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# castings sa

A specialised journal covering the technology, processors and materials field for castings

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## Castings SA

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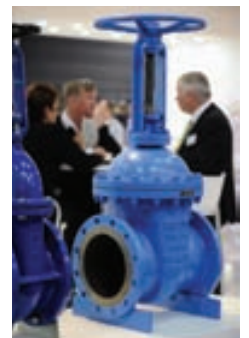
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## EDITOR'S COMMENT

### Well done I say to Brazil



Just under two years ago I headed up my column: Can the Chinese threat be beaten?

The column was written as a result of my visit to Brazil a couple of months prior. I attended an engineering related exhibition and got to interview a number of Presidents of the various Chambers within the overall body, ABIMAQ. There are 26 different Chambers or sectorial industrial associations that make up ABIMAQ, each one looking after the interests of its member companies. These Chambers are made up of companies that are manufacturers of engineering products, whether it is capital equipment or related accessories or consumables. The area of manufacture includes mining, agriculture, plastics, textiles and many more.

My interviews were with the heads of the machine tools, valves, tooling, and quality, pneumatic and mechanical transmission Chambers. I particularly remember my interview with the President of the Chamber that had Brazilian valve manufacturers as its members. As we all know valves are a safety critical component in many industries where the control of liquids and gas is required.

In the 1990s, the Brazilian government introduced new laws which partly privatised the state owned oil company Petrobras. Brazil produces roughly 3 % of the world's oil production and is in the top 10 of the oil producing nations. (You think I have my figures wrong but according to Wikipedia, The Arab League is regarded as one nation and it has 22 member states.)

This is a sizeable amount and some sources say that by 2003, domestic production nearly met domestic demand. The vast majority of Brazil's proven reserves are located on the southeast coast, in the offshore Campos and Santos Basins.

The President of the valve Chamber was lamenting the influx of cheap valves imported from China that were having an affect on his members. This was not his only concern however. The quality of the imported products was inferior and he was worried about when, and not if, there would be a major catastrophe in the fledgling Brazilian oil and gas industry. However the Chamber was being proactive and was busy drawing up recommendations on safety and quality standards that would have to be met. I was even introduced to the Government official that was involved in the process.

It is therefore very interesting to publish a story in the International News section whereby it is reported that Brazil plans to impose strict quality control on imports from China and other Asian nations. Products which fail the tests would not be allowed into the country. The measures, seen as a sort of non-tariff barrier protecting Brazil's domestic industry and consumers, will apply to 240 000 models of goods in the following sectors: textiles, steel products, car parts and children's items.

Well done I say to Brazil. No matter how lucrative it is to trade with China you have got to protect your local manufacturing base. In time China might meet these standards but then their exports won't be classified as 'cheap' anymore.

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**F**oseco is the Foundry Division of Vesuvius and is a global leader in manufacturing and providing products and solutions for improving foundry performance. The company does this by working alongside their customers to develop and apply products and services that produce better casting quality and higher productivity at lower costs in a safe and healthy working environment.

The Vesuvius group comprises four global businesses comprising Steel Flow Control, Linings, Foundry and Fused Silica.

The businesses share a wide common technological base which gives strength to their people expertise. They have a similar business model based on partnership and cooperation with customers.



## Foundry business

From its humble beginnings in a small room in Birmingham Foseco has become an international supplier of consumable products to the foundry industry. Foundry Services Limited was established in 1932 as a supplier of flux products to brass and bronze foundries in Birmingham, England. The "Foseco" brand name was first used in 1934 and originates from the words FOundry SERVICES COmpany.

The original success of the company was based not only on the provision of high quality products, but also on service and problem-solving as well as the development of application technology. This philosophy remains one of Foseco's core values to this very day.

Since 1932, Foseco has continuously developed product and process innovations for the foundry industry. These include exothermic and insulating feeding systems, filtration of liquid alloys, direct pour technology, solidification simulation software, non ferrous metal treatment and degassing systems, metal stream inoculation, electrostatic coatings, environmentally friendly binders and insulating ladle lining systems.

The reduction of metal or additives consumption is a source of savings in raw materials, energy and environmental impact for Foseco's customers. Foseco is focusing on new solutions to deliver more effective casting processes for clients and the foundry market place.

Foseco is a leading brand in products and solutions that help improve foundry performance. Located in

32 countries they pride themselves on providing local solutions that serve the individual needs of iron, steel and non-ferrous foundries worldwide that manufacture castings that are vital components in applications such as automotive, aerospace, power generation, construction, mining and general engineering.

Foseco offers a wide range of foundry consumables and equipment. Products include:

## Steel foundries

### Binders

- Self setting resin systems
- Gas setting resin systems
- Sodium silicates
- Additives, glues, sealants and release agents

### Coatings

- Coatings for sand moulds and cores
- Speciality coatings
- Coating preparation plant
- Containers and equipment

### Feeding systems

- KALPUR direct pour technology
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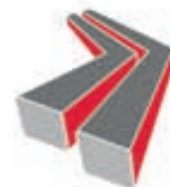


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- Steel furnace linings and castables
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- Refractory shapes for steel foundries

#### Metal Treatment

- Slag coagulants

### Iron Foundries

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- Self setting resin systems
- Gas setting resin systems
- Sodium silicates
- Additives, glues, sealants and release agents

#### Coatings

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- Coatings for production iron
- Speciality coatings
- Coating preparation plant
- Containers and equipment



#### Feeding systems

- KALPUR direct pour technology
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- KALMIN, KALMINEX insulating and exothermic-insulating feeders
- FERRUX anti-piping compounds, KAPEX lids, KALBORD flexible boards

#### Filtration and gating systems

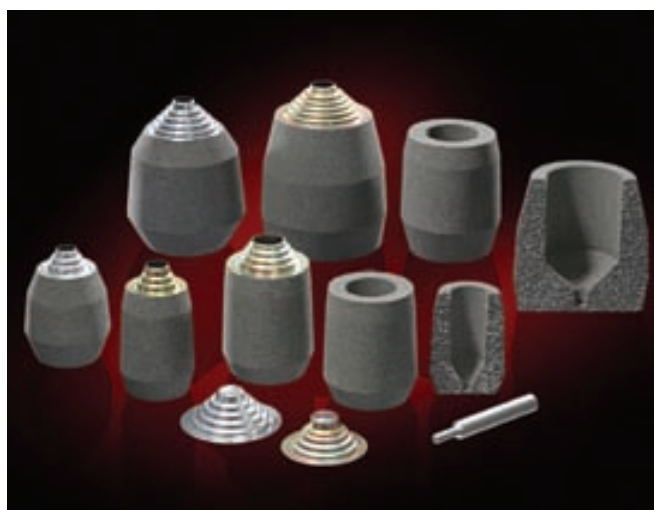
- SEDEX SiC ceramic foam filters
- STELEX PrO high capacity ceramic foam filters
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- HOLLOTEX running and gating system components

#### Melt shop refractories

- Iron ladle linings
- Iron furnace linings and castables
- Stoppers and nozzles
- Refractory shapes

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**Foseco is focusing on new solutions to deliver more effective casting processes for clients and the foundry market place**

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Foseco will be exhibiting at Metef-Foundeq 2012, which takes place in Verona, Italy in April 2012 as well as at a number of other exhibitions and conferences worldwide.

For further details contact Foseco South Africa on TEL: 011 903 9500





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# State steel maker mooted in ANC discussion paper

The ANC has for the first time drafted a discussion document on state-owned enterprise that suggests an investment of R40 billion - R50 billion will be required to create a state-owned steel company.

The creation of a state-owned steel company - either as a government-owned entity or in partnership with the private sector - is one of many ideas in an African National Congress (ANC) discussion paper on the future of state-owned enterprises.

In preparation for its policy conference in June, the ANC has for the first time drafted a discussion document on state-owned enterprises, which the party wants to play a leading role in the economy.

However, the paper, "Shifting the policy landscape for state-owned enterprises and development finance institutions", adopted no definitive positions and was incoherent in places - a reflection of the multiplicity of views among the authors and in the ANC.

The mooted steel manufacturer was sketchily discussed in an annexure. It suggested an investment of R40 billion - R50 billion would be required.

Advantages listed for the project included that it would increase beneficiation of raw materials, a key objective of industrial policy; it would lower input costs for

"a high proportion of private sector experts" to ensure sufficient business expertise. The rationale was to "align the interests" of the government, the board of directors and management. This is in contrast to the current arrangement in which shareholder management of state-owned enterprises is pursued by various government departments along with the Department of Public Enterprises.

An overarching holding company would allow better co-ordination and provide the government with greater ability to direct the activities of its enterprises. The harnessing of state-owned enterprises to pursue the broad aims of the developmental state, as opposed to focusing on narrow commercial interests, is the key objective of ANC policy.

The holding company fits with ideas advocated by Public Enterprises Minister Malusi Gigaba, who proposed the formation of a shareholder management department.

Writing in *Business Day*, Mr Gigaba said there were three options: the status quo; placing enterprises under

## The idea fits with comments by Trade and Industry Minister Rob Davies that he would like to see another steel manufacturer for SA besides ArcelorMittal SA

infrastructure; it could draw on the synergy of the state-owned mining company, which would secure mineral rights; and with Transnet, it could build a complete value chain for manufactured steel.

The idea fits with comments by Trade and Industry Minister Rob Davies that he would like to see another steel manufacturer for SA besides ArcelorMittal SA.

Discussions to this end are believed to have occurred between government officials and Korean state-owned steel maker Posco, and steel makers in India and China.

Another idea expressed in the paper, but again not elaborated on, was a new model of governance for state-owned enterprises, which would entail the creation of a state holding company to administer and manage the assets.

The government holding company would have its own board, made up of top government officials and

their policy departments, which are responsible for the regulation of their sectors; or placing "a selected portfolio of key" state-owned enterprises "under a dedicated shareholder management department to optimise their effect individually and as a portfolio".

His implicit support for the third option has been described as support for the Chinese model, where a vast portfolio of state-owned enterprises is controlled directly by the Communist Party of China's organisation department.

While ANC discussion documents are frequently a good gauge of mainstream thinking, the role of state-owned enterprises is a ball in play in the party, with a multiplicity of voices and interests trying to influence the debate.

A presidential review commission on such enterprises, established by President Jacob Zuma nearly two years ago, is due to report soon. This will throw light on the direction the discussion will take at the ANC policy conference in June. ■

# Remgro confirms Dorbyl stake sale

**R**emgro has confirmed that it had sold most of its stake in Dorbyl to RE:CM and Calibre (RAC) and said that it believed it was in "the best interests of Dorbyl and the remaining shareholders to seek the involvement of RAC".

A statement issued by Remgro said that RAC's "skills and knowledge of the foundry industry will complement the current management team and assist in completing the road to recovery". It noted that the stake had been sold for a "nominal amount".

Remgro's exposure to Dorbyl, which has been dogged by controversy for much of the past 10 years, came to an abrupt end when a JSE announcement revealed that it had unexpectedly disposed of its controlling stake in the firm.

The former engineering group sold the bulk of its assets over the past 10 years, leaving it with just one operating asset, Guestro Castings.

During the prolonged process of disposal a number of its senior executives faced accusations of conflicts of interest. Last February the high court ruled in favour of Dorbyl's claim of R41.7 million against one of its former directors.

In March, Dorbyl released a JSE notice referring to the sale of a 34.9 percent stake in the company by Metkor, which is a wholly owned subsidiary of Remgro.

The shares were sold to two entities. The Reef Group has

acquired a 20.1 percent stake and RAC have jointly acquired 14.8 percent. Remgro, through Metkor, is holding onto a 6.5 percent stake in Dorbyl.

Although Remgro has disposed of effective control of Dorbyl, the way in which the deal was structured means that the buyers do not have to make an offer to minority shareholders. The 34.9 percent sold by Remgro is just below the 35 percent that would trigger a change of control. This means that the company has moved from a control situation to a no-control situation.

The sale by Remgro comes just weeks after a Dorbyl minority shareholder called for an investigation and analysis of the company by an outside firm of accountants and referred to a dramatic decline in Dorbyl's cash from R81 million at the end of March 2011 to less than R44 million at the end of September.

This reduced its net asset value to R2.33 a share from R3.15 apiece. Details of the letter were published by the Financial Mail early in February.

RECM and Calibre Limited (Formerly Velvospec Limited) was founded in 2010 as a joint venture between Regarding Capital Management ("RCM") (a fund manager) and Calibre Capital (a private equity firm). Both RCM and Calibre are controlled by the same principals, namely Theunis De Bruyn, Werner Stals and Piet Viljoen. ■



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# Metalloys' silica manganese production stopped

Samancor shuts Meyerton plant - Manganese unit stops producing at Metalloys plant in Meyerton to reduce electricity consumption, after calls from Eskom to curb power use.

**B**HP Billiton's Samancor Manganese unit has stopped producing silica manganese at its Metalloys plant in Meyerton in order to reduce electricity consumption and switch output to more profitable ferromanganese.

A \$100 million ferromanganese furnace, due for completion by the end of this year, will replace lost output of 120 000 metric tons of silica manganese a year, BHP said in a statement.

SA has called on mining companies such as BHP, Anglo American and Xstrata to curb power consumption as Eskom grapples with a mounting backlog of plant maintenance. BHP will make use of the Meyerton shutdown to convert the facility to more lucrative ferromanganese, an alloy of iron and manganese used for making hard steel.

"Difficult market conditions are affecting the whole manganese industry," Samancor CEO Tom Schutte said in the statement. "Focusing on ferromanganese will make Metalloys more economically and environmentally sustainable."

Samancor Manganese is the world's largest integrated

producer of manganese and is 60% owned and operated by BHP, according to the company's website. Metalloys produces 510 000 tons of manganese alloy a year.

Eskom wants electricity users to cut back on usage in order to create space for maintenance.

"One of the strategies Eskom has had to use in recent years to keep the lights on in a situation where supply remains inadequate is to shift planned maintenance, delaying or deferring maintenance outages in order to meet demand. This strategy is no longer sustainable. Most of Eskom's power stations are in their mid-life and require more preventative maintenance in order to improve their performance and ensure their safety," it said.

The utility has over the past two years experienced a growing maintenance backlog and this raises the risk of power outages.

"We have made it a priority to address the maintenance challenge, so that we can keep the lights on not only now but also in the longer term, and we need to find the space to do that."

"The next two years will be critical," Eskom CE Brian Dames said. ■

## Copper theft up 4.8% in January

**T**he total value of copper stolen increased to R21.9 million in January from R20.9 million in December, marking a monthly increase of 4.8%, as registered by the South African Chamber of Commerce and Industry (Sacci) Copper Theft Barometer.

The January figure exceeded the 2011 monthly average of R17.8 million, pointing to the possibility of an increasing trend in copper theft.

Sacci suggested that the recent increase in the internationally quoted price for copper, along with other industrial commodities such as oil, was a potential driving force for intensified copper theft.

The spot price of copper increased by more than 10% in the first two months of the year, however, it still showed a negative yearly growth of 14.8% in February, despite climbing by \$368 to \$8 418 a metric ton.

Sacci said the growth in price followed a sharp price

contraction in the second half of 2011, which was owing to high uncertainty levels in the global economy. From October, the copper price had fallen on a yearly basis and only started regaining positive monthly growth in January.

Further, South African copper exports decreased by 4.8% year-on-year in November.

Sacci noted that the uptick in copper prices over the past two months would suggest that the value of South African copper exports could increase if present volumes remained consistent throughout the year.

The industry body added that a continuation of the copper price trend, coupled with the expected resurgence in global economic activity, could push the copper price past \$9 000/t, which would have a far-reaching impact on the replacement cost of stolen copper and the risk of elevated levels of copper theft in South Africa. ■

# BHP sells Richards Bay stake to Rio Tinto

BHP Billiton is selling its 37% stake in Richards Bay Minerals to Rio Tinto for an estimated \$1,6 billion - \$2,2 billion, exiting its investment in titanium.

**B**HP Billiton is selling its 37% stake in Richards Bay Minerals (RBM) to Rio Tinto, exiting its investment in titanium minerals that it inherited from the Industrial Development Corporation (IDC) many years ago.

RBM has a turnover of more than R6 billion a year and exports 99% of the titanium dioxide, high purity pig iron, rutile and zircon that it produces.

It mines sand dunes just north of Richards Bay, on the north coast of KwaZulu-Natal.

An analyst estimated the stake would be sold for \$1,6 billion - \$2,2 billion.

The deal brings Rio's stake to 74%. Black economic empowerment parties control 24%, while employees hold 2%.

RBM was established in 1976 by Canadian company QIT, the IDC and Union Corporation (later Gencor, then BHP Billiton), after the IDC had done the exploration for the mine in 1971.

Rio Tinto manages and markets RBM's products. The option for BHP to sell its stake in RBM to Rio formed part of a restructuring of RBM in 2009. The final

consideration would be determined via a valuation process.

BHP Billiton Southern Africa chairman Xolani Mkhwanazi said the group had no other interests in the industry than the shareholding being sold. "BHP Billiton will continue operating its Southern African energy coal, aluminium and manganese businesses in a sustainable manner," he said.

RBM has plans to mine until at least 2043 by mining an additional area south of the current operations, dubbed Zulti South.

Rio Tinto Diamonds & Minerals CE Harry Kenyon-Slaney said RBM was important to its business. "Doubling our stake solidifies our position at a time when the long-term outlook is strong and demand for higher grade titanium dioxide is growing, driven by urbanisation and rising environmental standards."

Rio's global titanium dioxide business, Rio Tinto Iron & Titanium, includes RBM, its wholly owned Rio Tinto Fer et Titane operation in Quebec; and its QIT Madagascar Minerals operation, where it holds an 80% interest.

Rio Tinto is headquartered in the UK. ■



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# New procurement rules for power pylons to create some 1 500 jobs

The designation of power pylons under government's preferential procurement rules would create an estimated 1 500 new jobs, Southern African Institute of Steel Construction (SAISC) industry development executive Kobus de Beer said.

Under new regulations associated with the Preferential Procurement Policy Framework Act (PPPFA), the Department of Trade and Industry (DTI) could stipulate sectors and products that departments, agencies and State-owned enterprises had to procure from local manufacturers, or providers.

Besides power pylons, the 'first wave' of designated products also included rolling stock, buses, canned vegetables, clothing, textiles, footwear and leather products and set-top boxes.

Further designated products would follow this year.

De Beer said SAISC submitted an application and motivation to the DTI for power pylons to be given 'designated' status, as imports were hurting the local industry.

"The past few years saw producers scaling down, retrenching and closing down operations in spite of the growing demand for new transmission lines from Eskom, mainly as a result of imported products of acceptable quality from the Far East being offered at subsidised prices."

Eskom would require more than 420 000 tons, an average of some 42 000 t/y, of new power pylon steelwork between 2012 and 2021, SAISC said, citing the utility's Transmission Ten Year Development Plan, which sets out details of its requirements for new extensions of the 400 kV and 765 kV transmission network, as well as for the new lines needed to transmit electricity from the new Medupi and Kusile power stations.

Further, the industry anticipated similar tonnages of power pylon steelwork would be needed to repair, maintain and replace existing power lines.

However, these requirements would not be dispersed uniformly and would provide an opportunity to spread the load over the period.

De Beer stated that developments in South Africa's neighbouring countries added a further demand for transmission lines and South Africa's proximity and reputation gave it a distinct advantage.

SAISC calculated that the new procurement requirements would result in between 1 200 and 1 500 full-time jobs being created. These jobs represent a variety of skills, including, among others, boilermakers, welders, electricians, millwrights, drilling operators, cropping machine operators, plasma cutters, cutting torch operators, slingers, forklift drivers, galvanizing plant operators, crane drivers, handlers and truck drivers, as well as various services such as security, dispatching and cleaning.

"Many further skills are required for the building of the power lines, as well as the fitting of ancillary equipment," he noted.


De Beer added that the designated sectors under the PPPFA were not intended to take the place of the various other government efforts to encourage local procurement and supplier development strategies, but rather to support these.

The designation also set out specific recommendations for ensuring competition among domestic producers and value for money for the State.

"It is important that producers continue to strive for competitiveness to encourage all clients investing in infrastructure to create decent local jobs through local procurement," De Beer said. ■


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# Petmin, Thaba Chueu appeal SamQuarz decision

Competition Commission's decision recognises the strategic importance of SamQuarz as a supplier to producers of ferrosilicon and silicon metal.

**J**SE-listed miner Petmin and Thaba Chueu Mining are appealing the Competition Commission's decision to block the proposed R259 million sale of Petmin's SamQuarz silica mine to Thaba.

Their formal notice was filed with the Competition Tribunal, Petmin said in a statement.

The Competition Commission rejected Petmin's proposed sale of its SamQuarz silica business to a subsidiary of a Spanish company on January 16, citing the "strategic importance" of products made from silica.

The Department of Trade and Industry also raised concern that the sale could also have a ripple effect on the steel, ferrochrome and foundry industries.

The parties said that they had anticipated the process before the tribunal would take at least six months and that Petmin would during that time continue to operate SamQuarz as a "profitable and productive mining business". The tribunal could agree with the commission and confirm its decision or it could approve it with or without conditions.

Petmin announced in September last year that it was selling SamQuarz to Thaba. As SA's largest silica miner, SamQuarz generates 1,1 million tons of the annual 2,5 million tons of silica produced in SA.

The commission's decision related to the strategic importance of SamQuarz as a supplier to the producers of ferrosilicon and silicon metal in SA, it said in a Sens announcement.

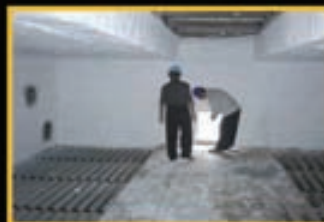
Thaba Chueu is controlled by Silicon Smelters, which produces ferrosilicon and silicon metals and procures its silica mainly from SamQuarz.

Hardin Ratshisusu, acting manager of the commission's merger and acquisition division, based his prohibition of the transaction on the fact that there seemed to be no viable alternative to SamQuarz if Silicon Smelters adopted a foreclosure strategy.

SamQuarz produced high-grade silica, he said. There was concern about quality requirements that had to be met.

A spokesman for the merging parties said they had studied the commission's decision and believed there was merit in their case. However, he was not prepared to go into the details of the joint submission made by Petmin and Thaba to the tribunal. ■

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# New markets in the East open up for KEW Foundries

**K**EW Foundries, Africa's sole manufacturer of cast headgear sheave wheels, has recently secured its first order into the East. It was awarded a contract worth just under R2 million to supply sheave wheels to a copper and gold mine in the south Gobi region of Mongolia, approximately 550 kilometres south of the capital Ulan Bator.

"This project was different to any other we have done before and posed a number of challenges in terms of delivery time, the casting material, our testing parameters and the environment," explains Jaime Goncalves, Technical Director, KEW Foundries.

Instead of the standard delivery schedule (depending on its order book), KEW Foundries had to execute delivery of the first two of the three 10-foot sheave wheels on order at the beginning of November 2011, with the remaining one following by mid-December. "The 10-week delivery schedule for the first part of the order required a mammoth effort, but our staff pulled out all the stops to ensure we adhered to the agreed dates," says Goncalves.

In stark contrast to the warm African and South African climates - where the majority of orders from KEW Foundries projects are destined for - the wheels for this project have to operate in much colder conditions, being able to withstand ambient temperatures as low as -40°C. The extreme environmental demands necessitated a rewrite of manufacturing specifications and alteration of material to ensure mechanical properties complied with the sub-zero conditions.

Feedback received from existing clients in Canada and



**KEW Foundries supplied a copper and gold mine in Mongolia with three 10-foot sheave wheels that will operate in extreme climatic conditions**

Finland where winter temperatures can drop well below the -20°C mark, provided critical data on the operation of the equipment in freezing conditions.

"A further challenge was to understand the Mongolian specifications. In South Africa and in Africa, SABS and British and European standards apply. A huge advantage for us was that a South African project house that is acquainted with us and our products was involved in the project and assisted with the specifications," says Goncalves.

The order, packaged as half sheave wheels, was dispatched to the client from KEW Foundries' site in Kimberley.

"We anticipate that the Mongolia project will open more doors for us in Asian and Australasian markets, and that the successful delivery of this order will secure us further contracts. KEW Foundries believes there is great potential in those areas and we look forward to exploring these new opportunities," concludes Goncalves.

KEW Foundries was established in 1891 and is Africa's sole manufacturer of cast headgear sheave wheels. The company also offers an extensive range of hand-moulded castings in Grey and

SG Iron up to 7 ton in weight, pressings and Cameron compressed air sludge pumps. Supported by comprehensive design and drafting facilities, including a dedicated pattern shop, machine shop and laboratory, KEW Foundries serves a host of South African and international mining and industrial markets.

For further details contact Jaime Goncalves of KEW Foundries on TEL: 053 841 0474 ■

## More furnaces shut to save power

**F**errochrome producer International Ferro Metals Ltd agreed to shut two of its furnaces to help South African utility Eskom manage tight electricity supply.

International Ferro did not say how much Eskom was paying as compensation but said it was a "net financial benefit to the company."

The company said it did not expect the shutdowns to significantly impact other mining and ore beneficiation operations, and its contracts with customers. No job cuts were anticipated either.

South Africa has been struggling to meet demand for power as new power plants meant to plug the shortfall have

been delayed. Supply would remain vulnerable until the first units of Eskom's new stations become operational next year.

State-owned Eskom had struck similar agreements with other ferrochrome producers such as Xstrata, Samancor and Ruukki.

Sydney, Australia-based International Ferro produces ferrochrome - the essential ingredient in stainless steel - at its facilities located in South Africa.

International Ferro said it would switch out the first furnace in March-May and the second in April-May.

The company has the option to switch the first furnace back on in May if it intimated to Eskom by March 31. ■

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# City's new framework set to redevelop Atlantis as an industrial node

The City of Cape Town's Economic Development Department, in collaboration with the Provincial Department of Finance, Economic Development and Tourism and the National Department of Economic Development, has developed the Atlantis Revitalisation Framework - a document which will guide the redevelopment of this important industrial area.

This framework will shortly be presented to the public during a consultation and engagement session, where it will be discussed in depth. Invitations to the event will be advertised via local newspapers and radio stations closer to the time.

The Atlantis Revitalisation Framework articulates a constructive and meaningful working relationship between key stakeholders, i.e. government, business and civil society, where responsibility is agreed upon and shared to enable the successful implementation of strategies and actions. It is the first step towards encouraging economic, social and spatial development for the revitalisation of Atlantis.

This follows the growing consensus that the revitalisation of Atlantis requires a partnership, drawing on government, business, industry, labour, and civil society. This will allow for decisive and integrated interventions that address the area's socio-economic decline, while facilitating economic recovery and growth.

The Atlantis Revitalisation Framework differs from previous development guidelines, in that it establishes working relationships between government, the private sector, members of the public and NGOs as a basis for

finding development solutions.

It will be driven by public and private sector input, which will serve as the primary source of information in finding development solutions. For example, as part of the information-gathering process, a research team will be engaging with large- and medium-sized firms to better understand their perceptions, plans and needs.

Atlantis has already been identified as a Green Hub where, for example, equipment required for renewable energy generation can be manufactured. The City, in partnership with Wesgro and Green Cape, is in the process of identifying parcels of industrial land that would be suitable for these purposes.

"Atlantis has the potential to be a significant industrial node in the region's spatial economy. If it continues to decline, it will reduce the long-term economic development impact of important catalytic developments such as the Saldanha industrial development zone. It is important not only for the West Coast, but also for the broader Cape Town region, that efforts to turn around the fortunes of Atlantis succeed," said the City's Mayoral Committee Member for Economic, Environmental and Spatial Planning, Alderman Belinda Walker.

Atlantis, which is located 40km north of central Cape Town, was established as town and industrial centre in the 1970s. The area has experienced loss of business and jobs over the years. This was exacerbated by the global economic down-turn. Already high unemployment levels are rising even further, leading to social problems. ■

## State urged to rein in chrome exports

SA is the biggest source of chrome ore and ferrochrome, but China could become a cheaper source by 2015 based on imports of the raw materials.

The South African ferrochrome industry is calling for the government to impose a tariff of \$100 a ton this year on untreated chrome ore that is sold abroad, particularly to China, at the expense of the local industry, which is grappling with soaring costs and electricity constraints.

Merafe Resources and its joint venture partner, Xstrata, the world's largest single supplier of ferrochrome, both highlighted how important it is to protect SA's ferrochrome industry with its 5-million tons a year capacity by allowing it to beneficiate raw chrome into the stainless steel feedstock, ferrochrome.

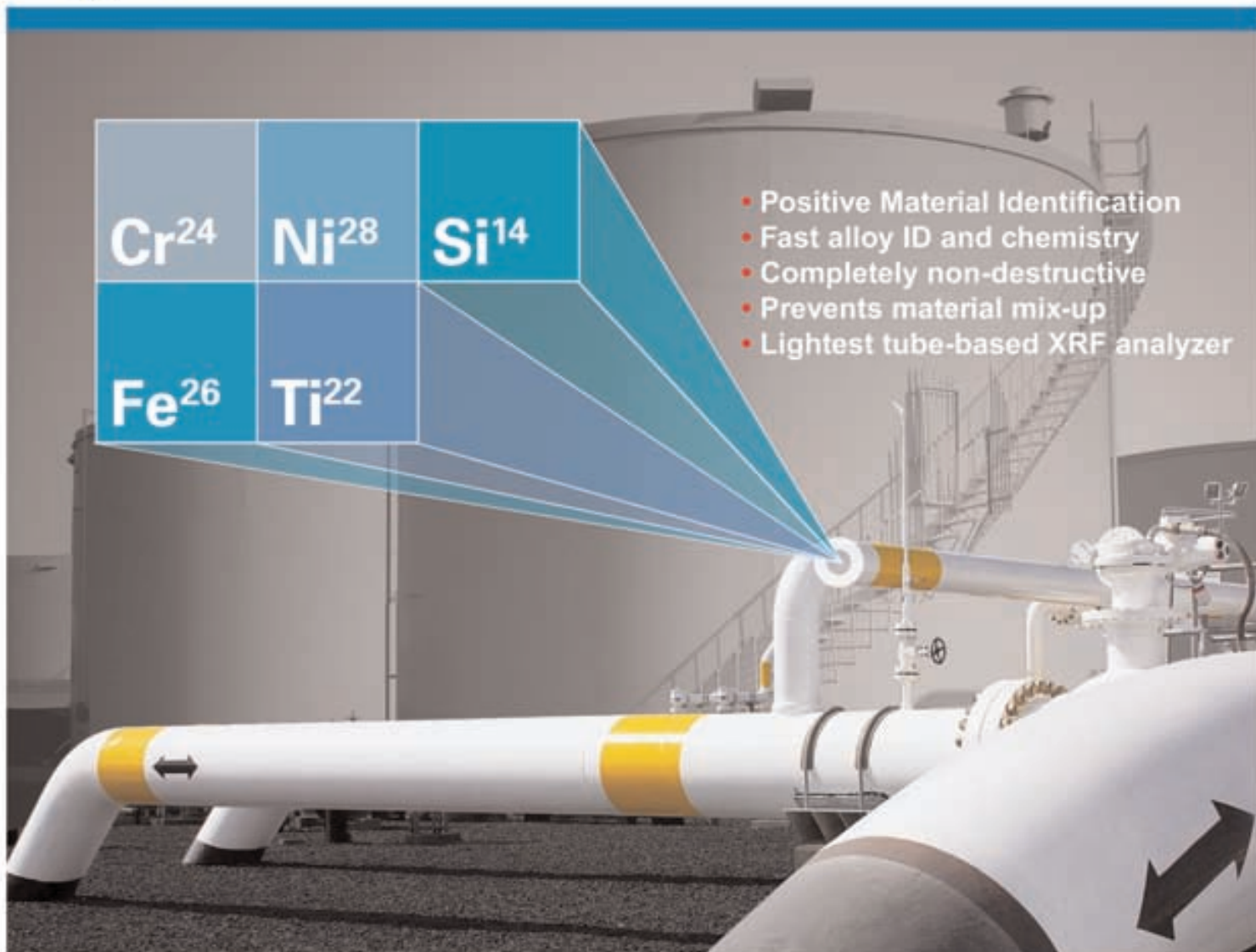
SA is the world's dominant source of chrome ore and ferrochrome, but the indications are that China could be a cheaper source of ferrochrome by 2015 despite that

country not having any meaningful chrome resources of its own and growing its industry on imports of the raw material.

Calls have been made for years for the government to help the ferrochrome industry, whose members have invested R3,5 billion a year in their businesses since 2006, and Merafe CEO Stuart Elliot said he was hopeful a tariff could be in place by year-end.

The Treasury could enact a tariff within World Trade Organisation rules and using existing legislation, avoiding the time-consuming process of developing new laws, he said.

The Treasury said: "Changes to tax policy, or the introduction of new taxes, are announced in the budget in February. Since the minister of finance did not announce plans for an export duty on unbeneficiated chrome when he tabled the 2012-13 budget, there is no such tax in the offing. However, the ferrochrome industry is free to engage with the Treasury on the proposal." ■



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# Science and Technology Deputy Minister launches additive-manufacturing platform

The establishment of a local additive-manufacturing capability shows how partnerships - between government, industry, science councils and universities - can accelerate technology development and its integration into global supply chains, said Deputy Minister of Science and Technology, Derek Hanekom. The Deputy Minister was speaking at the launch of Aeroswift, a titanium additive-manufacturing project and the inauguration of the Aerosud Innovation Centre.

Additive-manufacturing is the process of joining materials to make objects from three-dimensional data, one layer at a time.

"My department," he added, "will continue to support projects like the additive-manufacturing venture, as part of our Titanium Industrial Development Programme."

According to the Deputy Minister, the launch of the project is a milestone for the attainment of the objectives of two of the department's key initiatives, the Advanced Manufacturing Technology Strategy and the Advanced Metals Initiative. Titanium additive-manufacturing is an important technology building block of the Titanium Industrial Development Programme, noted the Deputy Minister.

He continued, "Over the past five years, the DST has supported the development of capability for a successful titanium metal industry in our country. This development of a titanium industry across the value-chain - from the raw mineral to primary metal powder and ultimately to the forming of components - is one of the initiatives in a portfolio of industry development opportunities that the DST is championing."

He said that this was not only crucial for the development of our country's aerospace industry, but also for enabling his department to achieve the objectives of government's New Growth Path, the National Beneficiation Strategy and the Industrial Policy Action Plan.

South Africa is the second largest supplier of the mineral

ore that can produce titanium metal but adds little value to the mineral before export. Titanium is a sought-after metal especially in the aerospace industry where aircraft and satellites need to be lighter in weight to consume less fuel. The CSIR has developed a novel process whereby titanium metal powder can be produced from the country's abundant mineral resource. Currently, the primary titanium process is being commercialised and a pilot plant will be built during this year.

Titanium additive-manufacturing is an important technology building block of the DST's titanium strategy. The production of titanium near-net-shaped parts directly from titanium powder is the ultimate goal and competitive advantage on which the strategy is based.

"We understand that additive-manufacturing involves using laser technology to join multiple-layered cross-sections of a material to make complex three-dimensional parts, such as those used in aircraft," he said. "This technology has the potential to introduce major efficiency improvements for the aviation industry, offering the possibility of vastly reducing material waste, compared to the conventional process in which parts are machined from a solid piece of material."

"Key to the development of the department's titanium strategy are the expertise and resources in the national network of universities, science councils and private sector companies collaborating in the centre of competence on titanium," noted the Deputy Minister.

One of the projects with the potential to make the country a frontrunner in additive-manufacturing is project UMUVI - an isiZulu word for 'wasp'. A wasp basically constructs its nest from wood pulp or mud using additive-manufacturing principles. CSIR Laser Materials Processing Manager, Dr Federico Sciammarella, said that the centre's shared vision was to stimulate jobs in South Africa through laser-based additive-manufacturing. ■

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# R700 million injection for Denel



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State-owned arms company Denel will receive a much-needed R700 million injection for its ailing aerostructure wing, Finance Minister Pravin Gordhan has announced.

The recapitalisation of Denel Saab Aerostructures (DSA) would take effect in the new financial year (2012/13), he said.

DSA is a designer and manufacturer of complex metallic and composite plane parts for the military and commercial aviation sector.

In a press briefing late last year, Public Enterprises Minister Malusi Gigaba said DSA was the major contributor to Denel's losses, incurring a R237 million loss in 2010/11.

Gigaba tasked newly-appointed group CEO Riaz Saloojee in November with concluding the process of turning around DSA.

Gordhan also announced the allocation of R350 million to mining parastatal Alexkor, which mines diamonds on land and under water in the Alexander Bay area of the Northern Cape.

According to the 2012 Estimates of National Expenditure tabled by Gordhan, the R350 million "is earmarked for transfer to Alexkor to settle any outstanding unfunded obligations

under the Alexkor/Richtersveld community deed of settlement, including the tax obligation of R69.9 million".

Following a 2007 settlement with the Richtersveld community, the company's land mining rights were transferred to the Richtersveld Mining Company (RMC) in March 2011.

RMC and Alexkor formed a joint venture in which Alexkor holds a 51% stake.

The document says pumping capital into both Denel and Alexkor will dramatically push up the Public Enterprises department's spending in the coming financial year.

The department was expected to spend R1.25-billion in 2012/2013, compared to R353.3 million in 2011/2012. This would drop back down to about R200 million leading up to 2015. ■

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# R9 billion worth of investment approved for Automotive Investment Scheme

Total of 92 investments - seven car producers and 85 component manufacturers - by government expected to create more than 7,000 jobs.

More than 90 projects worth an estimated investment of nearly R9 billion have been approved under the government's Automotive Investment Scheme, Gugile Nkwinti, minister of rural development and land reform, said recently.

The 92 investments - seven car producers and 85 component manufacturers - would create more than 7,000 direct jobs, Mr Nkwinti said at a briefing by the economic cluster of Cabinet ministers in Parliament.

Launched as part of the Automotive Production and Development Programme, which will take effect next year, the Automotive Investment Scheme will provide qualifying companies with a taxable cash grant of up to 30% of the value of investment in production assets.

The scheme aims to grow and develop the sector through investment in new and replacement vehicle

models, and the manufacturing of car parts.

The industrial plan sees value-added manufacturing as key to South Africa's economic development, and this is apparent in the car industry, which has empowered local component suppliers and services.

Finance Minister Pravin Gordhan indicated in Parliament in 2010 that R 20 billion over five years would be set aside for tax incentives for industrial projects.

## Automotive Investment Scheme (AIS)

The Automotive Investment Scheme (AIS) is an incentive designed to grow and develop the automotive sector through investment in new and / or replacement models and components that will increase plant production volumes, sustain employment and / or strengthen the automotive value chain.

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### Objectives of incentive scheme

- Strengthen and diversify the sector through investment in a new and / or replacement models and components.
- Increase plant production volumes.
- Sustain employment and / or strengthen the automotive value chain.

### Benefits

The AIS provides for a taxable cash grant of (20%) of the value of qualifying investment in productive assets as approved by the dti.

An additional taxable cash grant of 5 or 10% may be available to projects that are found to be strategic by the dti.

An additional taxable cash grant of five to ten percent (5% - 10%) may

be made available for projects that maintain their base year employment figure throughout the incentive period, and achieve at least two (2) of the following economic requirements:

- Tooling;
  - Research and development in South Africa;
  - Employment creation;
  - Strengthening of the automotive value chain;
- and
- Value addition.

To qualify for an additional grant of five to ten percent (5% - 10%), the project must demonstrate the following:

- In respect of light motor vehicle manufacturer: a specified increase in unit production per plant; and
- In respect of component manufacturers: a specified increase in turnover and manufacturing of components that are currently not being manufactured in South Africa.

### Eligible enterprises

- Light motor vehicle manufacturers that have achieved, or can demonstrate that they will achieve, a minimum of 50 000 annual units of production per plant, within a period of three (3) years; or
- Component or deemed component manufacturers that are part of the Original Equipment Manufacturer (OEM) supply chain; or
- Will achieve at least 25% of total entity turnover or R10 million by the end of the first full year of commercial production as part of a light motor vehicle manufacturer supply chain, locally and / or internationally.

**The Automotive Investment Scheme will provide qualifying companies with a taxable cash grant of up to 30% of the value of investment in production assets**



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# AfriMold - Call for conference papers

AfriMold, the international tooling, precision engineering, mould making, design and application development trade fair will take place from 10 - 12 October 2012 at the Gallagher Convention Centre in Midrand, South Africa.

The third annual AfriMold trade fair is expected to attract exhibitors and visitors representing the associated sectors of design, materials, simulation, engineering, virtual reality, CAD/CAM/CAE, rapid prototyping and tooling, patternmaking, prototyping, mould-making and tooling, tools, precision machining, machine tools, quality assurance and automation, as well as processing, series production and final part finishing & assembly.

According to AfriMold managing director Ron MacLarty, "the specialised nature of AfriMold attracts a highly targeted audience of visitors, who are for the most part proactive buyers. The expo's visitors have made a conscious decision to purchase and have set aside valuable time to attend the expo and do just that. Participating in the expo is the best bench-marking method to compare prices, products and quality."

He expands, "The reality of a serious and willing buyer coming directly to you is probably the single most important reason why exhibitors choose to participate in AfriMold.

such the conference content, in particular, will be expanded to address the role of science in elevating current practice to the domain of leading economies.

The conference theme is Tooling as a Key Enabler for the South African Manufacturing Sector - Climate Change Mitigation, and will feature topics central to the YOS. It will explore opportunities to mitigate climate change via smart manufacturing.

Conference speakers will include international as well as local specialists in tooling technology and related fields, and conference presenter TASA (Toolmaking Association of South Africa) is calling for industry experts and representatives to submit papers for consideration for the programme. Submissions for consideration may be sent to [info@afrimold.co.za](mailto:info@afrimold.co.za) by no later than 18 May 2012. Last year the program was over-subscribed, therefore early submissions will receive preference.

In the context of climate change, the conference will highlight developments in new light weight materials and

**“The specialised nature of AfriMold attracts a highly targeted audience of visitors, who are for the most part proactive buyers. The expo's visitors have made a conscious decision to purchase and have set aside valuable time to attend the expo and do just that. Participating in the expo is the best bench-marking method to compare prices, products and quality.”**

Add to that the interactive nature and benefits of expo's, namely, the opportunity for one-on-one sales and promotion, face-to-face contact with your customers, a neutral sales environment, fast market penetration and the opportunity to evaluate market trends and customer needs, and you have several very compelling reasons to exhibit."

Past research has shown that AfriMold visitors do come with very specific goals in mind. Among the more common reasons are, to: see what's new; evaluate products and suppliers; keep abreast of industry and market developments; network and develop business contacts; consolidate business relationships; solve specific problems; find new markets; appoint agents and seek principles; discuss terms, conditions and pricing; and obtain technical knowledge.

#### Conference explores science's role

This year's AfriMold trade fair runs in conjunction with the German/South African Year of Science (YOS) and as

their manufacturing systems for the automotive, packaging and consumer industries, among others.

Also on the table, according to MacLarty, will be the transfer of knowledge and opportunities between Germany and South Africa in respect of tooling technologies in the renewable energy industries. He adds, "While blessed with abundant renewable energy resources like wind and solar, along with a government that promotes the development of a 'green economy', South Africa has much to gain from Germany, a country that has a proven track record in this arena."

Industry support for AfriMold has been tremendous from the outset, and it has fast become the annual meeting place for the industry in Africa.

If you want to be considered a serious role player in tooling, precision engineering, mould-making and their associated fields, you should be represented at AfriMold 2012.

For more information on exhibiting at and participating in AfriMold 2012 contact Ann on TEL: 082 336 6791 ■

# SAIF news

## 49th Annual Awards Dinner - Friday 25th May 2012

The South African Institute of Foundrymen invites you and your customers to the 2012 Annual Awards Dinner to be held at the Emperors Palace (Caesars Convention Centre), Kempton Park, Gauteng on Friday 25th May 2012.

This is the 49th occasion that the Annual Awards Dinner will place. Various awards are handed out to industry personnel and students during the evening.

The Annual Awards Dinner is a formal occasion. Please advise your party of the dress requirement i.e. Black Tie. The ladies' dress is also formal.

The new venue has proved to be a popular choice over the last few years and as a result the evening will be held at the same venue.

The cost per person is R480.00 excl VAT. (The same price as last year)

The guest speaker will be funny man Dave Levinshon.

For bookings, please contact Marina on TEL: 011 559 6455 or e-mail saif@icon.co.za / mbiljon@uj.ac.za

## Notification of 48th AGM and call for nominations for council

In accordance with the constitution of the South African Institute of Foundrymen, notification is hereby given of the 48th Annual General Meeting which will take place on: Tuesday 8th May 2012.

For bookings, please contact Marina on TEL: 011 559 6455 or e-mail saif@icon.co.za / mbiljon@uj.ac.za

## SAIF annual golf day - 15 November 2012

The popular golf day will take place this year at Reading Country Club on Thursday 15th November 2012. The format of the golf day is a four ball team competition.

For bookings, please contact Marina on TEL: 011 559 6455 or e-mail saif@icon.co.za / mbiljon@uj.ac.za

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# South Africa sets wind power first for Africa

Local wind turbine manufacturer Isivunguvungu Wind Energy Converter (I-WEC) has completed its first prototype 50 metre wind turbine rotor blade.

The prototype was initially expected to take one month to manufacture but the process turned out to be more challenging than initially thought, ultimately taking approximately two months to complete.

Facilities and planning engineer Simon Graaff told Engineering News Online that the team rather wanted to produce "the perfect blade", than rush the process. "It has taken longer but we are pretty confident this one is 100%," he said.

The rotor blade has been manufactured using approximately 300 layers of four main materials, these being balsa wood, glass fibre, PVC and epoxy resin.

The I-WEC team manufactured the prototype under the supervision of advisers from Aerodyne, which is the German engineering company specialising in the design of large-scale wind turbines from whom I-WEC obtained the turbine design under licence.

The prototype blade would undergo static load testing, as well as a resin frequency test in April. Graaff explained that the static load testing would involve flexing the blade up to 8 m and would be carried out in the Cape Town harbour where there would be sufficient space.

As the prototype rotor blade had been completed, manufacture of components for the first production blade had already been started, said Graaff. He said that the next blade should take in the order of two weeks to manufacture, with the ultimate target being that a single rotor blade should take less than a week to manufacture under standard production conditions.

It was anticipated that the first 2.5 MW turbine, which required three 50 metre rotor blades, would be completed by the end of May. Graaff said that the bulk of the parts required for the turbine generator had already been



***I-WEC's 50 metre long wind turbine rotor blade is exposed as the mould it was made in is opened and it is lifted out for the first time***

received and assembly on the generator would begin shortly and be completed in a time frame of approximately two months, testing included.

The first completed turbine would be erected at the ArcelorMittal South Africa's (Mittal's) Saldanha steel plant and would be fully financed by I-WEC, which would be selling the power generated from the turbine to the steel plant.

"This turbine would also act as a demonstration model for the company" said financial director Thomas Schaal. "We are currently negotiating with them [Mittal] for the extension of the wind farm to an additional five turbines and to supply the energy most likely to them in the second and third quarter of 2013."

He said the cost of the turbines being produced by I-WEC would be in the order of R12 million to R17 million per megawatt, which he believed was competitively priced against imported wind turbines.

Schaal added that increased interest was being shown in I-WEC especially as the third renewable energy independent power producer bid round approached, as the company would be able to assist in meeting the local content requirements.

I-WEC was founded by two Germans, Thomas Schaal and Dr Michael Kast, who have both been living in SA for a long time, but employs 30 South Africans and will be employing hundreds more in the next four years.

I-WEC is the first company in Africa to build multi-megawatt on-shore wind turbines, the biggest turbines the continent has ever seen, with its partner, heavy engineering group DCD. These turbines are 2.5MW and will measure about 130m from top (tip of top blade)



***The blade was manufactured at I-WEC's Table Bay Harbour workshop in Duncan Road in Cape Town harbour***

to bottom, about double the size of the ones now in use on the West Coast, which powered the World Cup Stadium. I-WEC's turbines take 3 of these 50m blades. Each blade weighs about 12 tonnes, and the whole turbine is expected to weigh about 200 tonnes. The first completed turbine should be unveiled in about June or July in Saldanha at the ArcelorMittal steel plant.

The design for the blade was obtained from German licensor Aerodyn Energiesysteme, which also sent experts here to help train I-WEC's staff on how to manufacture turbine blades to international standards. The blades are made from balsa wood, fibreglass, PVC and epoxy resin. The first blade will now undergo static load testing, as well as a resin frequency test. Once the tests are done, they will make the three blades for the first turbine.


There are companies in Africa who make blades for very small turbines, but not for "multi-megawatt" turbines with large scale electricity generation capacity. This is where I-WEC is doing pioneering work.

Their wind turbines will enable wind farm developers in South Africa to set up wind farms with major power generation capacity that also fulfil government's "local content" and "job creation" requirements for bidders in the IPP bidding process. Government is looking for local job creation, local content (with special emphasis on local manufacturing), local skills development and education, local enterprise development, and the upliftment of historically disadvantaged individuals. The operators I-WEC has trained to make this MOULD are from Vredenburg on the West Coast and were taught new skills.




*The sleek surface of Africa's first locally produced blade for a 2.5MW wind turbine is revealed as one views it from above. The blade is 50 metres long and is relatively light for its size at a weight of 12 tons, because it is made from lightweight materials, including balsa wood and fibreglass. At 50 metres from the tapered tip to the round, hollow end, I-WEC's first multi-megawatt wind turbine blade is longer than an Airbus wing. Each wind turbine will be fitted with three of these blades. The turbine will measure 130 metres high from bottom to top, with the length of the blade included*

The blades and turbines are also manufactured to international standards so they are fit for export, which is good news for African wind farm developers. ■




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## Employment down, capex up in auto industry

Employment levels at the country's vehicle manufacturers shrunk by 476 jobs from the end of September 2011, to reach 28 147 jobs at the end of last year, says the National Association of Automobile Manufacturers of South Africa (Naamsa) in its latest quarterly business review.

The decline in industry headcount is attributed primarily to a major manufacturer reducing the number of temporary employees during the last two months of 2011. Employment at all the other major plants remained stable during the last quarter of the year.

fourth-quarter report.

The association also notes that the breakdown of the Arcelor Mittal Newcastle steel furnace caused "severe pressure" on the supply of forged steels to the automotive industry in the period under review. Local production had to be supported with imported steels.

Naamsa says the country's vehicle manufacturers are expected to spend R5 billion in capital expenditure this year, up from last year's R3.9 billion.

Taking into account economic growth of 2.7%, historic low interest rates, improved vehicle affordability, new

**“Ongoing relentless focus on global cost competitiveness and general cost reduction targets continue to pressurise suppliers. Above-inflation wage settlements, coupled with sharply higher electricity price increases, continue to add significant risk to suppliers' competitiveness.”**

Naamsa also notes that the availability of imported components in the fourth quarter was "severely impacted" by the suppliers' shutdown in Thailand as a result of flooding in that country. In some cases, the floods also impacted on the supply of a number of locally produced parts.

"Ongoing relentless focus on global cost competitiveness and general cost reduction targets continue to pressurise suppliers. Above-inflation wage settlements, coupled with sharply higher electricity price increases, continue to add significant risk to suppliers' competitiveness," adds Naamsa in its

model introductions and easier access for consumers to vehicle financing, as well as continued strong demand by the car rental industry, Naamsa says it expects domestic sales to improve by 7.5% in 2012.

The association believes that the country's vehicle exports into Europe are likely to soften as a result of the recession and debt crisis in the eurozone, however, projected higher exports to African countries should enable the industry to record growth.

Exports in 2012 should reach about 301 000 vehicles compared with the 272 457 units exported in 2011. ■

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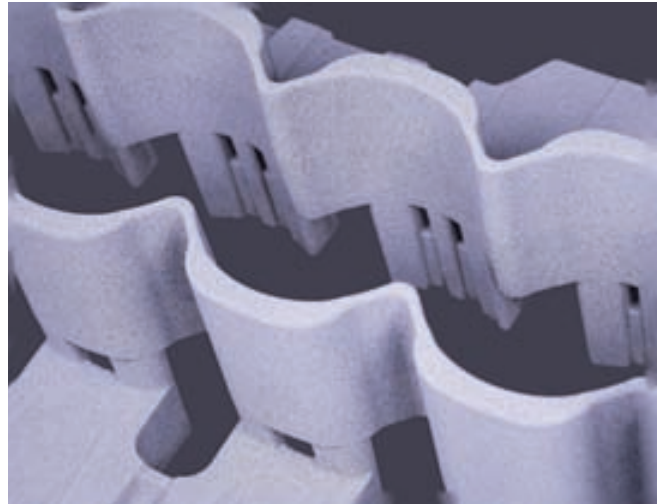
# ASK Chemicals introduces itself at Foundeq 2012

**A**SK Chemicals Italia will introduce itself to the Italian market with a comprehensive casting know-how and latest product developments for the foundry industry at Foundeq 2012, which is part of the METEF-FOUNDEQ 2012 taking place from 18-21 April 2012 at the Verona Fiere exhibition centre in Verona, Italy.

ASK Chemicals Italia belongs to the global ASK Chemicals group, a joint venture between Ashland and Süd-Chemie, and provides foundries with value-adding products and services for the entire casting process, from the core shop all the way to the melting shop.

This year, the German company ASK Chemicals will be presenting the latest developments in innovative foundry chemicals and related services at the show. Visitors can expect to meet a competent team of foundry experts, who will be showing off innovative foundry auxiliaries for all of the process steps in a foundry - including binders, additives and coatings for the core shop, filters and coatings for the moulding line, as well as inoculants, alloys and magnesium treatment by cored wire for the melting shop.

ASK Chemicals will be particularly highlighting its innovative INOTEC® inorganic binder technology,



which has already proved its suitability for series production. In addition to achieving a 98% reduction in emissions, INOTEC® also has a positive influence on the material properties of the casting. This success story can primarily be attributed to the good interaction with ASK Research and the customer-friendly implementation. Additional commercial benefits are achieved through cost reductions in areas such as air treatment and tool maintenance.

ECOCURE® HE is a highly efficient cold box binder system which also helps to significantly reduce emissions. This new generation of cold box binders offers high levels of reactivity and productivity, with a 25 percent reduction in the use of binding agents and catalysts. In addition, the use of mineral additives can reduce the development of disagreeable odours. The low admixture quantities required for the HE binder system mean significantly lower emissions and lower costs.

ECOCURE® High Efficiency prevents condensate adhesion and reduces the time and effort spent on cleaning. Use of the new HE system can considerably increase the availability of tools and moulds - another advantage in terms of profitability and productivity. Even thin-core geometries which are exposed to heavy thermal loads, such as those required in cylinder heads or engine blocks, can be manufactured using reliable processes and in an environmentally friendly manner.

ASK Chemicals offers significant added value for the foundry industry - not only through its excellent products but also through its experts, who understand every detail and all of the requirements of the entire casting process. ASK Chemicals is able to offer customer-specific solutions by fine-tuning product performance and the casting process in a way which enables foundries to produce the required casting quality under the incredibly competitive conditions of the foundry setup. ■



# New cement uses slag as primary constituent

**D**rexel University engineers have developed a new formulation for cement that utilizes limestone and slag, a waste product produced during melting for the metalcasting process.

According to a statement by the university, the product is more energy efficient and cost effective than ordinary Portland cement because it does not require heating to produce. According to Michel Barsoum, A.W. Grosvenor professor in Drexel's Department of Materials Science and Engineering, this alternative production method and the availability of the ingredients lessens the cost of materials for the cement by about 40% versus Portland cement and reduces energy consumption and carbon dioxide production by 97%.


"Cement consumption is rapidly rising, especially in newly industrialized countries, and it's already responsible for 5% of human-made carbon dioxide," said Alex Moseson, one of the lead researchers on the project.

Drexel's cement is made of up to 68% unfired limestone, a plentiful, cheap and low-carbon dioxide resource. American Society for Testing and Materials' standards for Portland cement limit the amount to 5%. A small amount of commercial alkali chemical, along with the iron slag byproduct, is added to this base. In Portland cement, the substitute for this mixture is produced by firing a number of ingredients in a kiln.

"Our results and the literature confirm that (the product) performs as well or better than (Portland cement)," Barsoum said. "We are very close to having the cement pass an important




commercialization milestone (ASTM C1157), a standard that judges cement-like products on performance, such as strength and setting-time, regardless of composition."

The next step for the cement is bringing it to market, which the group is working toward via a start-up company called Greenstone Technologies Inc. ■



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# ANKIROS - ANNOFER - TURKCAST 2012

13 to 16 September 2012  
Convention and Congress Center  
Istanbul (Turkey)

Eurasia's largest metallurgy fair will highlight products and technologies for the entire supply chain of foundry and iron-steel production and processing.

**D**on't miss this renowned event for the professional metallurgy industry. This four-day marathon of opportunity highlights the products and technologies associated with the whole supply chain of Eurasia's foundry and iron-steel production and processing sectors.

ANKIROS is a recognised and respected brand name to foundry and iron-steel related companies in Eurasia. International exhibitors from the iron & steel, non-ferrous metals and foundry industries with their wide product spans and the sector professionals from all around the world will have the unique chance to meet with one

The trade exhibition gives exhibitors exposure to the greatest number of international decision makers in the foundry and iron-steel industry through the presentation of their new technologies, service and products.

ANKIROS-ANNOFER-TURKCAST is supported by a number of trade associations and organisations, including the:

- Undersecretariat of the Prime Ministry for Trade;
- European Committee of Industrial Furnace and Heating Equipment Associations (CECOF);

**The show intends to bring together the products and technologies associated with the whole supply chain of foundry and iron-steel manufacturing and processing. The exhibition will showcase new technologies, processes and products from different regions and will promote trade, technology transfers and joint ventures**

another to establish new business connections, promoting existing ones, making sales negotiations, widening the market for their products, acquiring representatives from other countries and

promoting a new product or development. The ongoing growth and progress trend of the fairs continued at the last exhibition in 2010 despite the global economic crisis; the exhibitor count was 800 from 37 countries, with the net stand area of 15,148 m<sup>2</sup> in 2010.

The show intends to bring together the products and technologies associated with the whole supply chain of foundry and iron-steel manufacturing and processing. The exhibition will showcase new technologies, processes and products from different regions and will promote trade, technology transfers and joint ventures.



- European Foundry Equipment Suppliers Association (CEMAFON);
- European Engineering Industries Association EU-NITED;
- Italian Foundry Machinery and Product Association (AMAFOND);
- German Engineering Federation (VDMA);
- Casting Exporters' Association of Spain (FUNDIGEX);
- Foundrymen's Associations of Turkey (TUDOKSAD) and Turkey's Iron and Steel Producers Association (TDCU).

Hannover Messe Ankiros A.S is a partnership between the founders of the ANKIROS and ANNOFER fairs and Deutsche Messe AG, one of the world's largest and most active trade fair organisers. Further information is available on [www.ankiros.com](http://www.ankiros.com), [www.annofer.com](http://www.annofer.com) and [www.turkcast.com.tr](http://www.turkcast.com.tr). ■

# Brazil to slap quality control on Chinese goods

Brazilian manufacturers have long complained about the influx of cheap Chinese imports.

To prevent the influx of cheap goods, Brazil plans to impose strict quality control on imports from China and other Asian nations, the daily O Globo reported in February. It said the border controls would ensure that imports from Asia, particularly China, meet the standards set by the National Institute of Metrology, Quality and Technology (INMETRO) and comply with safety norms applied to domestic retail goods.

Products which fail the tests would not be allowed into the country.

The measures, seen as a sort of non-tariff barrier protecting Brazil's domestic industry and consumers, will apply to 240,000 models of goods in the following sectors: textiles, steel products, car parts and children's items, particularly toys, the Rio-based newspaper said.

The controls are to begin in the second quarter and will be coordinated by the finance ministry's Federal Revenue Service in partnership with INMETRO.

Brazilian manufacturers have long complained about the influx of cheap Chinese imports.

Brazil and China recently aired differences over their ballooning multi-billion-dollar trade ties during a high-level meeting attended by Chinese Vice Premier Wang Qishan in Brasilia. Brasilia urged China to open its doors wider to Brazilian manufactured goods and limit its massive exports of shoes, textiles and other products such as autos that have been flooding into Brazil.

A senior Brazilian official said at the time that the sharp increase in cheap Chinese imports and access to the Chinese market for Brazilian manufactured goods were "an urgent problem which needs to be tackled."

He added that "the Chinese government signalled that it plans to act."

In 2009, China dislodged the United States as Brazil's largest trading partner, with bilateral trade

reaching \$77 billion last year and Brazil enjoying a trade surplus of some \$11.5 billion.

Beijing is also the largest investor in the South American nation.

Iron ore and soybeans represent more than 80% of Brazil's exports to China, which in turn sells mostly manufactured goods to this country. ■

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- A range of Copper, Nickel and Aluminium Master Alloys from KBM Afilips Europe
- Ceramic Filters and Slag Coagulant are imported from the Far East.

#### Sales Team



Samuel Moeti recently joined the Technical sales team. Samuel is a Physical Metallurgist with technical experience in the foundry industry. We are confident that Samuel will add significant value to our marketing effort and we look forward to his interaction with our valued customer base. Left to right: Hans Joubert, Derek Edwards, Samuel Moeti, Sean Mackenzie and Pat Wright.

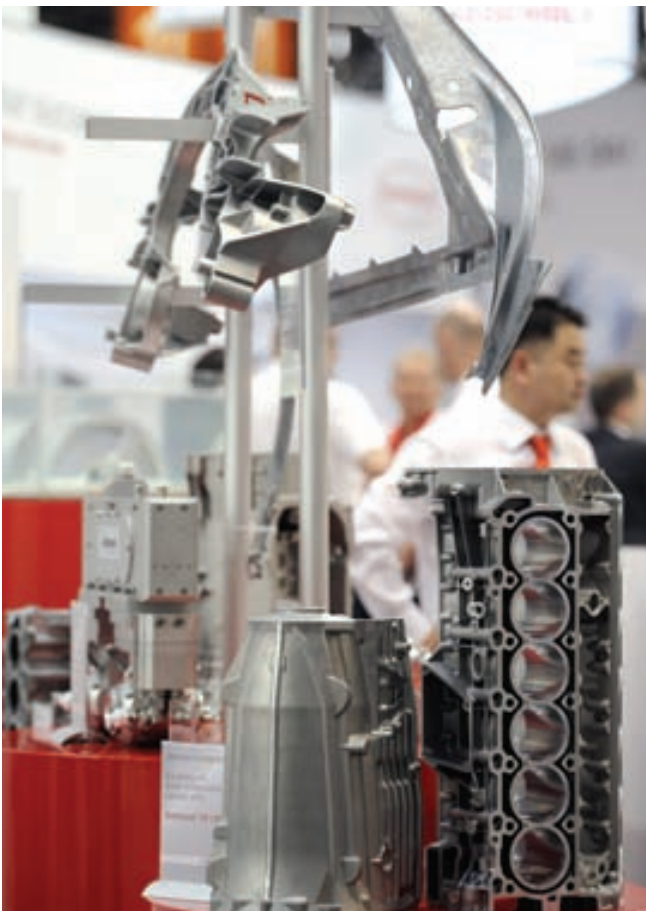


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# GIFA, METEC, THERMPROCESS, NEWCAST are being held in Düsseldorf from 16 - 20 June 2015



The industry has been waiting for this news: the date for the next GIFA, METEC, THERMPROCESS and NEWCAST has now been settled. The international trade community will be able to experience the four successful technology trade fairs again in Düsseldorf from 16 to 20 June 2015.

Project Manager  
Friedrich-Georg Kehrer:  
"We are delighted to have found another date in the early summer, which will certainly help to create a good atmosphere for discussions and business transactions in the halls on the exhibition site."

The last "Bright World of Metals" set a new record for the trade fairs, with about 2,000 exhibitors, 78,558 square metres of stand space and 79,000 visitors from 83 different countries. The events held last year therefore had a

strong impact on the foundry technology, metallurgy, thermo process technology and castings industries that exhibited there too. Numerous business transactions were already concluded while the fairs were still in progress, while most of the companies also reported that business continued to develop exceptionally well afterwards.

Kehrer: "We hope that this momentum is maintained over the coming three years as well. Our aim is to stay in contact with exhibitors, visitors and the media throughout the years between the events too, via our informative and up-to-the-minute trade fair portals." Business and product news that is updated on a daily basis is provided on the websites [www.gifa.de](http://www.gifa.de), [www.metec.de](http://www.metec.de), [www.thermprocess.de](http://www.thermprocess.de) and [www.newcast.de](http://www.newcast.de).

**"We hope that this momentum is maintained over the coming three years as well. Our aim is to stay in contact with exhibitors, visitors and the media throughout the years between the events too, via our informative and up-to-the-minute trade fair portals."**



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# CERAMITEC 2012

## in parallel with AUTOMATICA

Once again CERAMITEC will be taking place in 2012 in parallel with the trade show AUTOMATICA, which is being held in the western part of the exhibition center. Tickets for each trade show give access to the other show. In 2006, the two events were also held in combination, with great success, prompting considerable exchange and communication between participants in both shows.

Participants in AUTOMATICA will be able to find an extraordinary range of products and services for the global market at CERAMITEC; here they can gain comprehensive insight into state-of-the-art ceramic technology from Germany and around the world. There is no better opportunity to review the ceramics market, in particular in technical ceramics and powder metallurgy, all in one place.

CERAMITEC is a unique platform for suppliers and users interested in the automation of production processes in the ceramics industry.

In addition, in 2012 the supporting program to CERAMITEC will again be providing a top-class platform for information-gathering and knowledge-transfer for researchers and developers as well as highly qualified industry professionals. CERAMITEC takes place in the eastern part of Messe München, in Halls A5, A6, B5 and B6.

AUTOMATICA is the leading platform for innovation in the automation of production processes. It is the world's largest showcase for products and services in robotics, assembly technology and industrial imaging systems, offering companies from all sectors of industry solutions that help them make even higher quality products even more efficiently.

Visitors can enter AUTOMATICA via the West Entrance; the trade show takes up Halls A1, A2, B1, B2 and B3. From the Atrium both trade fairs can be accessed freely.

### CERAMITEC

CERAMITEC Technologies - Innovations - Materials takes place at the New Munich Trade Fair Center from May 22-25, 2012. Since its premiere in 1979 CERAMITEC has developed into the world's leading trade show for the ceramic industry. CERAMITEC 2009 attracted 656 exhibitors from 35 countries and approximately 15,000 visitors from 84 countries.

Among the exhibitors, the breakdown is every bit as international as it was in 2009: over 50 percent of them come from outside Germany. European companies are of course turning out in force, but there is also a pleasing level of attendance from non-European countries, such as Brazil, China, Egypt, India, Iran, Japan, Korea, Mexico, Peru, Russia, Ukraine and the US. Taiwan and South Africa are putting in a first appearance at CERAMITEC this year.

One other noticeable development is that China is now, for the first time, top of the rankings for the largest contingents of exhibitors from outside Germany. So far 57 Chinese companies have registered, and this number also includes a Chinese pavilion. In comparison to the last CERAMITEC, this represents a

72 percent increase in participation from China.

### About AUTOMATICA - International Trade Fair for Automation and Mechatronics

AUTOMATICA is the first and only international trade fair which covers all areas of robotics + automation every two years. It has taken place at Messe München every two years since 2004. The aim of the fair is to present the entire value-added chain in robotics and automation.

Further information about CERAMITEC 2012 visit [www.ceramitec.de](http://www.ceramitec.de)

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# WTO ruling will enforce ban on Chinese export taxes

**A** World Trade Organization (WTO) appellate body has upheld a ban on Chinese export duties for certain raw materials, including a variety of resources used in the metalcasting process.

The raw materials subject to the export restraints are various forms of bauxite, coke, fluor spar, magnesium,

manganese, silicon carbide, silicon metal, yellow phosphorus and zinc. China is a leading producer of each of the raw materials.

The ruling is in response to a complaint regarding China's export practices initially lodged almost three years ago.

**“Upon its accession to the WTO, China undertook to eliminate all export duties, except for a number of products listed in an Annex to its Protocol of Accession.”**

During the summer of 2009, the U.S. and several other countries argued the use of export restraints by China creates scarcity and causes higher raw materials prices in global markets. The complainants said the restraints also provide Chinese domestic industry with an advantage by way of a sufficient supply and lower and more stable prices.

According to a summary report of its decision, WTO sided with the complainant countries and China must bring its export duty and export quota measures into conformity with its obligations to the organization.

"Upon its accession to the WTO, China undertook to eliminate all export duties, except for a number of products listed in an Annex to its Protocol of Accession," WTO said in its report. "In this protocol, China also committed not to apply export quotas (restrictions on the amount that can be exported)."

Conflicting reports have been released in the wake of the ruling regarding the effect the decision will have on other Chinese export materials, such as rare earth elements. ■



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# Valve World Expo 2012: Automation - the never ending success story

8th Biennial Valve World Conference & Exhibition will be held in Düsseldorf, Germany for the second time from 27 - 29 November 2012.

Valves and valve fittings, which include pumps, sliders and regulators, but also seals and gaskets, are necessary for the conveyance of gas, fluids or free-flowing solids through pipelines. Valves and related fittings are required in practically all areas of life and must

often meet high requirements. A current overview of the latest status in valve and fittings technology is to be provided by the trade fair for industrial valves and accessories, Valve World Expo, which will be held from 27 to 29 November 2012 for the second time in Düsseldorf.



## Rising share of automated industrial valves

Whether plant construction, chemical plants or breweries - manual labour has been on the way out for a long time, making space for automation. Automation has been reaching to new highs with substantial growth forecast in 2012.

The year 2011 will find a place in history. "We reached a record turnover of 10,3 billion euro," states Thilo Brodtmann, executive director of the Robotic and Automation division within the German Engineering Federation VDMA, gleefully. "Compared to last year, the turnover grew by 37 percent. Main growth drivers behind the boom are the food and beverage industry, the pharmaceutical industry and the car industry. And this is not just the case in Germany. The trend towards automation has clearly increased worldwide and will continue in the mid to long term," underlines the VDMA. In other words: in Germany alone turnover will grow by 7 percent to 11,1 billion euro in 2012 - despite uncertainties such as the current state debt crisis and turmoil in the financial markets.

## Valve automation

Automation of machines and plants is increasing - and naturally also components such as valves and fittings. The share of automated industrial valves doubled in the last couple of years, reports trade magazine Chemie Technik. Currently the ratio of manual and control valves is around 70:30, yet experts believe the ratio will soon be 50:50.

There is no question about it, the trend points towards automation of valves, sliders and flaps. Pneumatic or electric rotary actuators automatically control gases, liquids and granulates flowing through pipes. Blocking, diverting and throttling finds place without an employee having to step in.

## Industry

If valves and other fittings are already playing a key role in private life, then this is also the case on a much greater scale in the increasingly complex industrial and working world. Pipelines and hose pipes are necessary everywhere, in crude oil and natural gas production, practically all areas of industry, in medicine and water treatment as well as generally in engines, machinery and plant engineering as well as the conveyance of gas, fluids and free-flowing solids. Numerous valves and flaps are necessary in order to convey these substances mentioned in the desired way to the applications required, while others fulfil safety-relevant tasks, for example relief and safety valves. Valves, especially magnet versions, are used in industry in a diverse range of applications, for example in the operation of cylinders, grabbers, ejectors, shut-off and check valves. Other valves are used in aeration and de-aeration tasks or for the dosage and filling of media with varying degrees of fluidness.



- Stricter environmental regulations
- Complex structures in compact designs
- Optimising production
- Remote diagnostics
- Saving lives (Japan's nuclear catastrophe)
- Help for the environment, lower costs
- Easy handling

## Valve World Expo 2012

Valve World Expo 2012, the world's leading fair for industrial valves and fittings, is the

ideal location for informing yourself comprehensively about the range of products and services in this area and analysing the most recent technical trends. It is mainly directed at trade visitors from the crude oil and natural gas industry, the energy supply and water management sectors, the chemical, pharmaceutical and foodstuff industry, the marine and offshore industry as well as specialists from the plant and engineering sector, engine construction, vehicle building and shipbuilding industry.

For more information on Valve World Expo visit [www.valveworldexpo.com](http://www.valveworldexpo.com)

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# Ergonomic and easy to use: Spectro introduces latest generation of Spectrotest metal analyzers



- Up to four times sample throughput during battery operation
- New software with integrated user guidance
- New UV probe for arc and spark operation

**S**pectro Analytical Instruments has introduced the latest generation of Spectrotest mobile metal analyzers. In addition to the instrument's excellent analytical performance, the Spectrotest offers an ergonomic design and user friendly operation. In addition, the latest generation is equipped with an efficient plasma generator and a newly designed UV probe, and its field-proven ICAL (Intelligent Calibration Logic) logic system monitors the correct state of the measuring system independently from external influences, eliminating the need for time-consuming recalibration of the spectrometer. Instead, a single control sample is measured.

The device's plasma generator allows users to profit from Spectrotest's clearly increased effectiveness: "The plasma generator requires less energy, making it possible to do hundreds of measurements with a single battery charge," reports Marcus Freit, Product Manager for Mobile Metal Analyzers at Spectro. "This allows double the number of samples in arc excitation mode and nearly four times the number of samples in spark excitation mode during battery operation."

## Suited to spark and arc operation

In addition to improvements to the plasma generator, Spectro's engineers have designed a new pluggable probe with integrated UV optic for special measurement applications. For the first time, this probe can be used for both spark and arc excitation. Changing of the probes is no longer necessary.

By incorporating a lightweight and robust transport trolley, Spectro's design engineers were able to cut the instrument's weight in half. The instrument's new design affords the operator a more fatigue-free and comfortable on site experience. This latest generation metal analyzer additionally features a large 15-inch display that allows measurement results to be easily read, even from relatively long distances.

Ease of use is further supported by new instrument software that even inexperienced users can quickly grasp. The software only shows the user the context-dependent functions required for the current operation. A factory-installed materials library can be optionally extended with the Spectro Metal Database, in which nearly all standardized grades of metal in the world have been compiled.

## Material identification as a standard application

Among its many applications, the Spectrotest metals analyzer is especially suited for the identification of low-alloy steels using the carbon content in the rapid arc excitation mode. Possible applications in the spark excitation mode include the analysis of carbon, phosphorous and sulfur as well as the identification of duplex steels using the nitrogen content.

Today, the identification of metal materials is a standard component of quality control in the metal producing, processing and recycling industries.



Whether it's onsite for incoming materials or used during production or transport, a mobile metal analyzer helps prevent material mix ups from occurring and proves valuable during the sorting and classifying of recycling of metals.

Product Manager Marcus Freit explains: "The Spectrotest mobile metals analyzer is the perfect instrument when exact analyses are required, difficult to identify materials are involved, or there are a large number of samples to be measured."

**About Spectro:**

Spectro is one of the worldwide leading suppliers of analytical instruments for optical emission and X-ray fluorescence spectrometry. As a member of the Ametek Materials Analysis Division, Spectro manufactures advanced instruments, develops the best solutions for strongly varying applications and provides exemplary customer service. Spectro's products are exemplified by unique technical capabilities that deliver measureable benefits to the customer. From its foundation in 1979 until today, more than 30,000 analytical instruments have been delivered to customers around the world.

Ametek, Inc. is a leading global manufacturer of electronic instruments and electric motors with annualized sales of



approximately 3 billion USD. Ametek's corporate growth plan is based on four key strategies: Operative excellence, strategic acquisitions and alliances, geographic and market expansion as well as new products. Ametek's common stock is a component of the S&P MidCap 400 Index and the Russell 1000 Index.

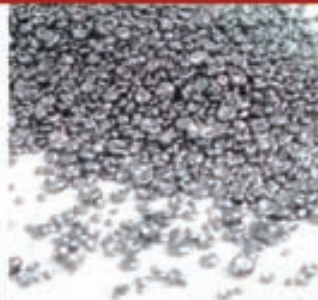
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# From “Nice to have” via “Necessary evil” to “Indispensable business tool”

There are simulation tools suitable for every foundry to participate in the transformation of the industry.

There always will be buyers who will jump on a new technology ("Cool! I've got to have this!"), and this is as true in business as it is for consumer products. Some of these "early adopters" will take on a new technology because it is "nice to have". Many others will not even take a closer look at it, as they perceive it as just exactly that: nice to have, but not something they need.

However, many business executives and managers will approach new products and technologies with curiosity, as well as a healthy dose of skepticism. They will ask themselves if this "new mouse trap" really works, or is justifiable or even applicable to their particular operation. If they can answer all of these questions positively, they still may choose not to implement a new technology (after all "change hurts") unless their customers force them to use it ("You will not supply our castings if you don't use XYZ!")

At that point the managers might see the new technology as a "necessary evil," and use it to check off the supplier evaluation form, but they won't truly implement the technology as they are not convinced that it adds any value to their operation. However, truly new technology (industry transforming technology), has a way of proving itself in use, and to penetrate an organization in a way that often changes the entire operation. Either right from the start or over time, a business actually changes the way it manufactures and markets products, communicates with customers and establishes relationships, differentiates itself from competitors, improves internal communication, increases productivity, reduces material and energy consumption, as it reduces scrap, rework, and labour costs, maybe even attracts and retains skilled labor. The technology becomes an indispensable tool with an impact on the entire business - an "indispensable business tool"!

What technology are we talking about here? What technology has been introduced to the foundry industry within the last 30 years that could possibly do all of these things? None?

I can think of one: Casting process simulation. The initial idea behind casting process simulation is to provide foundries (primarily) with software enabling them to move the trial-and-error process from the shop floor (the "real world") into the computer (the "virtual world"). If that actually works, it is certainly a cool technology, initially revolutionizing how the engineering department works.

Wait, isn't that exactly what we need in marketing and sales? Isn't an animated, to-the-point presentation much more persuasive to a customer or designer than a verbal, "You've got to change the design!" message? Isn't that a way to differentiate a foundry from all the other "commodity providers," and doesn't it make me a "value adding partner"? Can't I use this to communicate to the shop floor the process parameters that we need to maintain, to hit our process window for making good

parts at minimum costs (minimum material, energy and time consumption). Doesn't it lead to happy customers when we make castings right the first time, and deliver them on time? Isn't that what employees look for - a meaningful job, working with high-tech tools, contributing to the success of the entire operation?

Not only has the use of simulation evolved, with many foundries having fully implemented this technology in their operations, but simulation tools have evolved, too. Initially only able to predict hotspots, sophisticated tools are now simulating the entire casting process, including predicting micro structures, mechanical properties, stresses and distortion, and die life. They also use automatic optimization to find the optimal gating system or process parameter combination, literally by themselves. Simulation is not a static product. It continuously evolves. It's like buying a bike that develops itself into a car, and soon becomes a plane! One of the latest developments is simulating the core and mold making process and the effects of dissolved gases on casting defects.

Every industry has 20% leaders, 50% average performers, and 30% laggards. If you are reading this, you are likely not a laggard. It's likely you are among the leaders, or the upper ranks of the average, on your way to being a leader.

Being a leader has nothing to do with size. We have customers with 12-15 employees using our "expensive" product! As you are likely using casting process simulation, I challenge you to ask yourself if you have fully integrated simulation into your operation and use it to its fullest potential. Did you buy it as nice-to-have but still use it as nice-to-have? Did you buy it as necessary-evil but still use it as necessary-evil? Or, is your software/hardware at the latest level? Are your personnel well trained to use all of your simulation tool's functionalities, features, and applications? Is your operation using it in marketing, sales, and communication with customers, as a tool to attract and retain skilled labour? Is simulation integrated as an essential business tool of your operation? If it's not, it can be one.

Ask your simulation provider what is available to help you achieve that goal. A good casting process simulation vendor becomes your partner in daily challenges by providing the tools, the functionality, and application support, as well as training, not only to operate the software, but to use it to make better castings, faster and at lower cost.

You still don't use casting process simulation because it is just a nice-to-have? Have another look. There is a simulation tool out there for every foundry to participate in the transformation of an industry challenged by increasing material, energy, and labour-cost pressures, environmental requirements, and evermore demanding customers. Casting process simulation is the perfect (necessary) business tool to face these challenges.

For more information contact Ametex on  
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# Melting and dosing technology with maximum efficiency

StrikoWestofen is an exhibitor at the Metef 2012 in Verona.

The StrikoWestofen Group is exhibiting its products at the "Metef" fair in Verona (Italy) in conjunction with the Italian agency Smith & Mason Italia s.r.l again this year. As the centrepiece of its presence at the fair, the well-known manufacturer of thermal process technology is presenting its tried-and-tested "Westomat 650 SL" with "ProDos xp" control. In addition, StrikoWestofen is offering a newly-developed filling system for its dosing systems. This makes the use of tilting casting ladles obsolete, thus increasing occupational safety considerably. A new dimension in reasonably-priced melting is also provided by the "StrikoMelter PurEfficiency" series which shows a significant reduction in the operating costs and lowers the energy requirement by up to 15 percent. StrikoWestofen is presenting these new products as well as other technologies at Booth B44 in Hall 4 at the Metef from 18 to 21 April.

"The two principal cost drivers in the production of liquid aluminium are metal loss and energy consumption. When considered over the service life of a melting furnace, these factors are responsible for up to 95 percent of the overall costs,"

Rudolf Riedel, manager of the StrikoWestofen Group, explains. Melting furnaces of the StrikoMelter series achieve a metal yield of up to 99.7 percent under real-life conditions, thus making highly efficient use of the raw material.

## New StrikoMelter PurEfficiency technology

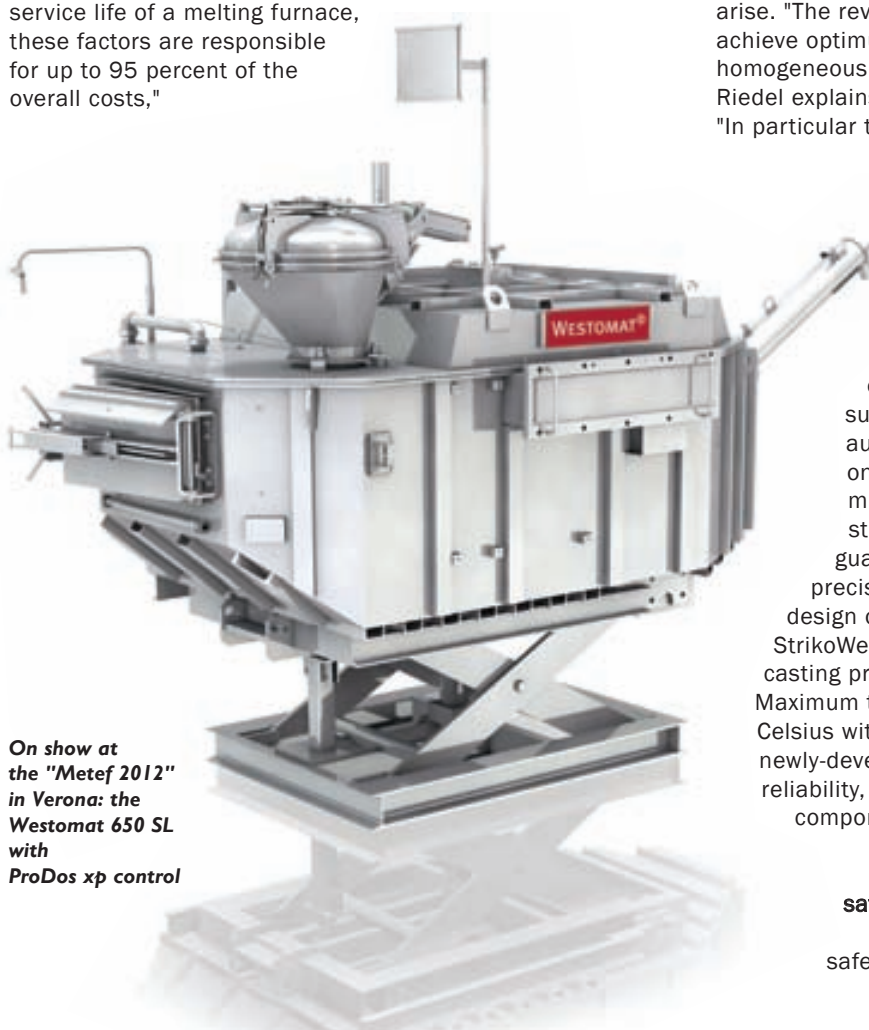
Extensive development work and computer-assisted simulation allowed the engineers at StrikoWestofen to increase the efficiency of their melting furnaces considerably without compromising installation height. The new "StrikoMelter PurEfficiency" series lowers the energy consumption by up to 15 percent, thus effectively reducing the unit costs of the cast parts. Depending on the requests of the customer, the system is available as a stationary or a tilting version in the sizes 6,000/3,500, 4,000/2,500 or 3,000/1,500. This improvement was based on holistic optimization of the system. A revised furnace lining with improved insulation significantly lowers the operating costs as well as any repair costs which may arise. "The revision of the furnace lining allows us to achieve optimum flow conditions and an even more homogeneous temperature distribution in the furnace," Riedel explains, referring to the principal improvement. "In particular the areas exposed to great mechanical strain have now been better protected against wear, thus extending the maintenance intervals."

## Westomat with a newly-developed riser tube

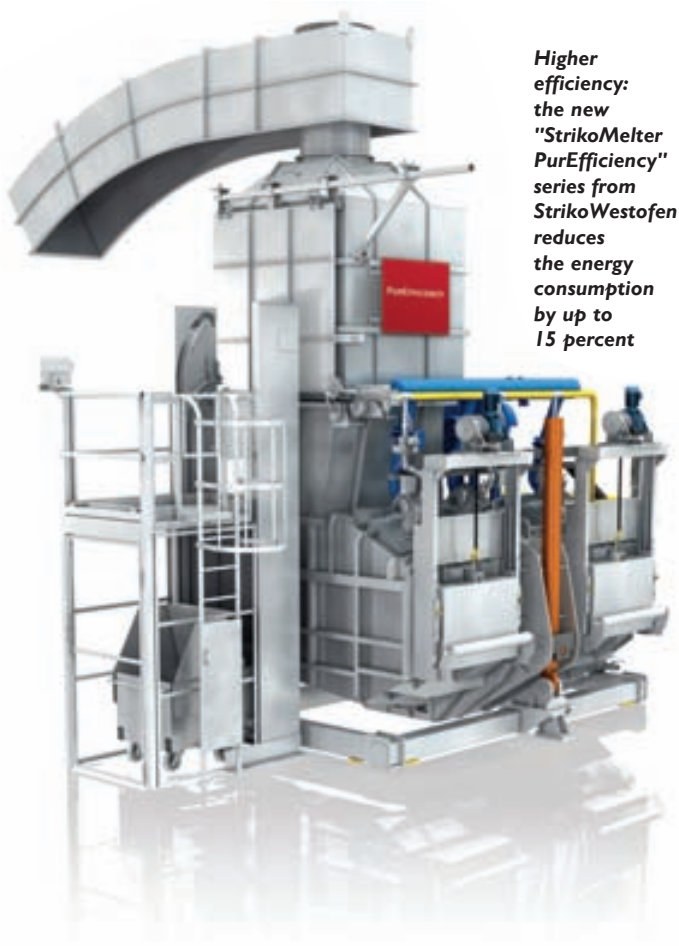
Structural cast parts are increasingly being used in environments exposed to great strains, for example wheel suspensions for passenger cars. This automatically increases the demands made on the quality of the molten metal. The latter must have a precisely defined homogeneity, strength and viscosity. This is the only way to guarantee the durability of the parts, which are precisely calculated. The self-contained system design of the Westomat dosing furnaces from StrikoWestofen prevents oxides from entering the casting process. This ensures a homogeneous melt. Maximum temperature fluctuations of two degrees Celsius with regard to the nominal temperature and a newly-developed riser tube allow maximum process reliability, even when casting thin-walled structural components.

## New filling device increases occupational safety

To further increase the occupational safety and the quality of the melt, StrikoWestofen



On show at the "Metef 2012" in Verona: the Westomat 650 SL with ProDos xp control



Higher efficiency: the new "StrikoMelter PurEfficiency" series from StrikoWestofen reduces the energy consumption by up to 15 percent

**“The two principal cost drivers in the production of liquid aluminium are metal loss and energy consumption. When considered over the service life of a melting furnace, these factors are responsible for up to 95 percent of the overall costs.”**

has developed a new filling device for Westomat dosing furnaces. The innovative pneumatic system is self-contained, thus preventing the melt from reacting with the surrounding air. A riser tube ensures a constant flow rate and laminar flow conditions of the liquid aluminium right into the filling hopper of the dosing system. This makes it unnecessary to tilt casting ladles at great heights and minimizes the risk of accidents. The new filling method is suitable for use in all sizes of Westomat furnaces and can be applied to existing dosing systems, too. On request, it can also be retrofitted to the more than 4,000 dosing systems installed worldwide.

Further information about StrikoWestofen can be obtained from Ceramic and Alloy Specialists on TEL: 011 894 3039



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# Endress+Hauser's E-direct indicators priced right for the market

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The RIA46 has the option of either aluminium housing or the standard reinforced plastic housing. Both indicators adhere to all safety certification and therefore are able to operate in hazardous conditions.

Ease of configuration ensures quick commissioning as the devices offer preset parameters in certain operating environments. The devices can be set-up using Endress+Hauser standard ReadWin software.

Status of the devices can be programmed via an open collector. The inputs and outputs are galvanically isolated from each other. Both indicators are dual input dual output; the outputs can be relay or analogue. This allows the units to be used in a wide variety of applications including those that possibly require math functionality as well as linearization.

The backlight 5-digit 7 segment LC display indicates process values, which are high contrast. Measured or calculated values are shown in white and black while additional information like

TAG numbers, bar-graphs and unit identification are shown in yellow. On the front of the instrument there are membrane switches which enable the user to program the unit manually. The unit allows for maximum and minimum values storage and resetting of these values can be done manually.

Supply for the indicators is either 24 volt DC loop powered or mains 220 volt AC. The onboard 24 volt DC power supply can be used to power-up transmitter loops. The indicators are self-contained as they have a battery back-up to ensure values stored within the unit are not lost during power outages. In addition peak values and occurring events can be logged. Using universal input allows one to configure the instrument to 0/4-20mA current signals, voltage, resistance, RTDs and thermocouples.

Both indicators have a large digital display that can be easily read from a distance. Furthermore the distinctive black and white displays of the RIA45 and RIA46 are unique to the process industry and reinforce Endress+Hauser as market leaders.

The economically priced E-direct product range is part of Endress+Hauser's 'Always in Stock' portfolio and can be shipped within 48 hours from Johannesburg.

For enquires contact Trevor Fletcher, Product Manager: Temperature, Registration and System Components, Endress+Hauser (Pty) Ltd on TEL: 011 262 8000

## CASTINGS INDUSTRIES DIRECTORY

### 2011 Directory of Southern African Foundries & Suppliers

This invaluable reference work covers the whole spectrum of the capabilities of foundries in Southern Africa.

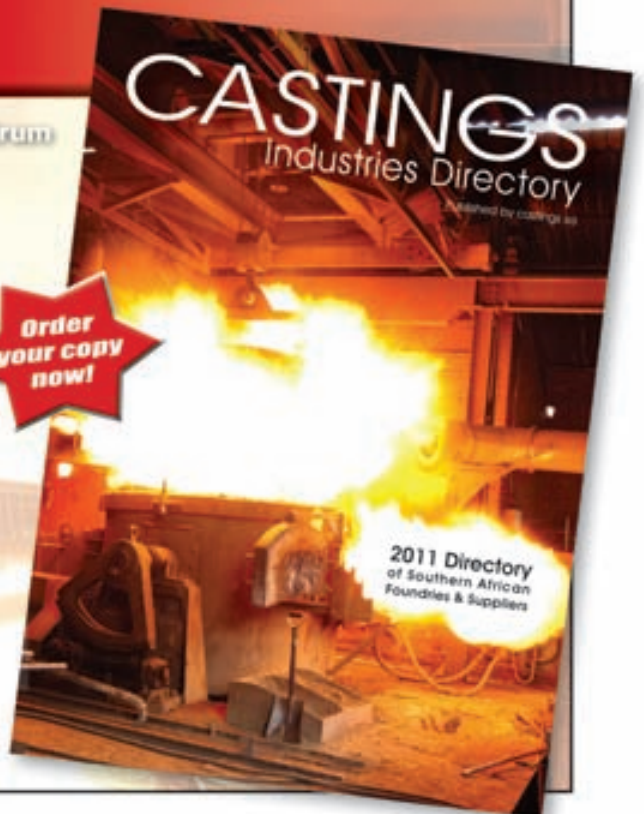
To make it as easy to use as possible we have classified the entries by type of foundry, metals cast, processes, markets served, accreditations awarded, tonnage, capacity, whether the foundry exports or not, and the approximate number of employees.

In addition, the foundries are classified into province, ferrous and non ferrous foundries, diecasters, investment foundries and art foundries.

The Directory also includes a comprehensive listing of suppliers to the castings industry in Southern Africa and these are listed under headings of raw materials, equipment, consumables or service suppliers. Patternmakers, heat treatment companies, recycling suppliers and ingot suppliers are also listed.

To order your copy of the **2011 Castings Industries Directory** @ R300.00 per copy including VAT and postage within South Africa send an email to [wendy@engnews.co.za](mailto:wendy@engnews.co.za) International price on application.

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# New Bruker S1 TITAN handheld XRF analyzer

**B**ruker have announced the introduction of the new S1 TITAN handheld XRF analyzer. The S1 TITAN is one of the lightest X-ray tube-based handheld XRF analyzers on the market today.

The innovative S1 TITAN includes features such as an integrated touch-screen color display, a 50 kV X-ray tube, Bruker's X-Flash® SDD detector, and a rugged housing that is rated for IP54 environmental conditions.

At this time, only the S1 TITAN SDD based instruments for alloy applications are available for a limited sales release in Europe and for the metals market segment. Sales release for additional applications and for other regions will follow later in this year. Within 2012, the S1 TITAN product line will replace the S1 SORTER and S1 TURBO product lines in all regions and applications. However, at this point the entire existing handheld XRF product line (including all the S1 TURBO, S1 SORTER, and TRACER) continues to be available.

The S1 TITAN is available in two models: the S1 TITANLE and the S1 TITANSE. The S1 TITANLE uses a thin film window which allows analysis of up to 37 elements, including light elements such as Al, Mg and Si. The S1 TITANSE is perfect for analyzing standard alloys, as well as high temperature

samples up to 500°C.

S1 TITAN's patent-pending SharpBeam® technology optimizes the detector and tube geometry. The optimized geometry has many desirable effects, including improved measurement precision, reduced power requirements, and increased battery life.

The S1 TITAN covers a wide range of alloy applications and materials. It is capable of analyzing a vast list of materials, including stainless steels, exotic aerospace alloys, e-scrap, precious metals, and more.

The standard configuration includes type-specific calibrations for low alloy steels, tool steels, stainless steels, cobalt alloys, copper alloys, nickel alloys, zinc alloys, titanium alloys, and aluminum alloys. In addition, general calibration for all other alloys (e.g., precious metals, tungsten, zirconium, tin, lead) is part of the standard configuration. The optional bulk calibration for different recycling applications, such as electronic scrap and catalytic converter recycling, is also available.

For more information, contact your nearest IMP branch, Gauteng 011 916 5000, Kwazulu Natal: 031 764 2821, Western Cape: 021 852 6133, Eastern Cape: 041 371 1925, Free State 018 293 3333 or Email: [info@imp.co.za](mailto:info@imp.co.za)

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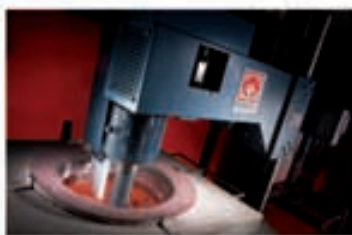
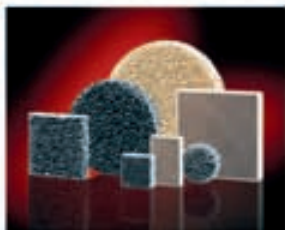


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VESUVIUS

# Achieving furnace lining efficiency

Five tips for an efficient furnace lining, to cut maintenance costs and keep operations running smoothly and cost-effectively.

An efficient furnace lining is essential for reducing overall maintenance costs and ensuring that facilities run smoothly, without unwarranted revenue loss due to downtime. Follow these tips to keep your furnace running efficiently.

## Tip 1

### • Evaluate the furnace liner with IR thermography inspection

Infrared (IR) thermography scans are essential for evaluating the quality of the furnace lining. Lining quality is critical to protect the steel from excess heat and limit heat loss, and to promote overall furnace efficiency. Typically, the scan involves pointing an IR camera at several points on the furnace casing to analyze the outside temperature and identify hot spots where the unit is leaking heat or experiencing design issues that may not be visible from the outside. This is a particular issue with a painted surface.

Obviously, scanning from the outside is of great benefit because the furnace unit can continue to operate. In many cases, specially trained applications engineers conduct the infrared imaging, analyze the IR scans, and provide recommendations on the most appropriate repair options.

## Tip 2

### • Use on-line maintenance repair

Depending upon the furnace's temperature, the difficulty of getting to a particular area, or how big the hot spot is, conduct on-line repairs wherever possible. Most maintenance managers prefer the online repair option because it is reliable, fast, and economical. After all, if the unit is producing and generating revenue, repairing it while it is online will avoid revenue loss, including the losses from having to shut down other connected units.

For example, where IR scans indicate that on-line repairs are recommended, Morgan Thermal Ceramics' pumpable Superwool or Kaowool insulation can be pumped from outside of the furnace, filling cracks and voids caused by deteriorated insulation. Products like these are effective for providing improved thermal insulation efficiencies behind boiler tubes in sidewalls, seals and floors, as well as to repair ovens, furnaces and process equipment. With traditional repairs, the furnace must be shut down and cooled until it is safe for maintenance personnel to enter and repair the lining with fiber blankets, pumpable or monolithic refractories.

## Tip 3

### • Choose the right material for furnace rebuilds

When IR scans indicate that the area of concern is too large for on-line repairs, the unit must be shut down for furnace relining or process heater relining. Material

selection is critical to a successful furnace rebuild that will improve efficiency and reliability, and lower maintenance costs. Material properties, including hardness, density, mechanical resistance, or insulating factor, may vary depending upon the furnace's application. To select the appropriate material for your installation, use a heat-flow analysis software program into which specific temperature and use factors can be applied to obtain information on the appropriate product application.

Keep in mind that many units have old style insulation; since there are so many new, and more efficient insulation types commercially available now, consider upgrading your material choice when reline the furnace. Morgan Thermal Ceramics' Superwool Plus fiber has up to 20% lower thermal conductivity than competitive insulations, for example, and as a result it is rated 17% more energy efficient than traditional refractory ceramic fiber (RCF) and any other alkaline earth silicate (AES) insulations. MTC's advanced manufacturing control allows the product to be engineered to maximize the fiber content. Its low bio-persistence also makes it a good replacement for those plants seeking to move away from RCF insulation.

## Tip 4

### • Carefully consider engineering design

After selecting the proper materials, be sure that the engineering design is suitable. Engineering is particularly important to ensure that the furnace relining is as long lasting as possible. Make sure the materials have enough studs to hold them in place, and have sufficient joints for expansion or shrinkage. For instance, if you install a brick lining without the proper expansion joints, the brick could actually grow and begin to push the entire lining off the furnace wall.

## Tip 5

### • Proper installation is key to success

Be sure that installation of furnace lining material is done properly and the workers doing the job have the proper skills for the task. There are a wide variety of products available and each one has different installation requirements. For example, with concrete products, if the concrete is not mixed with the right amount of water at the proper temperature, the material will not develop, will be difficult to place, and will not reach expected properties. The bottom line is that if you don't install it right, it is just as bad as not having a good design and not making a good choice of material.

Steve Chernack is the manager of applications engineering for Morgan Thermal Ceramics. Learn more at [www.morganthermalceramics.com](http://www.morganthermalceramics.com) or TEL: 011 815 6820