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- Postal Address: P.O. Box 14863, Wadeville, 1422.
- **John Davies** - Tel: +27 (11) 559 6468; Cell: 083 630 2809; email: j.davies@uj.ac.za
- **Executive Secretary** - Tel: +27 (11) 559 6455; Fax: +27 (11) 559 6526; Fax to email: 086 509 7045; email: saif@icon.co.za / mbiljon@uj.ac.za
- Website: www.foundries.org.za

**Contact details for Western Cape:**
- Tel: 021 573 7311; Fax: 021 573 7296; Cell: 072 313 8375

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**EDITOR’S COMMENT**

Are we really interested in increasing the competitiveness of manufacturing in South Africa to create jobs?

Industry, unions and government have been discussing the issue and potential implementation of a duty on the export of scrap metal for over a decade and to date we have no resolution on the way forward.

Various studies from parties “for” and “against” the model have had surveys done and economists analyse the concept and comment accordingly. It appears that manufacturers, foundries and Cosatu support the idea of a duty on the export of scrap however the metal recyclers and scrap dealers are against the idea.

Now Economic Development Minister Ebrahim Patel has published a draft policy directive in the Government Gazette Friday 25 January 2013 aimed at revitalising the industry. The government is proposing drastic measures to further curtail the export of scrap metal and ensure a steady supply at a price that supports local industry and the state’s infrastructure plans. Public comments on the draft policy should be made within four weeks of this date.

Patel’s department said in a statement that increases in scrap exports has deprived steel mini-mills, foundries and other processors of scrap metal of affordable and quality inputs. As a result, the industrial capacity needed for the infrastructure build programme and inputs in downstream industries as well as jobs have been negatively affected, the department said.

Of course the consuming industry would welcome the implementation of the draft policy.

In their response, amongst other points, the MRA are saying that they do not support the proposed preferential pricing model and would rather continue with the existing Itac-issued permit system. They also say the initiative would effectively mean that the scrap industry would be subsidising the foundry industry, and would expose the scrap metal recycling sector to untenable additional cost and risk.

In addition they say that the informal collectors will be hit the hardest because any reduction in the value of scrap will translate on a daily basis into less money to feed their families.

Despite the implementation of the new Second Hand Goods Act, which regulates the purchasing of all scrap metal, we still continue to read and hear the stories of how Joe Public and industry have suffered because of various incidents of theft of metal, in particular copper. This scourge in our society needs to be stopped.

In a conversation I had with a foundry owner he had this to say: “The channel of scrap collection will continue as long as you and I live but it needs be done in a more formal system. If, say, a 30% preferential price system throughout the supply channel is adopted, this will not increase or decrease the cost of doing business for metal recyclers / scrap dealers. The recycle merchants / scrap dealers will still be earning the same rand margins per kilogram of metal but on a smaller turnover. The losers would be the informal collectors and the like because they would be getting less Rands per kilogram and ultimately it would not make the business of metal theft attractive. More importantly local manufacturers will become more competitive and employment will be created, which after all is what the Government is trying to achieve.”

You can read the draft proposal and comments from AFSA, the SAIF and MRA in this issue.
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The Scaw Metals Group is a South African company serving international markets.
Local is “lekker” – Foundry equipment manufacturer Endeco more than proves its mettle as a supplier by completing a number of projects for the local industry

The month of February is always a milestone at Endeco as the company celebrates its anniversary. This month the company enters its 29th year in business.

2012 was a turbulent year in the world economy and a very difficult one for the South African foundry industry. Despite this it has been an extremely busy year for our company in which we have managed to increase not only our turnover but also our total number of employees by 20% because of the projects and contracts that we were awarded” said Luis Dias, CEO of Endeco cc.

“This past year we have manufactured and installed a sand mixing and reclamation plant at Knight Sales foundry in Wadeville, Gauteng and are proud of the fact that the project has shown to be very profitable for our customer.”

“We have also completed phase 2 of the upgrading at Northern Natal Bronze foundry in Hattingspruit, KwaZulu Natal with the successful installation of a 10 ton per hour articulated continuous mixer.”

“At the beginning of their 2012/13 financial year Transnet Rail Engineering awarded us three projects that are intricate to the SOE’s current expansion and upgrading plans for their facilities in Koedoespoort, Gauteng and in Bloemfontein, Free State.”

“We tendered and were awarded two projects for the Koedoespoort foundry. The first involved the upgrading of their green sand moulding capacity with the design, manufacture and installation of two CT5 moulding machines that we purchased from BMM Weston in the UK, complete with roller tracks and two rollovers that were manufactured at our works in Alberton, Gauteng.”

“The second project at Koedoespoort comprised the supply and installation of a chemically bonded sand moulding plant comprising:

- Pneumatic conveying
- A sand silo with 80 ton capacity

A new sand silo with 80 ton capacity that was supplied to Transnet Rail Engineering Koedoespoort foundry

A new sand silo with 80 ton capacity

The new 25 ton per hour articulated continuous mixer that Endeco has recently manufactured and installed at Transnet Rail Engineering Koedoespoort foundry

One of the two new rollover stations manufactured by Endeco for Transnet Rail Engineering Koedoespoort foundry

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“Both of the above projects were successfully completed on time and commissioned to the customer’s satisfaction.”

“Running in parallel to the above was the third project awarded to Endeco by Transnet Rail Engineering. The Bloemfontein foundry required a solution for the screening and cooling of the sand from the existing green sand plant that supplies sand to the three Disamatics that the foundry operates. Again we showed our design skills by designing a compact solution to the problem.”

“We are currently in the final stages of installing a screening section that comprises a rotary screen with a capacity of 100 ton per hour and which comes complete with a sand surge chute, the support structure and a drop out belt conveyor.”

“The project also involved the installation of a 100 ton per hour green sand cooler, which we believe is the first that has been designed and manufactured in South Africa. There are two or three similar systems operating in South Africa but they have been imported from Europe.”

“The above project is due for completion at the end of March 2013.”

“Another successful contract that we were awarded last year saw us manufacture and install a continuous mixer with a capacity of 3 tons per hour complete with a pneumatic conveying and sand silos at McWade Production, an aluminium production foundry based in Midrand, Gauteng.

Future

“Currently we are in the process of completing a pilot project for the production of grinding media for a local mine. On successful completion, a large grinding media project will follow. As we have been successfully involved in two major grinding media projects we see no difficulties in the successful completion of either of the above.”

“Although, as previously mentioned, on the outside it looks as though our industry is going through a very difficult time and our industry does NOT invest in new and high-tech equipment, which is accentuated by the current view of some consultants and prophets of doom, our success in the past year proves that this perception is wrong.”

“With Endeco having had 28 successful years of operation servicing our foundry industry we are confident that we are up to the challenge for the next 28 years and more.”

“Left: A moulders hopper and one of the two CT 5 moulding machines lines installed by Endeco at the Transnet Rail Engineering Koedoespoort foundry

Above: Endeco supplied a feed hopper and coremaking track to Transnet Rail Engineering Koedoespoort foundry. In the picture you also see an existing five ton per hour articulated continuous mixer that Endeco had previously supplied

Left hand bogie centre top moulds and right E-type coupler moulds with centre core

Bogie centre top side cores in the Transnet Rail Engineering Koedoespoort foundry

Two fettled E-type coupler head castings in the Transnet Rail Engineering Koedoespoort foundry. These couplings are used on Transnet wagons

Abve: Endeco supplied a feed hopper and coremaking track to Transnet Rail Engineering Koedeespoort foundry. In the picture you also see an existing five ton per hour articulated continuous mixer that Endeco had previously supplied
The investments we have made in equipment coupled with us employing staff that mostly comprise of young school leavers who are trained in-house to meet our requirements, will certainly ensure the future of Endeco.”

Local is “lekker”

“To all those out there that think we need to involve overseas suppliers to design, project manage and supply equipment to keep our industry up-to-date with the rest of the world, we only have this to tell you “Think again”. South African foundry engineers, suppliers and manufacturers are up to any challenge and will provide innovative and cost effective solutions. We are more than capable of undertaking projects, large or small, to keep our foundry industry moving into the future.”

For more information contact Endeco cc on TEL: 011 907 1785 or visit www.endeco.co.za

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Above: E-type coupler centre cores made on the new core line
Left: An E-type coupler mould

Geloep Snyman and Kobus du Plessis, both of Transnet Rail Engineering Foundry Division

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South Africa’s state-owned Industrial Development Corporation (IDC) says it is aware of the capital constraints that continue to hinder Scaw Metals from realising its growth ambitions and that are constraining it from playing a more meaningful re-industrialisation role.

Resources group Anglo American reported that it had completed the sale of South African steel group Scaw to a consortium led by the State-owned Industrial Development Corporation. The IDC acquired Anglo American’s 74% interest for R3.4 billion.

The remaining 26% of Scaw, which produces steel and a range of steel products for the mining and infrastructure markets, is divided between a black economic-empowerment (BEE) consortium, comprising Izingwe Holdings, Cyril Ramaphosa’s Shanduka Resources and the Southern Palace Group of Companies, which hold 21%, and an employee share ownership scheme, which owns the 5% balance. The Southern Palace Group of Companies, which is led by Sello Mahlangu and has investments in steel, manufacturing and recycling, as well as in the automotive and information communication technology sectors.

Anglo announced the disposal on April 24, 2012, following the sale of Scaw’s international businesses, Moly-Cop and AltaSteel, to Onesteel in December 2010 for $932 million.

The IDC participation in the deal was driven by its desire to reinforce Scaw’s role in South Africa’s industrial, beneficiation and manufacturing landscape.

The company produces a range of specialised components for the mining, rail, power, offshore oil and gas and construction sectors. It has four product-focused business units producing high chrome and forged grinding media; steel rope, chain and wire; cast steel products; and rolled long steel products.

IDC Divisional Executive of Mining and Manufacturing Abel Malinga said “It is critical to maintain and deepen the industrialisation of the economy by refocusing the beneficiation strategy to support fabrication and manufacturing. Scaw’s activities are in the last phase of beneficiation, which is job intensive, and therefore this acquisition is in line with the IDC and government’s strategic objectives.”

“This puts the IDC in a unique position to make the necessary investments to grow Scaw’s operations, supporting beneficiation, infrastructure development and South Africa’s economic growth. Moreover, the acquisition affords South Africa an opportunity to improve our intra-trade within the African continent in the supply of mining consumables and rail infrastructure.”

“High steel input costs inhibit the development of a robust and sustainable downstream steel fabrication industry to the detriment of job creation. As a leading diversified South African fabricator, Scaw has the potential to be a key supplier to planned infrastructure and construction programmes. IDC aims to leverage existing strengths within the business, to grow the entity into a global player.”

He also confirmed that it was not the IDC’s preference to have a controlling interest in any of the companies or projects in which it invests, but did not offer an indication as to its long-term plan for lowering the Scaw shareholding.

Malinga also said the deal was “perfectly” aligned with the IDC’s mandate of promoting the deepening of industrialisation and the widening of the country’s manufacturing abilities. He said the IDC would support Scaw’s management and its 8 000-strong workforce to improve the company’s ability to manufacture quality products at competitive prices.

Scaw CEO Christopher Davis said there was significant market opportunity in the South African and African mining, rail and power milieus and that the new ownership structure positioned the company to capitalise on these growth prospects.

He said the company would also seek to capitalise on the local content opportunities arising around the capital programmes of entities such as Eskom, Transnet and the Passenger Rail Agency of South Africa.

A number of expansion and modernisation projects would be presented to the new shareholder in the coming months. But Davis acknowledged that the group’s balance sheet was a constraint on its ability to pursue all the South African and African expansion opportunities that were currently available to it.

But the IDC’s role in the acquisition led to some competition authority scrutiny, owing to the fact that the development financier also has a 7.9% stake in South Africa’s leading steel producer ArcelorMittal South Africa (Mittal), which, in turn, has a joint venture with Scaw in the form of Consolidated Wire Industries.

Rival wire supplier Allens Meshco raised objections to the deal, arguing that the shareholding structure created a conflict of interest for the company and the Scaw and Mittal boards for as long as the IDC retained a shareholding in Mittal.

The conditions, therefore, included a stipulation that the IDC refrain from appointing the same individuals to the Scaw and Mittal boards for as long as the IDC retained a shareholding in Mittal.

The tribunal also insisted that the IDC should ensure that there was no sharing of competitively sensitive, non-public information between the management teams responsible for the IDC’s interests.
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The trade and industry committee was barraged with input from industrialists who told MPs in no uncertain terms that more electricity cost hikes would kill jobs, drive some jobs abroad and close down companies.

MPs were told that, according to a survey of 40 foundries, 1 132 jobs had already been lost because of massive Eskom power increases since 2007, which were made worse by municipal mark-ups of up to 700 percent. Eskom has threatened another 15 years of above-inflation increases.

The National Foundry Technology Network’s Adrie El Mohamadi listed seven foundries that had closed in the last three years. “Employment is estimated to have reduced by between 10 percent and 15 percent since 2008,” she told the committee. Foundries are believed to employ about 15 000 workers countrywide.

The foundries – factories producing metal castings using aluminium, cast iron or steel – that had closed included Eclipse West Plant, part of the Scaw Metals Group, which had closed in 2010 and resulted in 500 lost jobs. The same year Eclipse East Plant partially closed its plant. Last year Eclipse Dimbasa in the Eastern Cape closed with 350 jobs lost.

Scaw Metals Group, which has operations in South America, Canada, Australia, Namibia, Zimbabwe and Zambia, produces steel and alloy iron castings, alloy cast iron and forged steel grinding media, chain, steel wire rope, strand and wire products for the construction, railway, power generation, mining, cement, marine, engineering and agricultural markets.

South African foundries mostly tend to supply the automotive and mining sectors and are concentrated in Gauteng, Western Cape, Free State and Eastern Cape.

In 2011, 22 jobs were lost when Krynies Brothers in Fordsburg, Gauteng, closed, while Belmece Die Casting, in Uitenhage in the Eastern Cape, closed with 70 jobs lost. It was part of the Bel-Essex Corporation. It specialised in the production and machining of high pressure die cast components for Ford, Volkswagen and Audi.

Towards the end of 2012 Crown Cast in Boksburg closed its doors with 130 jobs lost. It manufactured a large range of cast components used in the manufacturing of pumps, valves, hose fittings and pipe couplings for the mining industry.

It is understood that there are a number of foundries across the country that are teetering on the brink.

Two Nelson Mandela Bay foundries will be calling on the trade and industry committee to put a stop to above-inflation increases for power tariffs. They are Borbet, which makes automotive metal parts, and Shatterprufe, a subsidiary of the PG Group which makes automotive safety glass.

According to Nelson Mandela Bay Chamber of Commerce chief executive Kevin Hustler, all would argue that rocketing electricity costs were putting their jobs in danger.

Shatterprufe financial director Trevor Thomas said that costs of electricity to power its Port Elizabeth plant had rocketed from R24 million to R50 million.

The municipality charges a mark-up of about 540 percent on the Eskom price.

“Through our benchmarking we have worked out we are paying more for electricity than in Europe,” he said.

David Mertens, of the National Foundry Technology Network and also the chief executive of Autocast in Port Elizabeth, said there were 2 500 power tariff regimes in the country. “We [industry] are the milk cows of municipalities.”

In Nelson Mandela Bay electricity revenue was R3 billion a year. None of that money was reinvested in electricity.

Mertens cited an example of an industrial company with a turnover of R200 million. It would pay about R32 million a year for electricity. If it relocated to Cape Town, with lower municipal mark-up rates, it would save R4 million of that. If it was supplied directly by Eskom, it would save R10 million a year.

He noted that competing businesses in Germany faced stable prices for the next three years and could plan accordingly. In South Africa the price of electricity was about four times higher than in Germany.

National Energy Regulator of SA regulatory specialist Charles Geldard had previously told MPs that electricity prices, especially with municipal top-ups, were reaching “a tipping point”.

It has also been reported that the future of the Eastern Cape-based Borbet South Africa, which produces about 1.2 million alloy wheels a year for the automotive industry, hangs in the balance. Insiders said that the company was in trouble because its electricity bill with the Nelson Mandela Bay metro municipality had rocketed, “impacting on our export ability” one worker said. About half of the alloy wheels are exported.

There has been no official comment from Borbet.

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**Power prices hit foundries hardest**

In November last year a delegation from industry presented argument against the proposed electricity hikes. The following report, which appeared in a number of local newspapers, gives an outline to their presentation.

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Designation of further products for local procurement in the public sector procurement system

DTI names more products, including valves, manual and pneumatic actuators, affected by local-content regulations.

The Department of Trade and Industry (DTI) has announced that valves, manual and pneumatic actuators, electrical and telecommunications cables, as well as solar water heater components had been designated for local production and as such require specified local content levels in the public sector procurement system.

Trade and Industry Minister Dr Rob Davies signed the necessary authorisation in terms of his powers under the amended Preferential Procurement Policy Framework Act (PPPFA) regulations.

The National Treasury would, in due course, circulate the instruction notes which would regulate the environment within which government departments and public entities procured designated products. The instruction notes would have specified minimum local content thresholds.

Sectors already designated for local production with minimum local content thresholds were rail rolling stock, power pylons, bus bodies, canned or processed vegetables, certain pharmaceutical products, furniture products, and the textile, clothing, leather and footwear sector.

Public procurement was one of the key industrial levers in the Industrial Policy Action Plan (IPAP).

The amended PPPFA regulations, which came into effect on December 7, 2011, empower the Trade and Industry Minister to designate industries, sectors and subsectors for local procurement at specified levels of local content.

The designation policy instrument was one of a suite of policy levers designed to maximise support for domestic manufacturing. The others are the Competitive Supplier Development Programme, which is led by the Department of Public Enterprises and governs the procurement programmes of State-owned companies, and the National Industrial Participation Programme (NIPP).

This instrument obliged overseas companies, which won tenders valued at more than $10 million to provide ‘offset’ obligations through investments in the domestic economy.

At the end of 2012, Cabinet signed off on a set of policies which tightened the NIPP framework, closed existing loopholes and aligned the policy with other public procurement instruments.

Details of these provisions would be made public when the new regulations were signed off by Davies.

The DTI was confident that local production of designated products would help stimulate aggregate demand and strengthen support for the domestic manufacturing sector.

In so doing, the deployment of procurement policy levers was an added incentive for foreign direct investment in the production sectors of the economy.

“In the year ahead, the DTI will significantly scale up designations and other procurement policy levers in support of domestic manufacturing.”

“This will be done at the same time as the department deploys a range of other supportive and interlocking instruments to raise the competitiveness of South Africa’s manufacturers. This will be done in close collaboration with business and labour,” said Davies.

Further detail of these measures would be set out in the 2013 IPAP, which would be launched in April.

For further detail contact Bongani Lukhele – Acting Chief Director: Media Liaison on TEL: 012 394 1643

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South Africa replaces India as China's No 3 iron-ore supplier

South Africa overtook India to become China's third-biggest iron ore supplier in 2012, while Australia strengthened its dominant position as the major supplier to the world's biggest iron ore consuming nation, data from customs showed.

South Africa provided 40.6 million tons over the year, up 12% compared to 2011, while Indian imports declined 54.74% to 33 million tons.

Indian authorities have been cracking down on chaotic and illegal iron-ore production, with the state of Goa - one of the country's biggest suppliers - imposing a blanket ban on all mining activities last October.

Supplies from India amounted to 10.6% of China's total imports in 2011, but were already disrupted by a mining ban in Karnataka, India's biggest iron-ore producing state.

India's share of total imports into China has been in steady decline for several years, falling from 23% in 2006 to just 4.4% last year.

The biggest beneficiary of the Indian supply crunch has been Australia, China's top supplier by far. It delivered 351.5 million tons, or 47% of China's total imports over the year, up from 43% in 2011, and its dominance is likely to increase further in 2013.

"This year should be the year of Australia taking an increasing market share on the global iron ore market," said Graeme Train, commodities analyst with Macquarie in Shanghai.

"Brazil is not going to see any growth with Vale guiding for negative volumes - the vast majority of growth on the seaborne market is coming from Australia."

Australia's position in China is also likely to be strengthened if the European iron and steel sector starts to recover this year, allowing the likes of South Africa and Finland to divert deliveries back to their traditional markets.

India's ranking has plunged throughout the second half of the year, with monthly shipments eventually falling behind the likes of Mauritania, North Korea and Finland to come in at twentieth place in December.

Supplies from India are not expected to recover in the near term, and are unlikely to reach previous high levels, said Train.

"I think India can recover to some extent - they are going through a process of cleaning up illegal operations and eventually it will get back on line, but it will be at severely reduced volumes relative to where they were historically."

China imported a record of 743.6 million tons of iron ore in 2012, up 8.4% on the year.
Winner of the 2006 South African Bureau of Standards (SABS) Award for the Best Product in South Africa, Hot Platinum (HPT) is one of a select number of South African companies leading the way in developing and manufacturing innovative induction heating systems for processing precious and base metals.

New technology resets efficiency benchmark
In an era of rapidly increasing electricity rates and production costs, the foundry industry is bound to sit up and take notice of HPT’s introduction of significantly more energy efficient solutions to the industry.

“Our technology may be new to the foundry industry, but has been proven over a number of years across a wide range of applications in the mining sector and commercial heating sectors,” explains founding member and Managing Director, Ali Brey.

Simply put, HPT’s generators use isolated gate bipolar transistors, or IGBTs, compared to conventional SCRs (silicon controlled rectifiers). This combined with their sophisticated control technology and system design, leads to efficiency savings of up to 30% compared to older technology. “IGBTs are more dependable and efficient than conventional technology. Although commonly used internationally, it’s fairly new in South Africa, especially in the high power range,” added founding member and Technical Director, Irshad Khan.

HPT is now introducing this fourth generation technology to the foundry industry. The Induction Tilt Melter (ITM Series) combines cutting edge induction heating technology, system design that draws on expertise from numerous other industries, and a high level of automation into a range of furnaces that are more compact; easy to use; and extremely energy efficient.

The ITM Series ranges from as little as 10kW to 500kW and can process from 20 kg up to one ton of steel across a wide heat range, from 300˚C to 2500˚C, making it suitable for a wide range of applications. Modular systems for high volume applications are available that can generate up to two megawatts of induction power.

The ITM Series’ double axis tilting system allows for reduced spillage. “We have been able to optimize the design of the tilting system by moving away from the traditional method of a single axis pour to a double axis pour. This minimises movement of the molten metal stream during the pour, and has a huge impact on safety and also the spillage of metal,” says Khan.

Compact design
HPT’s generator design is approximately 50% to 75% more compact than conventional technology. This does not only save on space requirements, but the simpler, more compact design makes it easier and more cost effective to build and maintain.

Because components and labour are sourced locally, HPT’s IGBT technology is more cost effective compared to conventional systems. “Our input costs are not subject to exchange rate fluctuations and components are on hand, which eliminates unnecessary down time waiting for imports,” says Khan.

Client specific customisation
Because it’s locally developed, HPT’s induction heating system allows for a high level of system customisation, increasing usability and overall efficiency. The system can for example be configured to power either silicon carbide or clay graphite crucibles, or operate with a rammed lining suitable for mild and stainless steel smelting.

The system displays actual kilowatt-hours used to process metal and owners can factor this into their costing. “IGBT technology allows clients to reduce base costs, with multiple output capability on the induction side,” continues Khan. “The drying out of a crucible lining usually takes about 24 hours, costing an entire production cycle. Our clients have the option of using one induction power pack to power two furnaces simultaneously and because of the intelligent technology, an 80% capacity will be maintained on the second melting furnace head with continued production whilst utilizing the 20% for drying the second furnace lining without increasing the demand on Eskom,” he explains.
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A maximum power demand of one megawatt can now be split over three furnace units, intelligently shifting energy from one unit to the next without increasing demand on the national grid.

Some of the other benefits of the technology for the end-user include the following:

- An estimated 30% decrease in energy use
- Reduced times for melting metals of up to 50% using the multiple output capability
- Improved safety in the production by the elimination of spilling
- Active control of power and speed of casting during the melting process
- The technology is compact, being up to 75% smaller on the generator
- The system ensures a high level of technical support, reducing downtime
- The system can be configured for multiple outputs
- There is an automated preheating and conditioning of the crucibles or rammed lining, increasing their life span

Smart technology allows high level of automation and reliability

HPT merges innovative induction heating technology with its design, resulting in a system that is easy to use, more energy efficient and with a high level of local technical support and back-up service. Technical service is critical and smart technology through an integrated GSM link-up allows for integrated remote monitoring whereby an off-site diagnosis of potential faults can be made.

“This means our technicians can arrive with the right components to fix the problem, resulting in a quicker turn-around and less down-time,” explains Brey.

“Our technicians were all involved with the design and manufacturing of our induction systems and this provides them with unique knowledge to pinpoint problems and recommend solutions that impact least on clients’ productivity;” Khan adds.

Small beginnings, big aspirations

For Khan, it all started as an academic research project on induction heating at the University of Cape Town in 1996. Teaming up with Ali Brey saw them applying for government funding in 2002 for further technological research and in 2005 HPT was spun off. In 2006 finance from JSE listed investment holding company, Brimstone (JSE: BRN) was obtained for further expansion.

“Our early exposure to the high temperature space has resulted in us having an in-depth understanding of ceramic technology. We know what ceramic to apply to which metal in order to make the application feasible in terms of the thermal and mechanical stress capability,” comments Khan.

HPT launched their first 2.5kW system aimed at the jewellery industry in 2005. Since then, the company has established a very strong reputation in the mining sector, having used their technology in a number of other applications such as melting, casting, brazing systems, heat treatment, hardening systems and vacuum systems for specialised applications.

Some of HPT’s clients in the mining industry include Anglo American Group, Lonmin, Impala Platinum, Richards Bay Minerals and Mintek. The company has also worked with other companies outside of South Africa including the DRC, Zambia, Zimbabwe, India, USA, Thailand, Russia and Denmark. It is this track record that led to the company being recognised by the SABS in 2006, and were also awarded the Chairman’s Award for Design Excellence, making them the first black owned company in 36 years to ever win this award. The company has gone on to win further awards for its Management of Innovation in the Technology Top 100 Awards.

HPT currently employs 13 highly skilled staff and fully manufactures all their systems for the South African and export markets at its head office situated in Killarney Gardens, Cape Town and will be opening up a Johannesburg office in the second half of 2013.

Driven by entrepreneurial flair and academic background in engineering, the founders believe HPT is set for even greater achievements. “This is a long-term play for us – we work very hard to make sure HPT’s reputation for innovative solutions and service delivery ensures the growth of the company into the future,” admit Khan and Brey.

The company approaches each transaction with its clients as a partnership to ensure that the end-user receives real value from the product. The ITM Series is a technology that can regenerate the foundry industry and make it internationally more competitive through its significant cost savings, wide range of applications, reliability and home-grown technical back-up.

For further details contact HPT on TEL: 021 556 8469
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Industry bodies, government and labour have signed a “Buying Local Pledge” in an effort to promote procurement of locally manufactured goods and services.

The signing took place at Proudly South African’s (Proudly SA’s) second Buy Local Summit, in Johannesburg, which also marked the launch of the organisation’s festive season Buy Local Campaign.

The pledge, which Trade and Industry Minister Dr Rob Davies and Economic Development Minister Ebrahim Patel signed on behalf of government, served as evidence of the trade and industry sector’s commitment to boosting the economy through local procurement, Proudly SA CEO Lesile Sedibe said.

The Community Constituency, Business Unity South Africa, the Manufacturing Circle and the Federation of South African Labour Unions also signed the pledge.

The signing coincided with the launch of Proudly SA’s Local Procurement Accord Database on its website www.proudlysa.co.za. Local manufacturers and services providers which are tax compliant and registered for value-added tax can register on the database, which is visited by companies seeking specific products or services.

“All their details, including their industry, subsector, black-economic empowerment ranking and physical address will be available for interested parties.”

“What we are trying to achieve is local procurement of products and services,” Sedibe noted, adding that the database was a “significant turning point” for Proudly SA.

Meanwhile, Davies said the Department of Trade and Industry (DTI) was working on a new wave of designations, which included solar water heaters, school and office furniture, as well as cables that would be applied in infrastructure programmes going forward.

Last year, the Preferential Procurement Policy Framework Act was promulgated under which the DTI stipulated sectors and products that departments, agencies and State-owned enterprises had to procure from local manufacturers or providers.

The first wave of products was designated, and this included rolling stock, buses, canned vegetables, clothing, textiles, footwear and leather products and set-top boxes, while certain pharmaceutical products were selected in the wave of designations.

Davies also said that the DTI would also launch a website in the near future that would serve as a monitoring system and platform where parties could inform the department of cases where regulations were not implemented.

Information regarding misconduct would be submitted by email or a call centre line.

“No single policy, instrument or initiative on its own will turn back the tide; the successful utilisation of all policies instruments we have, including that of localisation and local procurement, can have a very discernable impact,” Davies stated.

Patel said the argument for local procurement was already made, and that the task would now be to shift consumer decisions, which were mostly biased towards imported products, as the local equivalents were suffering under a questionable reputation as far as quality and cost was concerned.

“We need to change our national sentiment. We need to change the mind-set of procurers and ordinary individuals to make conscious choices in favour of buying South African,” the Minister indicated.

Further, Deputy President Kgalema Motlanthe pointed out that as the country sought to promote South African products, it must do so well aware that its people, as consumers, were spoiled for choice.

“This challenges us to be more competitive in terms of quality, price and desirability of South African goods.

“Proudly South African must, therefore, continuously improve ways to develop and identify unique selling points of South African goods so that consumers find them more appealing than imported goods,” he said.

Motlanthe urged government, organised labour, manufacturers and retailers to work together in support of the 52 Proudly South African programmes to achieve these goals.
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Top smelter engineering firm Metix, which forms part of the international SMS Siemag Group, has developed energy saving solutions that enable co-generation of power for the local furnaces industry.

As the persistent rise in the cost of electricity in South Africa continues to place industries under increased pressure to save energy, Metix has launched an integrated combined heat and power (CHP) energy system that enables the co-generation of electricity and heat from a single fuel source, such as process gas or waste heat from metallurgical processes.

Metix deputy sales director Klaus Schmale explains that up to 40 per cent of the energy generated during the smelting process in a furnace escapes with offgases, which are always hot and loaded with energy. “Metix offers energy recovery systems for the steelmaking and ferroalloy industries, which can benefit from saving up to 55 per cent of this waste energy.”

Schmale notes that CHP systems can be modified to the requirements of the end user. “Owing to their higher efficiency, CHP systems use less fuel to produce a given energy output. What’s more, higher efficiency results in reduced emissions, increased reliability and a higher power quality. These efficiency benefits also lead to economic benefits, which is apparent in reduced energy costs.”

In ferroalloy production, Schmale points out that semi-closed type and closed type submerged arc furnaces (SAF) are ideally suited for energy recovery. “The carbon monoxide (CO) and hydrogen (H2) generated by semi-closed type furnaces are completely burned away as a result of the false air that enters the furnace via the doors and other openings,” he explains. “In these applications, large amounts of fully combusted offgas with high amounts of sensible heat is generated at temperatures of about 650 °C. The offgas of closed type furnaces is up to 1800 °C, and contains large amounts of chemical energy in terms of CO and H2.”

According to Schmale, Metix is able to generate power by using this offgas with a process gas-fired boiler combined with a turbine and a generator unit. “The boilers burn low calorific value process gas with special burners in a combustion chamber. Our standardised boiler is a two-pass boiler - the first pass is the combustion chamber, while the heat exchangers such as superheaters, evaporators and economisers are located in the second pass.”

Following this process, Schmale explains that the superheated steam runs the turbine island to produce steam, and boilers using up to 360 tons per hour of steam at 540 °C can produce up to 160 MW of electrical energy, depending on the heat source. “Co-generation ensures a directly controllable and constant price of energy, as opposed to sourcing electricity from the national grid.”

Although the Metix CHP system has not been adopted in South Africa to date, Schmale points out that a Turkey-based ferrochrome producer ordered the energy recovery solution that will be connected to two of its semi-closed SAFs. “The system is expected to start up early in 2013 and will produce steam, which will be used in a steam turbine with an attached power generation unit to produce 5 MW of electrical energy. The client expects an amortisation period of less than three and a half years, while the energy recovery unit is expected to save over 25 000 tons of direct CO2 emissions yearly.”

Looking to the future, Schmale is optimistic that the Metix CHP system will add considerable value to the South African market in the long term. “We also plan to approach Eskom to present the features of the technology and discuss how it can help overcome the shortfall in electrical energy. We are hopeful that Eskom will support the introduction of the Metix energy recovery system as part of its range of energy saving initiatives in the long term future,” he concludes.

For more information contact Metix on TEL: 011 676 2300
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JSE-listed Infrasors has announced that subsidiary Delf Sand had received environmental approval after having had to go through an appeal process from the Gauteng Department of Agriculture and Rural Development to allow mining, beneficiation and infrastructure development at its Delf Cullinan alluvial silica-mining project.

The environmental approval allows the Delf Cullinan project to start with its activities and is in addition to the general water authorisation granted by the Department of Water Affairs in November 2012.

The alluvial silica mining and beneficiation project would include infrastructure developments such as access roads, buildings, water reticulation dams, air emission structures due to the drying of the sand and silica beneficiation plant comprising of washing, sizing, grading, drying and dry storage facility.

“Receipt of this environmental approval represents another key milestone as we develop South Africa’s largest high-grade alluvial silica mine to supply beneficiated alluvial silica products to the foundry, glass and tile-adhesive industries,” Infrasors CEO Trevor Robinson said in a statement.

Afrimat control of Infrasors

Meanwhile Afrimat has announced that it had made an offer to acquire 50.4% of Infrasors Holdings from Hanchurch Asset Management and a number of retiring Infrasors managers, which had been accepted by the sellers.

The proposed transaction would grant Afrimat control of Infrasors.

Infrasors is a South African resources group, active in the mining and beneficiation of minerals used in the industrial, metallurgical, mining and construction sectors.

Infrasors was initially listed on the AltX market of the JSE in April 2007, but transferred to the main board in February 2010. Infrasors’ mining interests include the Lyttelton Centurion dolomite mine, the Marble Hall limestone mine and the Delf alluvial silica sand operations.

The Delf Sand Mine specialises in the mining and beneficiation of an alluvial sand deposit located at Donkerhoek near Cullinan. The alluvial deposit is opencast mined for its high silica content (SiO2 greater than 96%). A by-product of the opencast mining is the recovery of a high quality plaster sand which is supplied into the local construction industry.

The mine is a leading supplier of washed, screened, graded and dried high content silica sand to the foundry, tile adhesive manufacturers, golf courses and recreational markets and the local construction industry.

The mine has developed its own method of grading the sand using an in-house designed jetsizer. The jetsizer is adjusted to meet the required AFS grading for the particular industry. The second key component is the drying process. The mine has 4 dryers of various sizes installed, creating a drying capacity in excess of 300 000 tons per annum. The complete beneficiation process has a capacity of 430 000 tons per annum.

Infrasors started an operation in KwaZulu-Natal in 2010 before forming a JV and subsequently acquiring a similar operation, Spec Sand, in 2011. This facility is based in Tongaat, KwaZulu-Natal and has a capacity of 95 000 tons per annum.

Afrimat said the transaction had been unconditionally approved by the Competition Commission on October 24, 2012. The finalisation of the acquisition would be subject to approval by Afrimat’s board of directors and the JSE, among others.

Afrimat offered 35 cents a share for Infrasors and would settle the purchase price in cash upon implementation of the transaction.

Afrimat said the acquisition would “complement and augment” its industrial minerals and aggregates product offerings and further expand its geographical footprint across South Africa. It would especially grow its foothold in the industrial minerals and aggregates markets in the northern provinces, negating the need to create more capacity to service these markets.

The company said its intention was to take control of the Infrasors board and to implement its management practices and business processes throughout the group.

For further details contact Infrasors Holdings (Pty) Ltd on TEL: 011 234 0109

The Delf Sand facility in Cullinan

The Delf Sand Tongaat, KwaZulu-Natal facility has a capacity of 95 000 tons per annum
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Increases in scrap exports had deprived steel mini-mills, foundries and other processors of scrap metal of affordable and quality inputs.

The government is proposing drastic measures to further curtail the export of scrap metal and ensure a steady supply at a price that supports local industry and the state’s infrastructure plans, according to a Business Day report.

Economic Development Minister Ebrahim Patel published a draft policy directive in the Government Gazette Friday 25 January 2013 aimed at revitalising the industry. Public comments on the draft policy should be made within four weeks of this date.

His department said in a statement that increases in scrap exports had deprived steel mini-mills, foundries and other processors of scrap metal of affordable and quality inputs.

“As a result, the industrial capacity needed for the infrastructure build programme and inputs in downstream industries as well as jobs have been negatively affected,” the department said.

The directive proposes the prohibition of the export of ferrous and nonferrous waste and scrap metal unless it has first been offered to domestic users at a discount determined by the International Trade Administration (Itac).

Mr Patel proposed that this policy be in place for five years and then reviewed.

In terms of the International Trade Administration Act, Mr Patel has already prescribed that ferrous and nonferrous metal may not be exported without an Itac-issued permit.

The draft directive provides for foundries, mills and smelters of scrap to be given first option to purchase scrap for which an export permit is applied for at a predetermined price preference level. An export permit will only be approved if local users have not taken up the offer to purchase the scrap after 30 working days.

The directive further introduces several administrative measures for the registration of scrap exporters. The industry will be given four weeks to comment on a preference price model for local use before export, and how much lower the price should be than the Metal Bulletin price for a Rotterdam warehouse (the export price).

South African Institute of Foundrymen CEO John Davies welcomed the draft policy, saying it would offer an opportunity to propose a competitive price preference model for local consumption before export. A total of 3.5 million tons of scrap metal is collected annually in South Africa and at least 1.5 million tons were exported last year.

Mr Davies said there was a strong suspicion that a large volume of copper scrap exports were derived from “illegal activities”.

The department said it would be difficult to grow local machinery and equipment manufacturing without a competitive value chain. The failure of the local foundry industry to respond to increased demand for metal because of the National Infrastructure Plan and the Industrial Policy Action Plan would lead to greater levels of imports.

“That would expose the infrastructure-build programme to import risks (and) to currency fluctuations,” the department said.

One of the policy options Mr Patel considered in consultation with Trade and Industry Minister Rob Davies was an outright ban on scrap metal exports.

Mr Patel decided this was “too harsh and too trade-restrictive”, the department said.

The industry will be given four weeks to comment on a preference price model for local use before export, and how much lower the price should be than the Metal Bulletin price for a Rotterdam warehouse (the export price).

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Export curbs on minerals such as platinum and iron ore

Meanwhile Reuters has reported that South Africa wants to impose export curbs on minerals such as platinum and iron ore as part of a drive by the ruling African National Congress to create more jobs in industry in the continent's biggest economy.

The policy proposals from the Trade and Industry Ministry are meant to encourage more processing of minerals domestically but are unlikely to go down well with mining companies already being threatened with windfall taxes on their profits.

Speaking on the sidelines of an ANC conference in Bloemfontein, ministry director general Mr Lionel October said that firms would only be required to set aside small amounts for sale locally at an unspecified discount.

Mr Lionel said that “Our competitive advantage is access to the raw materials. That is why we must give access to the raw materials at developmental prices.” He did not elaborate on the definition of small.

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See responses from AFSA, SAIF and MRA on the following pages.
Aluminium Federation of South Africa (AFSA) statement


The significance of this step by Government cannot be overstated. AFSA welcomes and acknowledges the work done by Government in developing the guidelines, and will do everything in our power to support Government.

Aluminium scrap is the key input material to secondary smelters and foundries. This industry has declined steadily since 2000 in terms of foundry closures, reduced output and reduced employment. The export parity price of aluminium scrap and quality of scrap on offer has worked to the detriment of the industry. This is identified and recognised in the Draft Policy Directive.

This is not only potentially a breakthrough for the secondary smelter and foundry industry, but other users of scrap e.g. extruder, the rolling mill and customer for deoxidants and aluminium powders (explosives, flocculants, hygiene products).

There is a 30 day public comment period in which AFSA will be developing a sector response with other key stakeholders and members.

Members will be aware that AFSA foresaw a worldwide shortage of aluminium scrap about 15 years ago. As environmental regulations tightened around vehicle emissions, car and truck manufacturers identified lightweighting as a means to achieve the necessary reductions in CO2 (GHG) emissions. The aluminium content in automobiles has increased steadily from around 20kg/vehicle to 130kg/vehicle. (Every 1kg of aluminium used in a car saves 20kg CO2 emissions over the vehicle’s lifetime).

Recovering and expanding the aluminium foundries in the automotive supply chain has numerous benefits: local production of the high value drive train components, local value add (to scrap) and job creation (casting, fettling, machining, assembling, fitting), and contributes to reduced GHG emissions.

Response from the South African Institute of Foundrymen (SAIF) to the proposals on scrap export permit applications as outlined in the Government Gazette Number 36090 notice

The Government Gazette Number 36090 clearly outlines the situation that has developed in the South African foundry industry in terms of both its important place in the supply chain for the infrastructural development programme of the Government amongst others and its contraction brought about by several factors, of which the relatively high input cost of metal scrap is a major contributor.

In this context the proposals to ameliorate the input cost of metal scrap are welcomed, as it once again creates an opportunity for discussion with the recyclers and authorities. The input streams for the foundry industry differ depending on the metal type, alloy and grade or quality of material.

It is important to note that nearly all the local ferrous foundries are melting scrap using electric arc or coreless induction furnaces. The latter types of furnaces are predominantly used and require a higher quality of steel scrap supply than some other consumers. In order to provide the correct quality, size and cleanliness of material, either the material has to be sourced from “new off-cuts” or from additional beneficiation of certain grades of “end of life” material. This material has not been made continuously available for foundry use, resulting in lower efficiency melting operations with the consequent increased costs. When available, the premium price paid for the material has rendered local foundries to fail to match the imported costs of products offered by competing countries that enjoy several forms of assistance or protection.

The SAIF, has, for many years, in co-operation with several other users, worked together with the metal recycling industry to seek mutually beneficial solutions to the problem of availability, quality and affordable pricing, of metal scrap, and we are currently working together on developing further proposals to achieve some form of relief for foundries with respect to their raw material input costs.

The gazetted proposals include certain provisions, which, from the supply side, may appear onerous, affecting “free market” principles, but it remains vitally important that a viable and sustainable metal casting industry is supported, if the IPAP and localisation objectives and opportunities are to be achieved, and so further opportunity to develop the proposals is welcomed.

At the time of going to press the SAIF is still awaiting response from its members in order to formulate a more comprehensive response.
Metal Recycling Association (MRA) response

The MRA has engaged with the DTI, ITAC and Treasury consistently for many years on this subject. We have mandated surveys by several highly respected people and research groups, including one by Dr Simon Roberts of the Wits Business School (done jointly with the DTI) in 2006, another by ECONEX of Stellenbosch in 2009 and one by CONNINGARTH presently in the final draft stages (in conjunction with the foundry sector under the auspices of NEDLAC).

These reports indicate that, inter alia, there was ‘no shortage of scrap locally, that prices were actually lower than those paid by overseas consumers, and that local scrap-consumers were constrained by years of underinvestment which has resulted in them being inefficient’. ITAC already have an export permit system in place, which since 2004 provides local consumers first option on scrap for a period of 10 days, prior to export permission being granted.

To date, as far as we can ascertain, no consumer has used this procurement opportunity to purchase materials. The reason for this is because the nature of the industry is such that local buyers have long-standing supply arrangements with their preferred scrap metal suppliers. These consumers allocate tonnage requirements to their regular suppliers, and negotiate prices which both parties are happy with to satisfy that tonnage requirement. This price is therefore an ‘export parity’ price, where you start with the prevailing international free market value of the scrap and deduct all of the freight, harbour and inland costs to arrive at a local price.

It is patently clear that the local consumers always pay less than the actual international value of the scrap because of this geographic advantage. NB when consumers typically sell their finished products into the local market, the reverse is true in that they add back all the costs to arrive at ‘import parity’ pricing – i.e. what a customer would have to pay if they were to import that metal.

The largest percentage of scrap by volume is used to produce reinforcing steel (re-bar) so we can use the current Reef prices as an example:

<table>
<thead>
<tr>
<th>Jan/Feb 2013</th>
<th>Local</th>
<th>East</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Re-bar</td>
<td>$900.69</td>
<td>$661.00</td>
<td>$239.69</td>
</tr>
<tr>
<td>Scrap</td>
<td>$324.07</td>
<td>$475.00</td>
<td>$150.93</td>
</tr>
<tr>
<td>Gross margin</td>
<td>$576.62</td>
<td>$186.00</td>
<td>$390.62</td>
</tr>
</tbody>
</table>

It can be clearly seen that local scrap consumers are charging 36.26% more than international norms for re-bar. At the same time consumers in the East are paying 46.57% more for the very same scrap inputs.

This gross margin of $576.62 is significantly in excess of the internationally benchmarked figure of $202.00 per ton, and this pricing model has lead to local prices for semis becoming the internationally benchmarked figure of $202.00 per ton, and the second being the massive Transnet rolling stock scrapping program.

It should be remembered also that our local consumers cherry-pick the best grades of scrap, and that the majority of (steel scrap) that is exported is scrap that cannot be used locally or is too expensive to transport to the consumer.

The MRA fully supports the existing permit system in its current format, and would like to see proper enforcement of its current provisions by ITAC and Customs. We do not support the proposed preferential pricing model in that we already provide cheap scrap locally as demonstrated above, and for the reasons below:

- Scrap metals are commodities with values that fluctuate rapidly. When you add in the volatile Rand a minimum 30 working days (6 weeks) delay prior to being issued with a permit, would expose the scrap metal recycling sector to untenable additional cost and risk.

- This value impairment coupled with any additional price preference would translate into greatly reduced prices we would pay our customers for their scrap.

- About half of scrap arisings are from manufacturing companies. These are the very companies who Minister Patel wants to support, but who will bear the brunt of the price reductions.

- There are 440 000 informal collectors of relatively low value scrap items, such as beverage cans, old stoves, fridges and the like. They will be hit the hardest because any reduction in the value of scrap will translate on a daily basis into less money to feed their families.

- Many local foundries and mills compete directly with scrap metal recyclers for select manufacturing sector by-product (scrap metal), for which activity the consumers clearly enjoy a competitive advantage. A pricing preference would render this business a completely unfair practise, which may call into question competitions law infringement.

- The initiative would effectively mean that the scrap industry would be subsidising the foundry industry. This is clearly not reasonable, especially when other cost inputs such as cheaper electricity or tax incentives could have been far more effective.

- The foundry industry lacks utilization efficiency, has not invested in their businesses and is as a result not internationally competitive.

The MRA notes with some concern the comments made by Mr. Davies regarding suspicious copper exports. We have contributed to and subscribe to the new Second Hand Goods Act which regulates the purchasing of all scrap metal, and engage with the SAPS, Telkom, Eskom and Transnet who see us as partners against theft, and part of the solution. If Mr. Davies has valid points or information on copper theft we will gladly discuss these with him as well so that we can stamp out the last vestiges of that problem. It should further be noted that the MRA is not aware of any evidence linking stolen goods to the export market, as opposed to the local scrap consuming market.

Many thanks again for this platform and opportunity Bruce, and well done on an excellent and balanced publication.
The South African Institute of Foundrymens' Annual Golf Day took place on Thursday 15th November 2012. The event was held at the Reading Country Club.

The SAIF Council would like to thank the following companies for sponsorship of prizes, tee boxes and greens:


The competition on the day was fourball alliance with two scores to count and four scores to count on the par 3s.

There were three closest to the pin prizes and the winners were:

- 5th hole
  Sponsored by SI Group HA – Giovanni Ciani
- 7th hole
  Sponsored by RelyIntraCast – Derick Elliott
- 11th hole
  Sponsored by Insimbi Alloy Supplies – M Albertyn
- 15th hole
  Sponsored by Delf Sand – Kevin Keeling

There were two longest drive prizes and the winners were:

- 4th hole
  Sponsored by VIP Metals – Charles McGeer
- 18th hole
  Sponsored by LIL Sales – Patrick Memela

The winners on the day on a score of 102 points were Arthur Spires, Danny Muller, Heinrich Engelbrecht and Louis Dique. Great score for players with handicaps of 28, 27, 22 and 28 respectively.

The winners on the day on a score of 102 points were Danny Muller, Arthur Spires, Heinrich Engelbrecht and Louis Dique. Great score for players with handicaps of 28, 27, 22 and 28 respectively. Coming second on a score of 97 points were Graham London, Chris Robins, Andre Wesseloo and Jacques Swanepoel. There handicaps were 31, 18, 32 and 28 respectively. In third place on a count out of 97 points were Jaco Grobler, Stephen O’Reilly, Patrick Memela and Eugene Hansen.

The longest day prize winners were Manie Fourie, Johan de Beer, Stephan Marits and Themba Nohefu.
For over 10 years we have been supplying the South African molten metal industry with a range of Ferro alloys, cored wire, aluminium alloying additions, ceramic castings and fillers, minor and special metals and minerals.

These include master alloys and alloys, fluxes, coatings, insulation materials (boards, blankets, wool, cloth, bricks and other textiles), filters, inoculants and nodulisers, hollowware, tin, mercury, linings, ceramic pre-cast shapes, crucibles, slide gate systems, filtration and degasser systems, furnaces, core shooting machines, moulding plants and systems, metal treatment and automation systems.

Our international affiliation includes:

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- SeleCorporation: filters for metal filtration
- HOESCH: grain refiners, master alloy’s
- Schaefer: non-ferrous die coats, fluxes
- Striko: aluminium furnaces
- Foundry Automation: core shooting machines
- IMF: turnkey moulding plants and systems
- Mammut: crucibles
- Progeta: molten metal treatment and automation systems for grey and ductile iron foundries
- Kenecott: FeMo
- Ekem: inoculants and nodulisers
- Coralcast: local ceramic production facility
- CEDIE: cored wire
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Naledi Foundry offer** accepted by Dorbyl shareholders

IDC involved in dealings.

The IDC’s involvement comes shortly after the announcement of its completion of its purchase of Scaw Metals from resources group Anglo American. Scaw is potentially a key component of the state’s planned R4 trillion infrastructure programme over 15 years.

Shareholders of Dorbyl, the once-mighty engineering group whose shares were suspended on the JSE towards the end of last year over its failure to submit annual financial statements, have accepted a revised offer from Naledi Foundry of the Republic of South Africa, according to a JSE SENS announcement of 30 January 2013.

The Industrial Development Corporation (IDC) made the revised cash offer on behalf of Naledi, a new broad-based black economic empowerment entity. The IDC first announced an offer for Dorbyl in October, acting on behalf of a private company that was “to be nominated”. The earlier offer was based on the offeror acquiring at least 75% of Dorbyl’s entire issued share capital. This has now been reduced to 51%.

Shareholders of Naledi comprise the IDC, and the trustees for the “time being” of the Ginny Eunice Maphatiane Trust, the Mukovhe Share 2 Trust, and Sibusiso Maphatiane and Puleng Manaka.

Mr Maphatiane and Ms Manaka were acting on behalf of the Dorbyl Employees Trust, and a trust that would be established on behalf of communities in areas where the company operated.

In previously published reports, Dorbyl said its interim results for the six months ended September are an improvement but are still “unsatisfactory”. The company, whose remaining Gauteng-based operation, Guestro Castings, mainly supplies automotive markets, said that product prices had increased sharply in the first part of this period, boosting the results. It said a weakening rand over the period helped cushion the effect of these price increases for customers.

In the second part of the period, Dorbyl said, its main activities were aimed at finding potential strategic investors, after its main shareholder, the RECM-Reef consortium, sold its shares in September to an entity called African Dune Investments.

At the time Dorbyl executives were not available for comment. However, JSE equity market director Leanne Parsons said Dorbyl had not addressed all the requirements relating to its original suspension from the exchange. “Dorbyl will remain suspended,” she said.

In the finalisation announcement published on SENS, shareholders are referred to the announcement on SENS on 7 December 2012 regarding the revised firm intention by Naledi to make an offer to Dorbyl shareholders to acquire up to 100% of the shares in the issued share capital of Dorbyl for an offer consideration of R0.85 (eighty five cents) per ordinary share, 740 025 5% cumulative preference shares at a price of R1.00 and 1 250 000 5.5% cumulative preference shares at a price of R1.10.

The Naledi offer was subject to a condition as to acceptance that Naledi receives acceptances of its offer equating to at least 51% (fifty one percent) of the entire issued ordinary share capital of Dorbyl excluding treasury shares. Accordingly, the minimum threshold requirement has been met and the Naledi offer has therefore become unconditional.

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The suspension came after directors said in October 2012 it was “reasonably likely” the group would remain solvent in the next six months, but it was “reasonably unlikely” it could pay off its debts during this period.

Dorbyl had previously received two offers: the initial 73c per share offer from the IDC in October and a 65c per share offer from African Dune in September, after the investment house had increased its total shareholding in Dorbyl to 41.69%, and was obliged to make a mandatory offer to remaining shareholders.

The IDC’s involvement comes shortly after the announcement of its completion of its purchase of Scaw Metals from resources group Anglo American. Scaw is potentially a key component of the state’s planned R4 trillion infrastructure programme over 15 years.

**Results of the offer are due to be released in the middle of February and will become applicable in the event that the current suspension of Dorbyl shares are lifted subsequent to this finalisation announcement.**
AfriMold 2013, the 4th annual manufacturing trade fair and conference is now accepting application forms from industry experts and leaders to present papers at the conference, to be held from 4-6 June 2013 at NASREC, Johannesburg.

The AfriMold conference will provide a platform for companies to succeed in improving their capabilities, sustainability and new business generation opportunities in areas of design, tooling and manufactured components, including important topics of interest to the local Automotive OEMs.

The organisers are inviting industry experts, interested TASA and NAACAM members, as well as international industry leaders to apply to present papers of specialist and general industry interest.

Key topics should encourage debate about the way forward for next generation vehicles, for example in light weighting, new materials, advanced components and manufacturing technologies.

Proposed topics should further provide a window to the future by addressing current challenges and proposed solutions to keep the South Africa manufacturing sector internationally relevant, successful and competitive.

This important industry event brings together stakeholders across sectors from foundry, plastics and metal forming through to the relevant Institutes and Associations.

The AfriMold trade fair and conference is focused on all aspects of the manufacturing process including concept, design, precision engineering, tooling and toolmaking.

The conference is endorsed and supported by the Toolmaking Association of South Africa (TASA) and the National Association of Automotive Component Manufacturers (NAACAM), the authority of the South African automotive components industry.

The importance of the conference and its aims and objectives to support the local manufacturing sector.

The deadline for Speaker Application Forms is 29 March 2013 - Send it together with a high resolution photo of the speaker to: info@afrimold.co.za.

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Endress+Hauser celebrates its 60th anniversary

60 years later, Endress+Hauser is still family owned with a global network of companies, worldwide state-of-the art production facilities, a full product basket of quality products and still continues to expand.

This success can be contributed to one of the company founder’s; the late Dr Georg Endress motto to satisfy customers’ needs and requirements, ‘First serve, then earn’, which is still valid today.

1953 to today

It all began rather small and inconspicuous: on 1 February 1953, Swiss engineer Georg H Endress and German banker Ludwig Hauser set up their company in a backyard in Lörrach, Germany. The first level measurement instrument was patented just two years later and these innovative measurement instruments soon enjoyed a good reputation in the industry. As early as 1957, sales exceeded one million Deutschmarks.

In the subsequent decades, the fields of operation were expanded to include flow, pressure, analysis and temperature, with new production sites built or bought for development and production. With a growing number of sales partners, Endress+Hauser gradually conquered first the European market and the African, Asian and the American markets soon followed. After Ludwig Hauser’s death, the Endress family became sole shareholders in 1975. At that time, the company had around 1,000 employees. 15 years later, the headcount reached 4,000 with sales in excess of 500 million Swiss francs.

At the dawn of the digital transmission and communication era around 1990, Endress+Hauser was actively involved in various fieldbus initiatives. In early 1995, the company founder handed over the business leadership to his second eldest son Klaus Endress who runs it to this day.

Responding to the challenges of globalisation, Klaus Endress developed the international network of production and sales, while at the same time steadily expanding the company’s offering.

From device to solution

The Endress+Hauser Group has evolved from being a vendor of devices and instrument to offering a complete basket of products, services and solutions to support their customers in operating their plants reliably, efficiently, cost effectively and environmentally compatible throughout their entire life cycle. “Our strength is that we are entirely driven by the market,” says Group CEO Klaus Endress “We learn from our customers and strive to create sustained and outstanding benefits and value for them.”

Thanks to the global roots in different regions (over 40 sales centres, 70 representatives and production facilities in 12 countries including South Africa) and operating in various industries, the Endress+Hauser Group is well versed to cope with cyclical fluctuations. The lean and highly networked organisation guarantees flexibility and rapid response.

Almost coinciding with the 60th anniversary, another remarkable milestone has been achieved, employing its 10,000th employee.

Continuity is held high in the family-owned business: in spite of the finance and public debt crisis in 2009, no employees were laid off – with the result that a new sales record was promptly accomplished in the following year after the economy had begun to recover.

Outlook

With sales totalling 1.5 billion euros, the Endress+Hauser Group achieved another record year in 2011 – in spite of a strong Swiss franc and a flagging economy in Europe. “Although the market is extremely volatile today, 2012 will be an excellent year for us,” says CEO Klaus Endress. “We trust in our strength and look ahead with confidence, but we must stay alert.” With well-targeted acquisitions in biotechnology, gas analysis and energy management, Endress+Hauser has recently rounded off its product portfolio. With an equity ratio of over 70 percent, the company is largely independent of lenders and is well equipped to meet the challenges of the future.

For further details contact Endress+Hauser on TEL: 011 262 8000
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Contact Warren Zandberg at 011 903 9500 or 082 450 7274 for more information
Die casting experts will meet at the Euroguss trade fair from 14–16 January 2014 to celebrate the tenth edition of the exhibition. What began as a trade exhibition with 93 exhibitors in Sindelfingen in 1996 has developed into a successful trade fair for die casting technology with just under 400 exhibitors and more than 8 500 trade visitors at the last event. The organiser has already started preparations for the tenth anniversary exhibition in Nürnberg. Exhibitors registering by 5 March 2013 profit from the early bird discount. Euroguss is the only exhibition that presents the whole die casting value chain. The products on display cover the complete spectrum of die casting technology, processes and products. The visitors at Euroguss are international and highly qualified. Every fourth visitor to Euroguss travels from abroad. Two-thirds are involved in procurement decisions in their companies. The visitors come mainly from the automotive (system supplier) industry and automotive engineering (45 per cent), die casting foundries (13 per cent), machinery and plant construction (11 per cent), mould making (6 per cent) and the electronics industry (4 per cent).

For further details visit www.euroguss.de

Alcoa: Aluminum demand to increase in 2013

US-based aluminium giant Alcoa expects aluminium demand to increase 7% to 49.4Mt in 2013, up 1% from the 6% growth experienced in 2012, according to CEO Klaus Kleinfeld. The bump in global demand will be bolstered by an 11% expansion in demand from China, as well as strong growth from Brazil (3%), Russia (1%) and India (3%), Kleinfeld said during a conference call to discuss the company’s financial results.

The change in demand from North America and Europe should remain relatively similar to last year, with North America seeing a 4% increase in demand (equal to the 2012 growth figure) and European demand, which fell by 2% in 2012, declining by just 1% year-on-year in 2013. Globally, the company is looking at growth in all of its end markets this year, Kleinfeld said. As a result of the expected demand growth, Alcoa is projecting a 200,000 ton alumina deficit and a 535,000 ton aluminium surplus in 2013.

Given the size of these markets, however, Kleinfeld said that the figures show that “supply and demand is essentially balanced.” The company is also predicting a recovery in LME prices, linked more to the global economic situation than to market fundamentals. “The LME price these days is very much trading on general economics.... it’s not the fundamentals,” he said.

Alcoa reported a net profit of USD 242 million for the fourth quarter of 2012, compared to a USD 191 million net loss in 4Q11.

AFS to assemble Metalcasting Industry at CastExpo’13

Sponsored by the American Foundry Society, CastExpo'13 and the 117th Metalcasting Congress will be held April 6-9, 2013, at America’s Center in St. Louis.

 Held every three years, CastExpo attracts thousands of decision-making metalcasters from around the world, all of whom are looking for the latest advancements in equipment, technology and services to advance their facilities.

The most recent show, CastExpo’10 held in Orlando, Florida in March 2010, was a great success. The event attracted nearly 4 500 attendees and more than 350 companies from around the globe showcasing the latest technology, research and services available to the metalcasting industry. The attendees came with decision making power - 27% were presidents, chief executive officers or owners, 22% were plant managers and 14% were vice presidents. The remaining 51% included engineers, sales representatives, and technical, production and maintenance personnel.

By popular demand, several of the new additions to CastExpo’10 will be included at CastExpo’13. The Cast in North America Pavilion on the CastExpo show floor allowed more than 40 metalcasting facilities (foundries and diecasters) to showcase their casting capabilities to buyers and designers in an unprecedented forum. This area of the show was complemented by casting design and sourcing education in the Metalcasting Congress sessions. In addition, the Metalcasting Technology Theater, located on the exhibit floor provided practical shop-floor presentations for metalcasters.

“AFS is excited to bring CastExpo back to St. Louis,” said Jerry Call, AFS executive vice president. “The North American metalcasting industry asked for the show to return to a Midwest location and we are happy to accommodate.”

New this year to the event is the CastExpo’13 app which will be available early in February for all Droid and iOS devices.

For the most up-to-date information, check the CastExpo'13 website www.afsinc.org
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Surprising solution helps cut binders' toxicity

Based on a new discovery by researchers at Oregon State University, the world’s multi-billion dollar foundry industry may soon develop a sweet tooth.

It's sugar.

"We were surprised that simple sugar could bind sand together so strongly," said Li, who noted that sugar and other carbohydrates are “abundant, inexpensive, food-grade materials. “The binder systems we’ve developed should be much less expensive than existing sand binders, and not have toxicity concerns,” he said.

Sugar is highly water-soluble, of course, and the OSU team discovered a novel way to use it to make strong and moisture-resistant sand molds. To accelerate reading of temperature in a baking oven helped lead to their discovery, they said.

Li and OSU faculty research assistant Jian Huang identified combinations of sugar, soy flour, and hydrolyzed starch, or even sugar alone, bind sand very effectively for molds used to solidify molten metal. The molds set up rapidly and retain their bonded strength in high humidity, which is critical to their effectiveness.

Sugar or the other agricultural products used for this purpose should have no environmental drawbacks, because all or most of the residuals will decompose into carbon dioxide and water.

Li told FM&T that his team has tested its binders in U.S. metalcasting plants, and though no data was available on the results of those tests he indicated that the operators in those locations found the products were “satisfactory to the overall performance of our binders.”

Asked if there may be any restrictions to the types of sands that would be used with the sugar binder, Li said the formulation has worked well with silica and olivine grades of sand -- the two most commonly used by domestic metalcasters.

The OSU project has not researched the results for recycling and reusing bonded sand, but Li offered that it is “highly likely” that such material can be reused without significant effect on performance or quality.

No commercial-scale research has been conducted, but Li said the binder technology is ready for more applied research and testing. OSU is seeking investors and industrial partners to commercialise it. Private sector financing of OSU research has increased 42% to $35 million since 2012, as the university increases its emphasis on academic/industrial partnerships.

Li’s laboratory at OSU has developed and commercialised other products in recent years, too, including a resin made from soy flour that is being used to replace formaldehyde-based adhesives in the manufacture of some wood products. For that achievement, in 2007, he was awarded the U.S. Environmental Protection Agency’s Presidential Green Chemistry Challenge Award, which recognises innovators who have helped to reduce manufacturing process waste or toxins.

Sand castings are estimated at 70% of all cast metal products, in all types of ferrous, nonferrous, and specialty metals, and for products used in automaking, mining, transport, industrial processes, domestic products, and numerous other markets. The impact of a low-cost, low-environmental impact binder could be vast.

GM loses global crown to Toyota

As its sales grew just 2.9% to 9.2 million, General Motors lost the global sales crown once again to Toyota in 2012.

Toyota has forecast its 2012 sales will jump 22% to 9.7 million vehicles.

GM, which briefly regained the crown after Toyota's supplies were shattered by the 2011 Japanese quake and tsunami, nonetheless remains at number two worldwide.

The company said its share of the global auto market fell 0.4 points to 11.9%.

GM's international operations - Asia-Pacific, Africa and the Middle East - posted the biggest gains, with sales up 10.1% at 3.6 million while its share was flat at 9.5%.

Sales fell 8.2% in Europe to 1.6 million vehicles, while GM's share narrowed by 0.2 points to 8.5%.

North American sales rose 3.2% to just over three million, though GM's share of its home market fell 1.5 points to 16.9%.

Sales in South America shrank 1.9% to just over a million vehicles, while GM's share of the region fell 0.8 points to 18 percent.

Rival Volkswagen, which aspires to be the world's biggest automaker by 2018, reported an 11% increase in 2012 sales to 9.07 million.

Who would have expected that experts in forestry would propose a solution to the problem of noxious fumes emitted by chemical binders?

Sometimes the answers to long-standing questions are right under our noses, even if they are not recognized as such. And some solutions to problems come from unexpected sources. Who would have expected that experts at Oregon State University's College of Forestry would propose a solution to the problem of noxious fumes emitted by binder chemicals used by sand casting foundries to form molds and cores? Or, that their recommendation would be such a simple one?

Sand binders currently available are generally effective, but containing or eliminating the fumes they emit is an ongoing problem, and a cost factor. In the U.S., phenol-formaldehyde resins are widely used, and can emit toxic air pollutants. In China and elsewhere, the emissions may be even worse because the binder chemicals in use are often furan resins and combinations of furan resins and urea-formaldehyde resins.

Kaichang Li, a professor of wood science and engineering at OSU, and other researchers there, have applied for a patent on a new use for an "environmentally benign" compound that works well to bond sand. It also would be much less expensive than the range of commercially available formulations.

Based on a new discovery by researchers

at Oregon State University, the world’s multi-billion dollar foundry industry may soon develop a sweet tooth.
With a celebratory ground-breaking ceremony, ASK Chemicals laid the foundation for the construction of a new plant in Kurkumbh (near Pune), India. The company is thus opening a further chapter of its Indian-German cooperation. The first step is to build a 12,000 sq m manufacturing and storage facility on an area of 80,000 sq m, where binders, coatings, auxiliary materials and risers will be produced for the Indian foundry industry. The new main plant of ASK Chemicals will enable vital new jobs to be created in Kurkumbh. The completion of the production site is planned for 2014.

With this commitment, ASK Chemicals, the world’s leading supplier of foundry chemicals, is creating the basis for continuing the successful expansion of its business activities on a key target market in Asia.

On the company’s strategic planning, Stefan Sommer, CEO of ASK Chemicals, says: “Our intention is to grow faster than the total Indian market.” India’s economic power plays a fundamental role for the investment by ASK Chemicals. “We are firmly convinced that the Indian foundry industry will profit from our many years of experience and our profound expertise in this important key industry,” says Mr. Sommer on the occasion of the ceremony, looking ahead.

Dr. Jochen Landes, Managing Director of ASK Chemicals India, sees great opportunities for development for the company in India. “I am delighted that our company chose Kurkumbh for this investment and can hardly wait to see the new facility grow.”

As a member of the global network, ASK Chemicals India has access to the entire foundry expertise of the Germany-based global player and is thus able to provide customers in the whole of India with its innovative products and services.

For further details contact Applied Solutions on TEL: 011 922 1600

Inductotherm Group has acquired Clinton Machine of Ovid, MI, and is adding it to its family of companies – which supply thermal processing operations with a range of equipment, products and services, including induction melting, induction heating, pipe and tool welding equipment, and vacuum melting and refining systems. Other companies in the Inductotherm Group include Inductotherm Corp., Inductoheat, Radyne, Thermatool, and Consarc.

The cost and terms of the acquisition were not announced. “Clinton Machine brings with it years of experience in material handling equipment specifically in the bar, tube, heat treating, and other production machinery areas,” stated Inductotherm Group president and CEO Gary Doyon. “We are excited with this expansion of the Inductotherm Group.”

“Adding the specialised capabilities of Clinton Machine will provide additional value for our current clients and help the corporation to expand into new markets,” he continued.

Clinton Machine specialises in material handling equipment for bars, tubes, heat treating, and other production machinery sectors.

Clinton Machine is a custom designer and manufacturer of material handling and processing systems for manufacturers. Its list of clients includes automakers and major automotive suppliers, appliance manufacturers, metal producers and processors, and process equipment builders for basic manufacturing. It operates a 50,000-sq.ft. plant with production equipment for building specialty machinery, and extensive design and data transfer capability.

“The inclusion of Clinton Machine into the Inductotherm Group will allow us to provide better material handling systems to our heat treating, shrink fitting, and forging system clients,” according to Inductoheat Inc. president and COO Doug Brown. “This new partnership is especially exciting to Inductoheat, as both companies compliment each other quite well.”

Inductoheat Inc. develops and supplies induction-heating systems.

For further details contact Cerefco on TEL: 011 845 3253
StrikoWestofen Group, manufacturers of nonferrous melting systems for foundries and diecasters, reports it has a new order to supply three aluminium ingot melting systems to an unnamed, “large American automaker” casting cylinder blocks at a plant near Mexico City. The turnkey project will be executed by StrikoWestofen subsidiaries in Germany, Poland, and the U.S.

The group’s wholly owned U.S. subsidiary is StrikoDynarad Corp.

These systems starting up this spring are StrikoMelter furnaces with integrated heat recovery, including all the peripheral equipment. Installation of the three furnaces began in December, according to the supplier. It is StrikoWestofen’s first project for the U.S. automaker.

StrikoMelter furnaces are described as cost-competitive, with respect to capital investment, and offering significantly reduced operating costs. The furnaces’ shaft geometry and specially adapted burner technology makes it possible for the preheating, heating, and melting phases to be combined in a single melting shaft.

Together with the low temperature of the melting chamber, the StrikoMelter achieves metal yields up to 99.7%, thereby helping to reduce operating costs and casting costs per unit.

For cylinder block casting, the automaker chose a melting furnace of the StrikoMelterHS-N series. It will be manufactured in Michigan by StrikoDynarad and transported to its final location.

In the second casting line two stationary StrikoMelterMH II-N furnaces will be in operation.

“The decision in favour of StrikoWestofen represents a technological paradigm shift,” according to group manager Rudi Riedel, “away from energy- and resource-intensive reverb furnace technology (and) toward our state-of-the-art ‘EtaMax’ shaft furnace technology with integrated heat recuperation.”

“A further benefit is that, due to our presence in Michigan, we are ideally placed to react to the demands of the local markets with our know-how and production capacity,” Riedel continued.

“Our customer not only has faith in the quality and performance of our products but also relies to a high degree on our planning and installation expertise,” he said. “During the bidding process we succeeded in almost halving the costs of the fully equipped melting line by completely restructuring the original line layout. The same applies to the space requirements on the production line. Our systems need only half the installation footprint against traditional technologies, which means further cost savings for the customer. In this context we benefitted greatly from the technical know-how of our U.S. company, StrikoDynarad Corp.”

For further details contact Ceramic & Alloy Specialists on TEL: 011 894 3039
GF Automotive sells two aluminium foundries

Plants in Germany sold to MWS Gruppe; plans to expand in China

Georg Fischer Automotive, a ferrous and aluminium foundry and aluminium diecasting group plans to expand its presence in Asia, while downsizing its European organisation. The company is discontinuing its European aluminium sand casting operations, and has sold two foundries at Friedrichshafen and Garching, Germany, to the MWS Gruppe.

“The integration of our aluminium sand casting activities into the business of MWS leads to a meaningful consolidation in this market sector and allows GF Automotive to focus on its core activities,” explained Yves Serra, CEO of Georg Fischer.

The value of the sale was not announced. GF noted the two foundries of Friedrichshafen and Garching belong to Georg Fischer since 1999 and employ 250 (Friedrichshafen) and 180 (Garching) workers, respectively.

MWS is an aluminium casting and CNC machining company that supplies German automakers, bicycle producers, engineering companies, and electrical component manufacturers. “With this acquisition we will become the technological leader as well as the largest supplier in aluminium sand casting in Europe,” explained Dr. Christoph Senft, co-owner of MWS Industrieholding GmbH. “The existing management will stay in place to guarantee the continuity of the business. We are happy to have such a knowledgeable and skillful team on board.”

GF Automotive said it would expand its current operations in China, which include a ductile iron automotive foundry at Kunshan and an aluminium and magnesium diecaster at Suzhou.

Georg Fischer stated it anticipates continued growth in demand from the Asian automotive market, and a “subdued situation” in Europe.

“The expansion of GF Automotive in China will therefore continue at a substantial pace,” according to a statement. “In the last six years, sales in that country went up from 0 to 10% of the total turnover of the corporate group. The strong local demand will require an increase in the production capacity of the two existing iron and aluminium diecasting foundries of approximately 40% within the next two years.”

GF Automotive offered that its organisational strategy calls for operations to be maintained on the basis of achieving or maintaining a market-leading position. This means that the iron foundries and aluminium diecasting plants in Europe will continue. One of those plants, the iron foundry at Mettman, Germany, was remodeled with more extensive automation systems.

Picture above: The GF Automotive Group manufactures a number of components for the automotive industry
Quality and efficiency in the dosing process: these are the aspects under which the StrikoWestofen Group (Gummersbach, Germany) is constantly optimizing its Westomat dosing furnaces. As a result of this development work, the well-known manufacturer of thermal process technology now offers a wide range of supplementary technologies which make the Westomat dosing furnaces even more efficient: an extended riser tube prevents the formation of oxida skins during the transfer of the melt from the dosing furnace to the die-casting machine. An additional riser tube edge cleaning system keeps the run-out edge of the riser tube free of deposits, thus effectively preventing fluctuations in the dosing quantity due to mechanical causes. This increases the dosing accuracy. Also, the biscuit correction improves the constancy of the dosing weight.

Structure castings usually have a supporting function, which makes them safety- or crash-relevant. The resulting demands made on strength and expansion of the castings are especially high. For this reason, it is important to have a high-quality melt with a low content of hydrogen or oxid contaminants. To accommodate these requirements, the StrikoWestofen Group has put a wide range of new technologies onto the market. These also permanently increase the process reliability and dosing accuracy of the systems.

Increased dosing accuracy

High-precision dosing of the metal quantity requires the dosing weight to be adjusted several times a day. The newly developed patent pending biscuit correction from StrikoWestofen turns this into an automatic process: it constantly and automatically adjusts the dosing weight to the casting process so that the biscuit remains within the individually defined range of tolerance.

“Our system achieves a permanent improvement of the process reliability and prevents the dosing weight from being set wrongly,” explains Rudolf Riedel, manager of the StrikoWestofen Group. “In addition, the biscuit correction automatically optimizes other empirical setting parameters of the dosing control. This includes the so-called furnace chamber correction, which compensates for the reduction in the dosing quantity as the furnace empties as well as the refill correction. The latter corrects the dosing quantity during the filling of the Westomat dosing furnace.” Dosing precisions of plus/minus 0.8 percent have already been achieved in foundry practice.

Furthermore, depending on the alloy processed, adhesions of cooling melt can build up on the edge of the riser tube during foundry operation. These can be compensated for via the biscuit correction. Nevertheless, the deposits have to be removed now and then in order to guarantee precise dosing at all times.

“Up to now these were removed manually in an additional work step by an employee of the foundry company,” Riedel explains, describing the usual procedure. “In order to rationalize this work step and improve dosing accuracy; we now offer a new pneumatic riser tube edge cleaning system. It is especially useful where riser tubes are hard to access.”

The pneumatic riser tube edge cleaning system blows a short pulse of compressed air onto the edge of the riser tube, thus preventing the build-up of melt deposits.

A comparison of 350 individual dosings: without the help of biscuit correction (top), the fluctuations are larger and the tolerance limits are exceeded several times. With biscuit correction (bottom), all dosing weights remain within the prescribed tolerances (red lines).
Affordable forklifts now available in South Africa

Vmax, a Boksburg-based company, has launched a broad range of forklifts that, according to the company, are extremely affordable. Vmax has forklifts that have application in most factory and materials handling applications, the more popular configurations being stocked locally. Other configurations are imported with very acceptable lead times and prices for these are available on request.

Briefly the range comprises:

- Diesel forklifts ranging from 1.5MT to 10.0MT capacity (with Chinese or Japanese engine options)
- Gasoline/LPG forklifts from 2.0MT to 3.5MT capacity
- Electric forklifts from 1.0MT to 3.0MT in both 3 and 4 wheel configurations
- Electric stackers and pallet stackers (with or without counterweights)
- Electric stock pickers

All of the above range are available with tyre choices (solid rubber or pneumatic), different mast heights and various fork lengths.

Vmax forklifts are modern in design and rugged in application with all the necessary safety features to suit the South African market. They are sold with a pre-delivery inspection and a free 250 hour first service and are delivered free of charge to the greater Johannesburg area.

The company says it has customers who are extremely happy with the forklifts they have purchased from them especially considering the savings they have achieved.

For further details contact Vmax Forklift Trucks on TEL: 011 917 0702 or email: richard@vmaxforklifts.co.za. The company manager, Richard Black, can be contacted directly on TEL: 083 8239892.

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Today’s modern foundry using one of the many chemically bonded sand systems available is under increasing pressure to reduce costs, reduce it’s impact on the environment but at the same time improve and maintain it’s casting quality. One of the ways of meeting these requirements is to invest in sand reclamation. Whilst most foundries now have mechanical reclamation, many are looking to further reduce costs and invest in thermal reclamation or secondary attrition.

**Thermal reclamation**

The ultimate in sand reclamation is of course thermal, whereby 100% of all binder and other organic material are removed.

Firstly, the sand from the mechanical reclamation plant will pass through a cleaning tower that basically removes any metallic particles prior to entry into the furnace. The furnace itself is a fluidised bed design with a gas and air mixture providing the fluidising medium and igniting on the sand bed surface via pilot gas nozzles. Proof of flame sensors ensure that the gas supply is stopped if there is a pilot flame failure.

Typically a thermal unit will run on natural gas or LPG and operate at temperatures of between 650 °C and 760 °C depending on the type of binder used. The sizes on offer from Omega range from 250kg/hour up to 12 tons per hour with a unique 3-year warranty on the burners and lining.

The patented ‘Dead Bed’ system from Omega ensures total heat insulation and therefore lower running costs but also a longer life for the ceramic fibre insulation. This is due to the ‘Dead Bed’ providing protection for the insulation from sand erosion caused by the moving processed sand.

Low running costs are achieved through a combination of the excellent insulation of the furnace with the ‘Dead Bed’ system as well as a heat recovery module after the furnace that takes the heat from the hot sand as it leaves the furnace and reintroduces that heat as warm air into the fluid bed section of the furnace. This means that the fluidising air is always warm, leading to lower gas consumption.

Safety is also of prime concern so multiple safety systems are employed to monitor fluid bed ignition, temperatures for every component (including dust collector) and level of sand available for processing. Also, a full touchscreen HMI with every component (including dust collector) and level of sand available for processing. Also, a full touchscreen HMI with level of sand available for processing. Also, a full touchscreen HMI with every component (including dust collector) and level of sand available for processing.

Emissions from the thermal plant is guaranteed to be lower than the local regulations permit as Omega has sufficient temperature and retention of gasses in the furnace hood to ensure that the air leaving the furnace is clean.

For the alkaline phenolic system, a special inhibitor must be pre-mixed with the sand to prevent the alkaline salts causing low temperature fusing of sand grains. It is also now possible to thermally reclaim green sand for re-use in the core shop. A mechanical scrubbing system is employed before and after the furnace to ensure that all clay is removed, but essentially the thermal reclamation is the same as the no-bake system.

**Secondary attrition**

If the foundry is a silicate user or an alkaline phenolic user that simply does not want to use the thermal reclamation with the additive system then there is a solution for further sand reclamation and that is secondary attrition.

Secondary attrition can be employed after the existing primary attrition unit to enable further binder removal. These units are especially suitable for the more difficult processes to reclaim such as the alkaline phenolic and silicates. Even in the case of furan, secondary attrition can be employed to reduce residual binder and catalyst therefore reducing fume levels in the foundry.

‘USR5-1 secondary attrition unit, reclamation levels 90:10’

The latest range of secondary attrition units type USR, are manufactured under licence by Omega Foundry Machinery Ltd from a design by Sinto of Japan.

Here a ceramic lined drum rotating at high speed is employed with a variable sized lip over which the sand must pass in order to escape. The lip gives the required retention inside the drum and varies depending on process and scrubbing required. The squeeze rollers have a ceramic outer lining and are friction driven by the sand inside the drum. The pressure at which the rollers squeeze the sand is also variable depending on the energy required to remove the binder and the fragility of the sand grain itself. Due to the light pressure used and a fixed minimum gap between the rollers and the drum, there is no possibility of crushing the sand grains. There are further options of using two or three additional attrition cells for further reduction of binder on the sand.

The sand enters a high-speed rotating drum and ceramic rollers intensify the binder removal without damage to sand grain.

Once the sand leaves the attrition cell’s it enters an integral fluidising chamber with dust extraction for removal of dust and fines. The combination of a very shallow fluidised bed and fully adjustable negative pressure inside the fluidising chamber enables very precise fines removal.

In the case of alkaline phenolic, typically we would expect a 50% reduction in L.O.I with a single cell unit and a further 20% reduction in L.O.I with a double cell unit. Similar levels in soda content reduction can be observed in the case of Silicate.

**Conclusion**

So all things considered, secondary attrition together with thermal reclamation provides all foundries with a choice for cleaner reclaimed sand. These units compliment any existing mechanical reclamation plant in the foundry’s quest to improve quality, reduce costs and reduce the impact on the environment.

For further details contact Peter Petersen of Mondeco Solutions on TEL: 079 448 1277 or email: peter@mondeco.co.za
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Energy costs are rising rapidly. Above all energy intensive production processes, like in foundries, steel production and hardening plants, quickly come up against cost pressure because of their high energy demand. It is not just electrical energy, which increases the costs to companies, it is also the consequential price for power and as we all know this is rising rapidly in South Africa.

Because the time in which the electrical energy is needed can be influenced much more easily than the required amount, the Padicon® system is designed to optimise the capacity peak as quickly as possible and achieve the biggest savings in costs.

**Control energy consumption – reduce costs**

The Padicon® system is a parallel difference power control system - patent pending and has been approved by the TÜV Rheinland inspection agency and is a world first - optimises operations in furnaces. This process is already in use in many renowned companies worldwide as an integrated part of their energy management system. Designed for all medium and main frequency furnaces, the process records the power and energy consumption and saves all the data which has been gathered. By repeating the work process, a characteristic curve occurs. Due to this characteristic, the process control computer can synchronise the individual intervals of all furnaces and ensure a balanced load profile without peak consumption. Energy intensive work processes therefore are not co-dependent but rather coordinated. Therefore power peaks and reductions balance each other.

With Padicon®, savings in energy costs of up to 20% can be made by avoiding cost-intensive peak consumption. Flawless monitoring reveals weak points and potential for improvement in production so that the work process improves and energy efficiency can be increased significantly.

**Groundbreaking new technology**

Production planning and control systems that have been used up until now didn't have an energy consumption display. The energy consumption figure cannot be corrupted in order to make the process clear. The system harmonises itself by the Padicon® process. The melting process is not impaired as this no longer results in a load shedding. Therefore the furnaces are put under a lower thermal and electrical strain which increases durability and significantly reduces them wearing out.

Padicon® works with Energy Transparency Software (ETS), an energy monitoring system made up of various software modules. This modular system allows you to manage energy data in a wide range of ways. It can be modified to suit customer requirements, and data can be evaluated online, thus immediately.

**Saveway Furnace Monitoring Africa**

In 2012 Saveway Furnace Monitoring Africa (Pty) Ltd were appointed the sole distributor of the Padicon® system in South Africa. The company installed their first system at a client in March 2012. According to Saveway the initial reduction at the client was 3 MVA but since the installation was done the demand was reduced by a further 3.5 MVA, with the final reduction on energy demand being 6.5 MVA. The system has proven to show exceptional results and reliability.

The efficiency of the system is of such nature that the system capital was recovered in less than 6 months after installation.

Ask yourself if you want to save money and reduce your energy demand? If the answer is yes, then contact Saveway Furnace Monitoring Africa on TEL: 012 667 2178

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**LEADERS IN HEATING ELEMENT DESIGN AND MANUFACTURE**

Hi-Tech Elements (Pty) Ltd offers turnkey design, engineering & manufacturing services for your specific heating application.
With the development of the 4th Inotec generation for light metal casting and the new TC 4000 and WJ 4000 product lines, research in the area of inorganic binder systems has reached its current high. As a result, ASK Chemicals is able to increase the efficiency of its inorganic binder technology and to achieve significant procedural advantages as compared to other methods or older generations of binders.

Odourless core production, odour-reduced casting, significantly less cleaning of machines and tools and the resulting higher output quantity and productivity, as well as the advantages in terms of casting, such as faster solidification enabled by lowering ingot mold temperatures – these advantages of the Inotec technology are already well-known. The use of the 4th generation of binders now introduces major benefits to complement them.

With the newly developed Inotec Promoter TC 4000, even areas that are highly susceptible to penetration, such as the gate region can be achieved in a process-consistent manner and without additional coating of the cores. This system is 100% inorganic and leaves no condensate deposits in the casting tools at all. In addition, there is no formation of smoke during the casting process.

Cast pieces that were produced using conventional methods, such as the Cold-Box method, exhibited a significantly inferior surface in comparison, which means that Inotec is much more than just an alternative here (Fig. 1).

In the past, decoring of cast pieces that were produced using inorganic binders was often quite a challenge in the area of water jackets, especially if the decoring machine has only a few degrees of freedom. The Inotec Promoter WJ 4000 has helped to significantly improve shake-out properties in particular, so that even complex and filigree water jacket cores can now be removed again safely from the component after casting (Fig. 2).

With the latest generation of Inotec binders, the ASK Chemicals research team has thus succeeded in expanding the process and application window for inorganics and, what is more, in developing a product that provides excellent surface quality.

For further details contact Applied Solutions on TEL: 011 922 1600

Fig. 1: Test casting in aluminium alloy 226, 730°C

Fig. 2: Decoring test: The Inotec WJ 4000 promoter leads to a significant improvement of shake-out properties
Spectro has equipped the Spectro xSort handheld XRF spectrometer with a new application package for precious metal analysis. The inexpensive, portable instrument is able to identify the gold and silver content in many jewelry alloys within seconds. In addition, the XRF instrument’s non-destructive measuring makes it suitable for applications in archaeometallurgy. Operation of the instrument is simple; measurements are conducted at the press of a button.

For precious metal recycling, the handheld spectrometer offers security for both buyer as well as seller. The precious metal content of typical gold alloys can be determined well enough with traditional touchstone testing (acid test), but this procedure requires someone with experience – and the seller has to believe the collector.

“Our instrument, however, shows the precious metal content to both parties,” emphasizes Dirk Wissmann, who is responsible for the XRF spectrometer product line at Spectro. “Best of all, the pieces of jewelry do not need to be ground and scratched for measurements with the XRF instrument. This is important if the value of a piece of jewelry is to be determined or if the jewelry is to be further marketed as second-hand jewelry and not just be thrown into the recycling bin.”

The Spectro xSort also has an optional integrated video camera so the measuring point can be exactly determined.

Mobile instrument uses in archaeometallurgy

An interesting secondary application for the portable Spectro xSORT is the scientific study of archaeological gold and silver treasures. A Spectro xSort has already been used to examine antique objects found in Turkey. It is possible to reconstruct the manufacturing processes and to identify the period of time in which objects were created by investigating the precious metal contents and determining the by-elements. Because sometimes stylistically different silver jewelry composed of similar materials are found at different locations, it is even possible to use the archaeometallurgical investigations to trace antique trade routes.

For further details contact Spectro Analytical South Africa on TEL: 011 979 4241.
Embedding and polishing are common techniques used to create flat samples for microscopic investigation. Often the samples are embedded in a resin with a standard diameter of 25.4 mm (1 inch). The Phenom™ offers a special metallurgical mount holder to support 32 mm samples. The purpose of embedding is to protect fragile or coated materials during preparation and to obtain good edge retention. Embedding is also used to produce specimens of a uniform size, like minerals, clay or other particles and can also be used to section a material and investigate its interior.

Preparation
Mechanical preparation is the most common method for preparing materialographic/metallographic samples for microscopic examination. Abrasive particles are used in successively finer steps to remove material from the surface, until the required result is reached.

The preparation of materialographic/metallographic samples for examination by light microscopy or SEM for image analysis and hardness testing is often a specialist task.

Increasingly, however, more fully automatic systems are available to make things easier. It can take considerable time to section, grind, mount and polish a sample.

Grinding and polishing
Grinding removes saw marks and levels and cleans the surface of the specimen. Polishing eliminates the artifacts of grinding but removes very little material. Grinding uses fixed abrasives – the abrasive particles are bonded to the paper or plates for fast material removal. Polishing uses abrasive particles in a liquid, which are suspended on a cloth.

In summary, cutting the sample will take up to 1 hour, depending on the hardness. The grinding and polishing step may take approximately 2 – 2 ½ hours.

For more information, contact your nearest IMP branch, Gauteng TEL: 011 916 5000, KwaZulu Natal: TEL: 031 764 2821, Western Cape: TEL: 021 852 6133, Eastern Cape: TEL: 041 364 2544, Free State TEL: 018 293 3333 or Email: info@imp.co.za Website: www.imp.co.za
Organ Molten Metal Systems has introduced its Syncarb Z2 e², an isostatically pressed, hybrid ceramic-bonded crucible it indicated will achieve longer service life and increased energy savings. Designed specifically for melting and holding aluminium, the Syncarb Z2 e² ("energy efficiency") has been extensively tested in lab and production settings, with results that confirm operating performances surpassing the energy consumption and durability of competing "energy" crucibles.

The Syncarb Z2 series of products have high silicon-carbide and graphite contents, and display a higher breaking strength due to improved granulation process, resulting in an increased resistance to damage and higher stresses during operation and handling. The new Z2 e² displays higher thermal conductivity at all working temperatures, translating to increased energy savings for customers.

"The MorganMMS Technology Team, with its development of the Syncarb Z2 e², has created a crucible designed specifically for optimum energy savings and efficiency," according to Brandon Kruse, MorganMMS global product manager. The new Z2 e² brings several material and structural advantages to help improve crucible performance and foundry operations. In addition to its 56% higher transverse breaking strength it maintains integrity at relatively higher values due primarily to the granulation of the mix, processing parameters and advanced materials.

In addition, thanks to its advanced glaze technology, the Z2 e² achieved an average 10% increase in oxidation resistance over the competition in both five- and ten-day Loss On Ignition (LOI) tests. MorganMMS noted that independent lab research has proven the crucibles’ superior thermal conductivity over all working ranges while maintaining a standard wall thickness, which correlates to increased energy efficiency and savings.

Furthermore, although the developer noted that thermal conductivity for any crucible would degrade over time, it said the oxidation process proceeds more slowly in Z2 e² crucibles. Reduced degradation combined with a higher thermal conductivity results in greater energy savings than competing products, not only when the crucible is new but throughout its lifetime. MorganMMS stated this translates into "longer run times, more heats, less energy usage and an overall melting solution advantage ...".

For more information contact Morgan Thermal Ceramics South Africa on TEL: 011 815 6820/25 or visit the website www.morganthermalceramics.com

The Williamson Flare Monitor (FM) utilises proven dual-wavelength technology to monitor the ratio of carbon to available oxygen deep within the hot flare flame. This ratio value correlates to combustion efficiency and is used to adjust the flow of air or steam to smokeless flares, thus assuring smoke-free operation and maximum combustion efficiency. The Williamson Pilot Monitor (PM) utilises proven dual-wavelength technology to sense the presence of the small distant pilot flame. This technology allows the pilot monitor to view clearly through severe weather conditions caused by fog, wind, rain, snow and sleet.

The Williamson Flame Intensity Monitor (FI) utilises single-wavelength technology and thoughtful wavelength selection to sense the presence and intensity of flames of all types. The FI class sensors are ideal and when viewing hydrogen, ammonia, CO and other non-H-C flames. This lower-cost technology is also commonly used as a pilot flame detector for ground flares and landfill flares where the viewing distance is less than about 300 feet or 100 meters.

For further information please contact the Sales Department, Temperature Controls, on TEL: 011 7916000 or email: sales@tempcon.co.za or visit: www.tempcon.co.za
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The pristine feel of nature, may seem far removed from the foundry environment, but at Applied Solutions we are as concerned about developing chemical solutions that are environmentally friendly as the most ardent conservationists. One of the challenges facing the foundry industry today is being environmentally conscious whilst continuing to be increasingly competitive. Environmentally friendly sand binders offer quality performance and cost benefits that can improve your foundries bottom line.

Together with our technology partners, ASK Chemicals, we are constantly innovating new products for the benefit of our customers. Flexibility, speed, quality and sustainability are crucial to achieving higher quality in your foundry. Our environmentally friendly, non-toxic, inorganic binder system ensures higher productivity and fewer health risks.

Look at the advantages -
- Virtually emission free
- Less condensate, fewer gas-related defects
- Higher productivity
- Higher casting tensile strength
- Improved casting elongation properties

So instead of fuming about the difficulties you face, call Applied Solutions today and get a team on your side who are dedicated to making your life a lot easier.
The air cannot become pure all at once...

... but the use of our emission-free or emission-reduced binder systems contributes significantly to improving the air quality around foundries.

HÜTTENES-ALBERTUS conducts intensive research to combine the special foundry chemistry knowledge acquired over many decades with completely new approaches. Together with our customers we want to create even more efficient and environmentally friendly foundry processes. Our team is at your service.

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