segment.



Slovakia of growing interest

The industry already witnessed a boost of automotive OEM production in Eastern European countries. The rapid expansion of the European Union has accelerated the rush. Attracted by lower overall costs and growing consumer markets a high concentration of OEM production sites can be found in Poland, Hungary, the Czech Republic and Slovakia. As a consequence suppliers to the automotive industry are also seriously reconsidering the location of their production facilities.

A detailed concept engineering study for an Aluminium High Pressure Die Casting plant in Slovakia was carried out for one of our clients who seeks to comply effectively

with both short term and longer term expansion plans. While expectations that the benefits of lower costs will eventually disappear, the geographical advantages will remain an important factor for settling in Slovakia. Therefore the engineering study had to define how to realize this Greenfield Aluminium HPDC facility for the current product mix whilst at the same time incorporating the possibility to produce a bigger variety of parts with the highest level of automation. The study also determined the required investment for the realization of a Greenfield production facility for Aluminium HPDC parts in Slovakia.

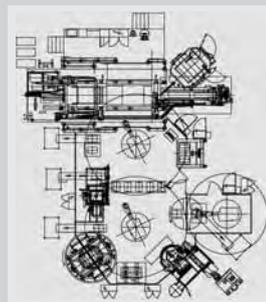
Operational Audit & Evaluation of Business Potential

For an international capital investments group based in Switzerland, GEMCO recently carried out an Operational Audit and Evaluation of Business Potential.

The target of the investigation was a group of High Pressure Die Casting facilities for the automotive industry whose core business encompasses the design and manufacture of various HPDC parts. The foundries are located in France and Spain. The comprehensive and in-depth audit allowed the investment group to gain a clear insight in the current state of affairs, performance and position of each of the independent facilities within their different business segments on all levels. The focus in each of the facilities was on:

- Commercial (sales force/customer relations/products/ marketing)
- Operational (technology/equipment/manufacturing/maintenance)
- Organizational (innovation capabilities/management/controlling systems/quality assurance)

Up-to-date and accurate accounts of the current situation clearly revealed strengths and areas of improvement.



Subsequently GEMCO established realistic recommendations and propositions for profit improvement on the short-, middle- and long-term. The efficiency improvement program included a cost benefit analysis of the investment to be made, the order of priorities, schedule and resources.



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RUSSIAN FEDERATION & UKRAINE

ВЭМЗ

GEMCO designs new electro engine foundry facility

The **Vladimir Electromotor Plant –VEMP–**, is one of the largest Russian manufacturers of three-phase asynchronous electro engines and unites a group of companies with various specializations. **VEMP** is part of the **RUSELPROM ENTERPRISES**, a leading scientific research-and production complex and leader in Russian electrical equipment industry.

A production modernization program, that involves the **VEMP** companies, foresees in the implementation of a number of large investment projects. The strategic vision of its leaders is to supply in the future to the world market and to be parts supplier for other engine manufacturers.

One of the investment projects is the establishment of a state-of-the-art Aluminium foundry. The new, technically competitive production facility complies with the highest quality standards. GEMCO was asked to develop a concept engineering study for this new plant together with a financial feasibility report. The work was partially executed in Russia at the customer's site in order to create the optimum interaction between the customer's thoughts and requirements and Gemco's expertise and experience in this field. The project was very well received by **VEMP**, who also expressed their sincere wish to co-operate together with Gemco during the realisation of the project.

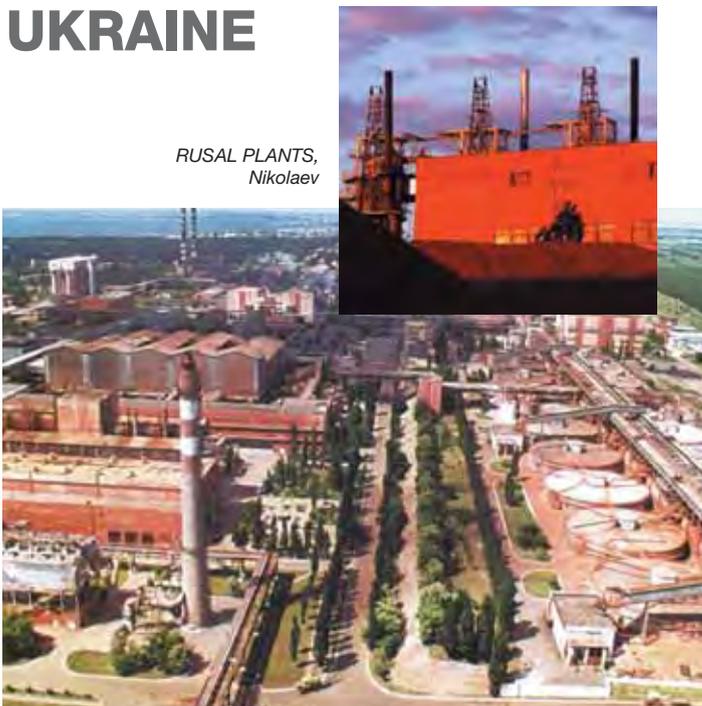


Left to right: Alexey Poznischev, Victor Salet (Gemco) and Mikhail Krylov at VEMP

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UKRAINE

RUSAL PLANTS,
Nikolaev



GEMCO has now made its steps on the Ukrainian market as well, after having carried out an increasing number of consultancy and engineering assignments in the Russian Federation in the past two years.

At the end of 2005, GEMCO produced a "Project Estimation and Analysis of Activities, Technologies, Prospects and Strategies for Further Development" for and in co-operation with **Service Centre Metallurg** in Nikolaev. **Service Centre Metallurg** belongs to the Russian aluminium company **RUSAL**. The assignment was carried out at the grey iron and steel foundry facilities that supply castings to the various alumina plants of the **RUSAL Group** and had the aim to identify achievable qualitative and quantitative operational improvements (including but not limited to operational cost reduction) and to give a first indicative direction for a future strategy towards markets and products.

On the back of this project GEMCO looks forward to further develop activities in the developing Ukrainian foundry industry.

FOUNDRY LOGISTICS

The foundry industry has developed itself from a traditional industry into a modern high-tech environment. Modelling and casting simulation are widely accepted and practiced throughout the industry for many years now and the time has come to apply logistic simulation as well.

Most of the automotive manufacturers worldwide already require that all new and modified manufacturing system design have been verified by simulation analysis before new equipment purchase or manufacturing line modifications are approved.

Response time, production costs and flexibility in manufacturing are key components of survival in any industry in today's competitive market place. Foundries are no exception to this rule. The interest for optimum use of simulation in building efficient manufacturing systems in the foundry industry continue to increase. Advancement in computer software and the increasing awareness of the adequacy of simulation has contributed to this higher level of interest. Computer simulation of the casting process offers a cost-effective solution not only in terms of visualization but also in identifying bottlenecks in the system.

Simulation possibilities from an engineering point of view

In 2005 GEMCO started with logistic simulation of foundries. The objective of simulating foundry logistics is twofold:

- Optimizing Foundry design
- Optimizing the Foundry Production Process

With the first objective it is possible to validate the foundry design from the earliest stages, before money is invested. The possibility of modelling the new foundry and reviewing the logistic processes before the equipment and layout is fixed provides the unique opportunity of identifying possible bottlenecks in advance and allows for the analysis of various scenarios without any loss of capital.

GEMCO uses a modular approach for simulating foundries during the design stage. The various parts of a foundry (e.g. moulding, melting) can be modelled as one block with variable parameters. The method allows the object to be quickly imported from a library, parameters to be set and the simulation run. The possibility to run and compare var-



Horizontal moulding line with two induction furnaces



Possible set-up of four induction furnaces, one holder, and one pouring furnace

ious scenarios within a very short time permits the identification, quantification and elimination of possible bottlenecks in the future foundry. Early observations of potential problems make it possible to modify the design or, when the occurrence is only very limited, to find other solutions such as production planning adjustments in order to create buffers.

With logistic simulation GEMCO developed another tool to serve its clients in the best way possible with the planning and realization of tailor made production facilities that operate at optimum utilization and therefore most competitive.



Melting area simulation



Furnace content diagram

WIND ENERGY

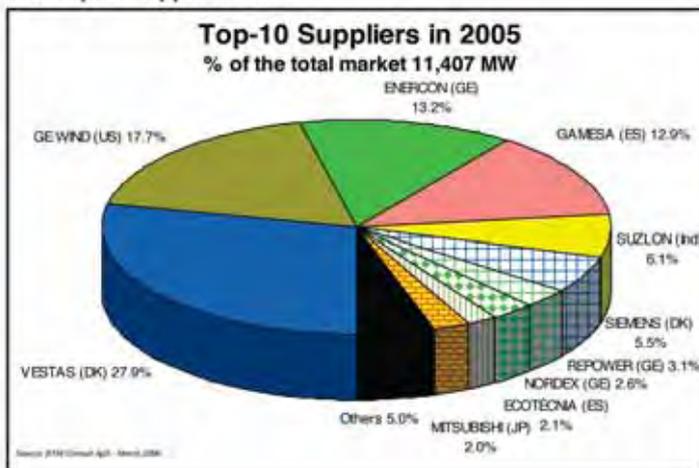
Wind energy has shown impressive growth over the last few years.

Statistics show that the wind energy industry registered an average growth of over 20% in the last 5 years. For the next 5 years, forecasts indicate an annual growth rate of no less than 16% in installations. In the early 80's, nominal capacity measured 30kW at a hub height of approx. 30 mtrs with a rotor diameter of 15 mtrs., yielding 35.000 kW/year. Today, an installation can produce up to 5000 kW, the hub height measures up to 120 mtrs and the rotor has a diameter of 115 m.

The ever-increasing demand for energy worldwide and the persistent rise in the price of oil and gas are important driving forces behind the boost of wind energy (among other alternative sources of energy).



The Top-10 suppliers 2005

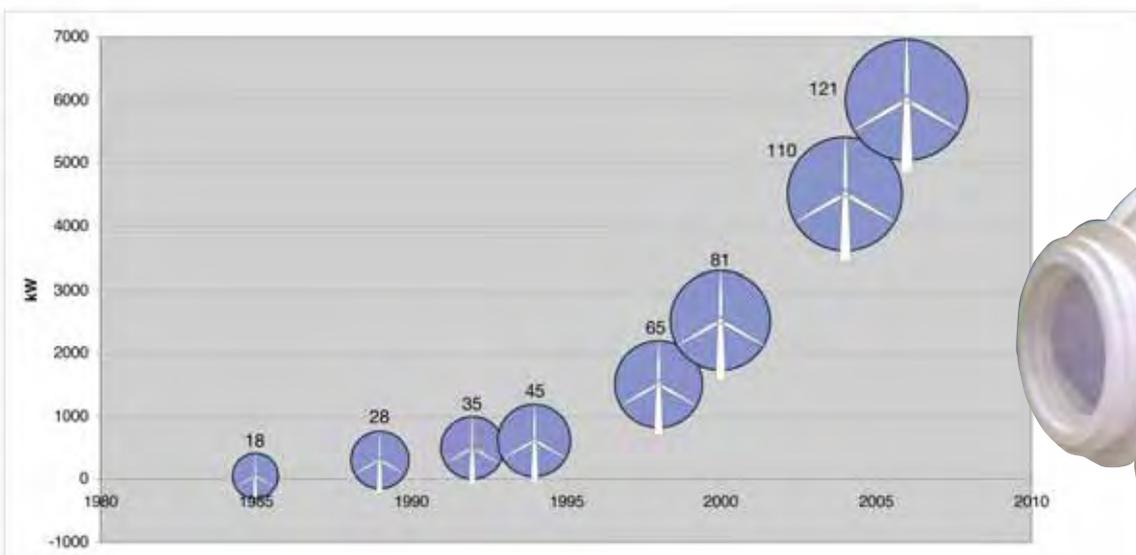


A Wind Turbine contains a variety of cast parts.

The expansion in size of these components, such as the hub, baseplate, and gearbox housing, offer tremendous challenges to the casting industry. The mechanization of production of castings this size is already a challenge on its own. Some parts weigh up to 50t.. Due to the size of the casting, material flow and logistics, the manufacture of these castings requires foundries of a whole new dimension, literally. Size and weight of the castings as well as the often extreme conditions that wind turbine generators are exposed to (hot, cold, strain) demand continuous research for material optimization.

GEMCO has designed a foundry for the production of cast wind turbine components with a capacity of 1000 units/year. The modular design allows for an expansion of capacity (in several phases) and the applied technology results in a reduction of raw materials and efficient logistics.

Development power range and rotor diameters



INAUGURATION



Pictures show Mr. Bombassei, President of Brembo, who receives a commemorative plate from Jan van Gemert and Peter Withagen.

On February the 20th the Brembo brake discs foundry was opened in Dabrowa Górnicza. The opening ceremony was attended by Ministers of Economic Affairs of Poland and Italy. This state of the art facility is one of the most modern plants of this kind in Europe.

BAXI France

BAXI France, the renowned company owned by **BAXI GROUP Ltd.** and GEMCO already worked together on an earlier project for their foundry facility in Soisson. (See Gemco's newsletter autumn/winter 2003)

On the 17th of May **BAXI France** awarded GEMCO the contract for the upgrade of the "end of the line C4". The contract includes a system to automate the handling of the castings immediately after the shake out. With a manipulator the castings are hooked on a power and free transport system. This transport system allows the castings sufficient time to cool down before they enter into the shotblaster. From the shotblaster the castings are loaded into dedicated pallets on an automatic pallet change station. The system also includes a decorating unit that removes sand from inside the casting to improve the cooling rate and also to minimize contamination of the greensand system. The project will be realized in 2006.

GEMCO values the trust that **BAXI France** shows in our company.



WORK IN PROGRESS



At **Atlantis Foundries**, South Africa, the works for the new cylinder-block casting facility are in progress as planned. The installation of the core shop has been completed in January 2006. At present, the civil works for the moulding line and sand plant are completed and the installation of the equipment hereto has started on May 15th.

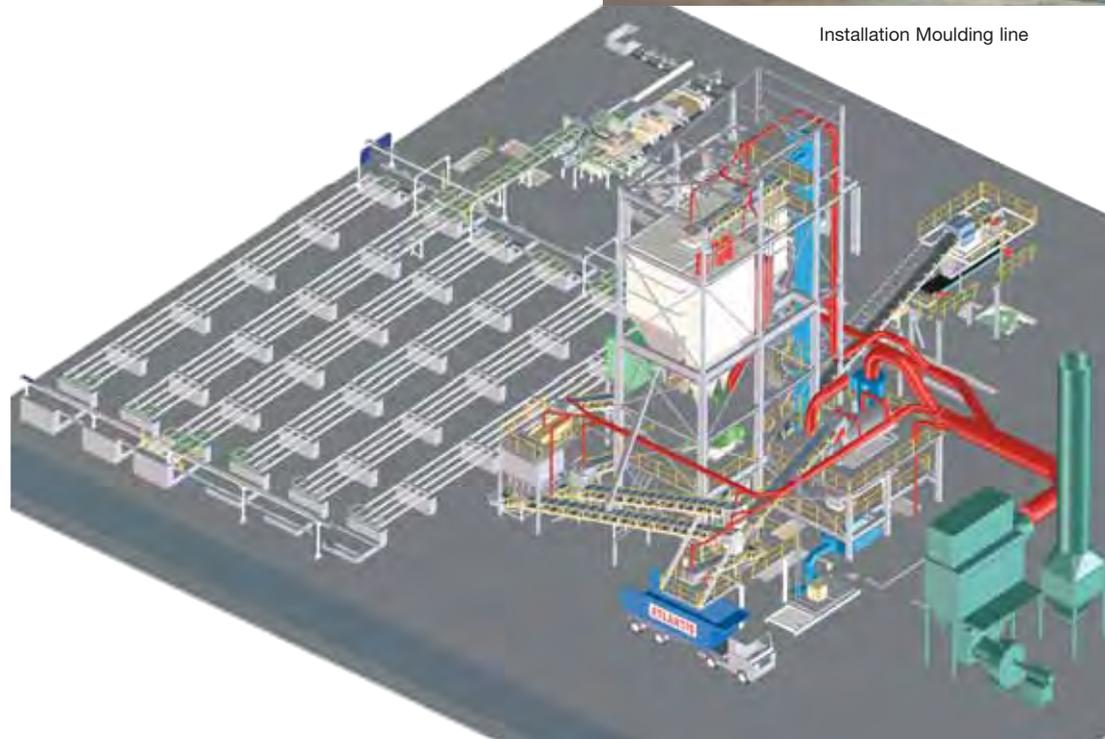
Look for a full report on the **Atlantis** project in our following newsletter.



Installation Sand Plant



Installation Moulding line



Sand plant – Cooling – Shake-out in 3D

Worldwide works in brief:

- anorganic coresand regeneration
- verification of engineering designs for a new diesel engine-block foundry facility in China
- market study truck engine-blocks in Europe and other selected countries
- market entry strategy study
- Greenfield concept engineering and feasibility study
- Brownfield concept engineering for lost wax foundry facility
- core-shooter relocation

read about these and other of our projects in our next newsletter.

FOUNDREX INDIA:



Alongside China, India is the fastest growing economy in Asia. The country's industrial development will only increase. The 4th International exhibition on Foundry Technology, Equipment and Supplies took place at Pune, India in January 2006.



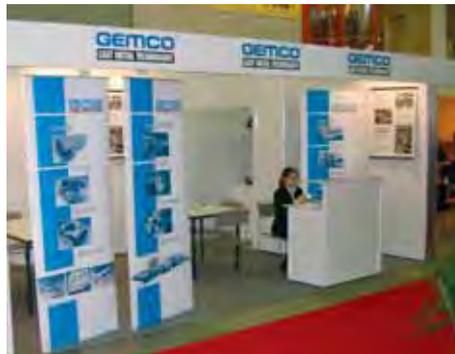
From left to right: K.G. Prasad, Manish Seth, Wouter van Toledo (Gemco) and Klaus Schmitz-Cohnen (Knight Wendling)

Pictures show: GEMCO with its Indian representative HETPAN



Sanjay M. Shah and Wouter van Toledo (Gemco) with Indian customers

GEMCO has a yearly and fixed appointment with Metallurgy Litmash in Moscow
This year's show was held from MAY 23-26



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“Casting the Future”

On the occasion of the WFC06 in Harrogate GB, Mark Ainsworth will present a technical paper on **“Mould filling during lost foam casting of alloys”**. The technical paper illustrates the use of a real-time X-ray technique to examine the interaction of the cast Aluminium with the polystyrene foam pattern during the filling of vertically orientated plates.



Mark Ainsworth also chairs Session 19:
Finishing and Inspection

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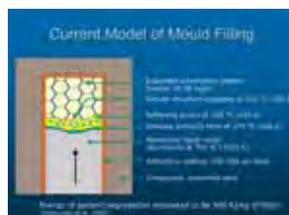
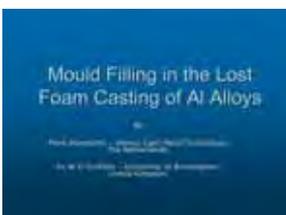


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