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EDITOR'S COMMENT

Seven essential features of effective websites



I am in the process of building a website, which should go live in 2014. My research led me to this article which I thought was very pertinent as far too often when you visit a website your experience is not a good one. Here is a shortened version of the guidelines.

Start by defining your requirements

Even if the project is being managed in-house, write down what you want and what the critical elements need to be in the form of a brief to collect your thoughts.

Committing ideas to paper increases the chances of success. I suggest you cover these areas:

Consider first impressions

Your website offers a first impression to many visitors coming into contact with your business for the first time and needs to represent who you are and what you offer. Jacob Nielsen's belief that you only have ten seconds to show your face to the world has probably been cut to five seconds in 2013 (or even less!).

Build in honesty and integrity

Setting the tone on your website as helpful and offering resources like About Us, Our Mission, Our Philosophy and FAQs all help establish subjective attributes that customers look for. The UPS website showcases lots of ways to use content to provide customer support and useful information.

Make it easy to use

Bad navigation can so often result in a high bounce rate and reduced traffic. Using well-known Western T & F navigation formats ensures visitors can find what they are looking for quickly and easily.

Update the content frequently

Content is the biggest part of your website strategy as it governs your selection of keywords, what you say, how and when you say it. Websites that offer frequent updates to pages that can be subscribed to – such as news and blog pages and other pages – ensures customers come back for more.

Use design as a differentiator

Most of the focus in web design inevitably falls on the process that delivers the look and feel for a website. But the visual branding is really important to help differentiate your offering and to develop credibility. Use templates for different parts of the site – to cover home page, product/service and forms. Do think about typography and images that can make a page really pop. Avoid too much colour and too many distracting animations and calls to action.

Build user experience driven landing pages

User experience (UX) focuses on digital interactive products, including software applications and websites. A positive and consistent user experience can be achieved by combining creative and functional design activity with accessibility, usability, information architecture and user interface design.

Test, test, test

As with all digital projects, testing is crucial – before launch, but also throughout the entire development process. When testing a complex interactive product such as a website, the first questions should reveal whether the system is even ready for further testing. Does it actually work? If the product isn't usable on even the most basic level, real functional testing cannot begin.

Knowing now that you have five seconds to keep that website visitor a little longer, what will you do differently?

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Heated, pressurised pouring system - PRESSPOUR® type OCC

One of the world's leading designers and manufacturers of induction heating systems for the foundry, steel, forging, tube and pipe, and heat-treating industries, ABP Induction Furnaces have once again proved themselves in the most demanding, heavy-duty conditions with the development of the pouring furnace PRESSPOUR® type OCC.

The pouring furnace PRESSPOUR® type OCC is suitable for holding and automated pouring of ferrous and copper alloys. For cast iron there are several models available with capacities between 2 900 kg and 25 000 kg and induction power supply of 130 kW up to 500 kW.

There are several advantages and features to the PRESSPOUR® type OCC pouring furnace, according to ABP Induction. These include:

Slag-free pouring with siphon principle

The pouring furnace with its pressure-tight cover has a cylindrical shape. The feed and discharge channels end in the bottom of the vessel (siphon principle). This configuration ensures practically slag-free pouring.

Automated pouring

An electro mechanical drive with a variable adjustment unit moves the stopper after the selected pouring program. This can be done by either using the teach-in method or the closed-loop mould level control called OPTIPOUR®.

Easy positioning of the furnace

In order to adapt to varying pouring positions, the furnace can be moved lengthwise and perpendicularly to the casting system.

Power supply

The inductor is connected to the power supply system via a furnace transformer, which permits selection of the various furnace voltages for holding and superheating.

Constant pouring temperature

The inductor of the PRESSPOUR® furnace is a quick-change unit lined with a corundum or magnesite-based spinell-forming dry mass responsible for keeping the melted metal warm. The inductors are supplied optionally as channel-type (air or water-cooled) or crucible-type (water-cooled) inductors.

Monitoring and operational safety

Continued automatic monitoring of the furnace system guarantees safe operation at



The ABP pouring furnace PRESSPOUR® type OCC pouring with two stoppers



For the 17th time ABP held their Induction Conference for the worldwide foundry, steel and forging industry in Dortmund, Germany in October 2013

any time. All along, the control of the entire pouring procedure is possible.

Easy operation, maintenance and installation

At the designing stage, the main emphasis was placed on a simple operation and maintenance of the system. With the help of detailed instructions, an efficient and quick training of technical personnel is enabled to ensure, for instance, assembly, operation and troubleshooting.

ABP Induction Systems also manufactures and supplies induction-heated pouring furnaces for grey and ductile iron.

Proponents of induction melting have long held it is ideal for foundry operations because it satisfies so many objectives: it is a low emission and energy-efficient process that maximizes the value of raw materials and alloys, and it is a scalable process that can be installed to suit a wide range of production strategies.

Among its products are medium-frequency coreless furnaces LFS for ferrous and non-ferrous alloys with a capacity between 10 and 40 tons and a power supply of 750 kW to 8000 kW.

They also manufacture Channel-type induction furnaces RZS for melting and holding of zinc, RKS for melting and holding of copper and RAS for melting and holding of aluminium.

For storing and keeping of cast iron there are Channel-type induction furnaces type IRT with a capacity between 60 and 155 tons, a power supply of 700 to 3 000 kW and type LFS with a capacity between

13 and 40 tons and power supply between 500 and 1000 kW.

17th International ABP Induction Conference

For the 17th time ABP held their Induction Conference for the worldwide foundry, steel and forging industry in Dortmund, Germany in October 2013.

Beyond ABP's motto "sustainable technology for an energy intensive metal industry" ABP welcomed close to 500 high-caliber professionals from 31 countries to discuss current topics in the industry, as well as the newest technology and innovations.

The conference included 22 lectures and 13 workshops. A discussion including three lectures focused on sustainability and the actual status of the foundry industry with experts from all over the world. Running alongside was an exhibition with 41 partners exhibiting. The event took place in Dortmund's "Westfalenhallen" and its Congress centre.

ABP has over 100 years of serving the metal casting industry. What began in 1903 with the first channel induction furnace from ASEA, continued in 1988 with the merger of ASEA and BBC into the company ABB. With these roots the foundry systems business of ABB became ABP Induction in 2005 as an independent, worldwide operating company focused on induction technology.

For further details contact ABP Induction Furnaces on TEL: 011 623 1814/17 or cell number 072 158 1117 or email byron.mccall@abpinduction.com. You can also visit www.abpinduction.com ■

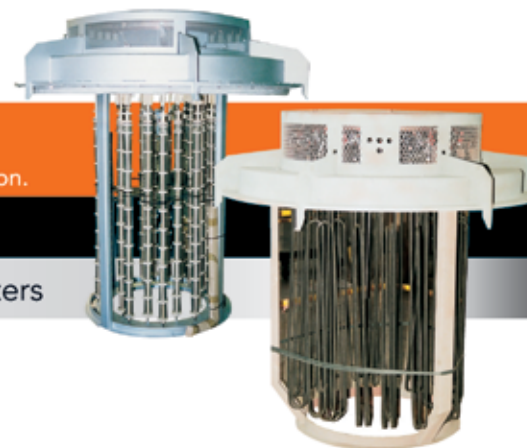


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The MRA's court application was opposed by Economic Development Minister Ebrahim Patel, the International Trade Administration Commission of South Africa, the ministers of both Trade and Industry and Water and Environmental Affairs and the National Union of Metal Workers of South Africa.

The new policy, which came into effect on September 16, forces scrap metal exporters to first offer their product to domestic foundries, small mills and secondary smelters at 20% lower than international prices, before they can qualify for export permits. The price-preference system is part of a set of recommendations made by the government on iron ore and steel last year, to support downstream industries.

MRA fails in its attempt to stop the implementation of a trade policy directive for preferential pricing on scrap metal

An urgent interdict by the Metal Recycling Association of South Africa (MRA) to stop the implementation of a trade policy directive for preferential pricing on scrap metal has been defeated in the Gauteng High Court - Pretoria. The urgent interdict application by the MRA was heard on 10 and 11 October 2013.

Judgment in the application for the interim interdict brought by the MRA against The Minister of Economic Development, The International Trade Administration Commission (ITAC), The National Union of Metal Workers of South Africa (NUMSA), The Minister of Trade and Industry and The Minister of Water and Environmental Affairs was handed down on 28 October 2013.

In his 59 point summing up, Judge J Mothle said "The MRA contended that the Directives and Guidelines violate international law. Section 60 of ITA Act clearly prescribes that the guidelines issued by ITAC are neither binding on it nor on a SACU Institution or a Court. Both the Directives and the Guidelines make provision for a clause, which confer powers on ITAC to issue exemptions in instances where violation of international law may arise. In essence ITAC may depart from those guidelines during the process of implementation. The status of the Guidelines therefore becomes relevant as and when ITAC may choose to apply or not to apply them. An administrative body may apply internal policies as long as it will not preclude the exercise of discretion."

"Further, as correctly submitted for ITAC, neither MRA nor any of its members are parties to international agreements and treaties. If indeed there is a breach of any of these treaties or agreements, it is a matter which South Africa as a party to such treaties will have to answer for. It is my view that for the purposes of this application, I need not go further than what I have already stated in regard to this ground of review, save to state that at this stage of the proceedings, I am unable to see how the implementation of the Guideline, which is not binding on ITAC, should be restrained because it is said not to accord with international agreements."

"On the question of the Applicant's contention that the guidelines infringe property rights, again the argument relating to whether the Guidelines are binding or not, becomes relevant.

It cannot be said that the Guidelines per se infringe or will infringe property rights of the constituent members of MRA until such time that ITAC chooses to implement them. It is not correct, in my view, to seek to impugn the Guidelines on the basis that they are lacking in the processes for recourse and appeal procedures. ITAC is not bound by the Guidelines and may depart from them in appropriate cases. ITAC must first choose to apply the Guidelines in a specific case and only then would its decision be subject to review on any ground as listed in section 6 of PAJA. The Guidelines per se do not deprive anyone of a property right as these may or may not apply in any specific case.

Apprehension of irreparable harm

"MRA contends that the implementation of the Guidelines by ITAC pending the finalisation of the review case will cause its members to lose income, which may not be recoverable, should they succeed in their review application."

"On the question of harm, MRA raised two instances which are in my view, destructive to their case. In the first instance MRA argues that any loss that may be suffered as a result of the 20% reduction on the export price will be passed on to the scrap metal suppliers and collectors. MRA took the position to champion the cause of the suppliers and collectors (referred to as the poorest of the poor), and positioned them as the ultimate losers in this new policy initiative. MRA in effect informs this Court that such harm will attach to the suppliers and collectors, not to the recyclers."

"In the second instance, MRA in its own application argues that the foundries in South Africa do not have the capacity and the expertise to absorb all scrap metal for domestic purposes. In that case, the sale of such scrap metals at 20% less within South Africa will not slow down the exportation of scrap metal at market prices determined abroad. Apart from the fact that in the affidavits before court in this application, there appears to be serious inconsistencies in regard to the calculations of what would constitute a loss on the part of the MRA members, I am of the view that for the two reasons stated above, the alleged apprehension of harm on the part of the MRA is speculative." ▶

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- IMF: turnkey moulding plants and systems
- Mammut: crucibles
- Progelta: molten metal treatment and automation systems for grey and ductile iron foundries
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“As against the apprehension of harm contended by MRA, NUMSA points out to the loss of employment which is being experienced currently and will continue if there is a delay in the implementation of the policy Directive and the Guidelines. It is submitted, that the continued loss of employment and supply of recycled scrap metal products is a public interest matter which should supersede the alleged harm experienced by MRA members, due to the 20% price reduction of scrap metal exports.”

“The introduction of price control measures as contained in the Directives and the Guidelines was, according to submissions by NUMSA and the Minister, executed in the least intrusive manner. Further, NUMSA submits that government had a choice of either putting a hold on exportation of such goods or levying taxes on such exportation, either or both of which would have resulted in greater harm to all the parties involved. The Minister opted for a less intrusive manner of intervention which is aimed at striking a balance between developing the economy internally in controlling the export prices instead of sitting back and allowing the demise of foundries with the consequences of job losses and decline in supply of metal products for end users.”

Balance of convenience

“The balance of convenience rests on where harm or prejudice will fall should the application be granted or dismissed. In particular in this case, the bar to make out a successful case is lifted by the fact that this application is an invitation to the court to intrude in the domain of the national executive. As already pointed out, it is not in dispute that the Directives and the Guidelines are an expression of economic policy by the executive branch of government. This Court is neither authorised nor suited to make policy choices for the national executive. In *OUTA* the Court stated as follows:

“When it evaluates where the balance of convenience rests, a court must recognise that it is invited to restrain the exercise of statutory power within the exclusive terrain of the executive or legislative government. It must assess carefully how and to what extent its interdict will disrupt executive or legislative functions conferred by the law and thus whether its restraining order will implicate the tenet of division of powers. While a court has a power to grant a restraining order of that kind, it does not readily do so, except when a proper and strong case has been made out for the relief, and even so, only in the clearest of cases.”

“The grounds of review which were raised in support of this application do not at this stage of the proceedings outweigh the considerations of avoiding harm to the doctrine of separation of powers. Initially when this application was launched, it was intended to restrain the implementation of the Guidelines scheduled for 16 September 2013. As at that date, this application had not been heard. ITAC in the meantime had amended the original version of the Guidelines and published the amendment in the Gazette. At this stage, the date of commencement of the implementation process has come and gone. The policy is being implemented. It will thus be inappropriate at this stage to “stop dead” the implementation of a policy addressing a public interest issue. In my view this is not a strong, exceptional or clearest case where the court should intervene by granting an interim interdict. The balance of convenience favours the dismissal of this application.”

No alternative remedy

“The exportation of metal is not a compulsory option for MRA members. They have a choice. They may either sell their products in the local market at market prices or where they choose to export scrap metal, they have to first offer it to the local market at a price less 20%. In their own version, the bulk

of the products envisaged for exportation will not be absorbed by the local market as the capacity to do so is limited. It therefore goes without saying that if their version is correct the business of exportation at market prices will still thrive.”

Conclusion

“MRA in my view has not, for reasons stated above, succeeded to make out a strong case, justifying this Court to stop ITAC from implementing the Guidelines, as and when it chooses to do so.”

“Considering the evidence as a whole, as placed before me in support of this application for interim relief, I am not persuaded that this is a instance where a strong case has been made out for this Court to intervene and grant the order without offending the doctrine of separation of powers. The application should therefore fail.”

Scrap metal industry's worth

The scrap metal industry is estimated to be worth between R15 billion and R20 billion a year. It is highly desired for products such as steel because it has already been beneficiated and requires a fraction of the energy to process.

At a recent industry meeting guidelines were highlighted to the audience as to the implementation and administration of the trade policy directive for preferential pricing.

ITAC is the administrator of the Policy, which had been issued by EDD. They implement the guidelines. The Minister decided to use ITAC, as the permit system was already in place (to comply with the Basel Convention).

Industry has been requested to assist ITAC in the implementation of the preferential price system.

Procedure to export scrap metal

1. ITAC issues a monthly Rand price for the various types and categories of scrap.
2. A scrap metal merchant wishing to export scrap applies for a permit to ITAC.
3. ITAC sends a summary of the applications to industry associations with details of the quantity of scrap, type, category, contact phone number and address where it can be viewed by interested parties.
4. The Associations forward the list of applications to their members (the consumers – secondary smelters, mills, mini-mills, foundries as per the guidelines).
5. The consumers (as above only) can if they wish view the material and offer to purchase all or part of the batch (at the applicable monthly price fixed by ITAC).
6. Consumers have 15 days to view and buy all or part of the scrap.
7. The consumer must inform ITAC in writing via email or fax stating the relevant export permit application number of the following:
 - I. The quantity purchased, stating the export permit application number. The permit will then be cancelled or reduced in volume accordingly.
 - II. If the scrap merchant refuses to sell the metal or demands a higher price than the ITAC published price for the specific export application grade the permit can then be cancelled.
 - III. If the scrap merchant claims all the material is sold, this will then keep them honest.
 - IV. If the scrap merchant refuses to let you view or inspect the material prior to making an offer to purchase. In this case ITAC may then refuse the permit.
8. If there is no buyer, the scrap metal merchant approaches ITAC for the export permit, which will be issued, and the batch exported.

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It was noted at the meeting that scrap metal merchants are in some cases refusing to sell the scrap or avoid phone calls, or do not return calls. If this is the case then industry must inform ITAC in writing and were advised as follows:

1. It is essential to make a written offer. If it is refused, this information, with a copy of the offer must be sent to ITAC, with details of the batch, merchant, site and application number.
2. When the merchant requests the permit to export, ITAC will refuse to issue the permit.

It was also clarified that:

- a. The preferential price is a floor price (it could happen that more than one consumer bids for a batch of scrap).
- b. The regulation does not force a scrap merchant to sell the scrap but a refusal can lead to the permit application being cancelled.
- c. The last of the "old" regime export applications have a validity of 1 month – they expired +/-25 October 2013.

In summary it was noted that it is absolutely essential that consumers inform ITAC in the 15 day period of:

- Offers, correspondence between consumers and scrap metal merchants.
- Purchases of scrap metal.

Although this urgent application was dismissed a further hearing is now scheduled for March 2014.

In a Business Day report written by Mark Allix the Metal Recyclers Association says it notes and respects the judgment, and reserves further comment now.

Earlier this year it told the government it represented the interests of 150 "bona fide" metal-recycling companies in

the formal sector throughout South Africa. These companies collected more than 80% of the country's ferrous and nonferrous scrap metal for recycling.

It says South Africa's manufacturing industry is "probably the largest producer of scrap" and industry revenue will suffer from the export regulations. There are more than 400,000 informal scrap collectors in SA, most of whom have dependents, it says.

"The main danger, however, lies in the fact that by intervening in this manner, no consideration is given to the loss of an efficient and competitive sector in South Africa, namely that of scrap metals," it says.

The report continues

South Africa's foundry industry has long been in decline. The Non-Ferrous Metal Industries Association says since 2000 it has suffered from decreasing availability of "affordable and quality scrap metal".

It says exports of these metals have soared – mostly to Asia – resulting in up to 10,000 job losses in the foundry industry. The aluminium sector has suffered most, shedding up to 64% of output capacity over the past six years.

But the recycling association, in its earlier representations, said such exports were not depriving domestic consumers of scrap inputs. "The elephant in the room is that local scrap consumers already have the first option to buy scrap in terms of current legislation (prior to exporters being granted permission). This means all of the scrap being exported, is scrap that is not wanted by local consumers."

It also says price controls often lead to "severe unintended consequences", and controlling domestic scrap prices below international levels will lead to distortions in the allocation of resources.

"The domestic scrap-collecting and recycling industries operate within a very competitive global market as pure price takers. This implies any administered price downwards will result in the entire price change being absorbed by the scrap market as they will not be able to compensate for lower prices other than lowering their purchase and selling prices."

"These lower prices will presumably be fully carried by the collectors and suppliers of scrap."

The ruling has been welcomed by various industry bodies. The Federation of Unions of South Africa (Fedusa) has also welcomed the judgment. "It reaffirms the aims of initiatives like the New Growth Path and National Development Plan to reindustrialise the economy and create jobs," the union's general secretary, Dennis George, says.

"It is important for the social partners to use the new framework to rebuild the steel manufacturing industry, including the foundry sector, create more jobs and strengthen the government's ... national infrastructure build programme."

Fedusa says as international demand for scrap metal increases, mainly in Asia, the price rises, and the cost of scrap metal for domestic processors in some cases amounts to more than 70% of total input costs. Because of this, it says South Africa has lost many of its value-adding industries, especially in the automotive components, general engineering and furniture sectors.

But the Metal Recyclers Association says scrap exports do not deprive local consumers of such inputs and local metal producers overcharge, using import parity pricing. This has led to a flood of imported "new metal" and an increase in the availability of scrap for export.

It also says scrap metal is a relatively low component cost of foundry products, ranging from 15% in the case of iron and steel foundries, to up to 40% in the case of low-value aluminium castings.

"The recovery of other significant input costs such as energy and labour cannot be justified by increasing the final sale price," it says.

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MCTS Colloquium 2014

The Metal Casting Technology Station (MCTS), which falls under the Faculty of Engineering and The Built Environment, University Of Johannesburg is hosting the fourth foundry industry colloquium in October 2014. It is envisaged that international experts will attend and present at the colloquium.

Technical forums will be hosted in partnership with the SAIF to stimulate industry discussion on required applied research and technology in South Africa. The colloquium focuses on research and practical application in the metal casting and foundry industry in South Africa – and provides a much-needed platform for academia and industry to collaborate and share solutions with one another.

The primary mandates of the MCTS are technology transfer and capacity building in the foundry industry and the colloquium will contribute to both objectives.

The seminar will achieve the following:

- The diffusion of foundry expertise with presentations by international foundry experts
- Strengthening of international partnerships
- Technology and information transfer in the local foundry industry
- Sharing of knowledge and ideas in metal casting
- Discussion of research and applied research
- Marketing of the skills, laboratories and equipment of the MCTS
- Positioning of the MCTS as a centre of excellence in the foundry industry
- Exposure of staff and students to industry and vice versa
- Increased collaboration between academia, professional institutes and industry
- The delivery of a repository of academic and industry case study work

Attendance of the colloquium is open to all stakeholders.

You are invited to submit your intentions of participation in the colloquium, whether it be a presentation or an attendee to: Farouk Varachia, Station Manager at the Metal Casting Technology Station on TEL: 011 559 6032 or cellular 082 788 4816 or email faroukv@uj.ac.za.



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Modern office facility in Johannesburg lays foundation for further growth.

Endress+Hauser strengthens sales operation in South Africa

Two years after breaking ground, Endress+Hauser has celebrated the opening of a new building in Sandton, Johannesburg. Modern offices, training facilities and an auditorium provide an ideal sales and marketing environment.

In the presence of CEO Klaus Endress and numerous guests of honor from government and industry, the new Endress+Hauser South Africa headquarters was officially opened on 3 October 2013. The new building, situated on the existing site, houses more than just spacious offices and meeting rooms for the 80 or so employees in Sandton. Of the 1,500 square meters of total floor space in the new building, 600 square meters are dedicated to maintaining customer contact. A spacious reception area, training rooms and a 100-seat auditorium are designed to facilitate the exchange of knowledge and to further strengthen customer relationships.

In addition to offices and conference rooms, the two-story open-plan building offers employees social interaction zones and a cafeteria with covered patio. A direct link to the existing building ensures smooth operation. This original building, which opened in 1987, has been converted into an expanded logistics and service center including warehouse, staging area, workshops and a flow calibration center. In total the two buildings in Sandton boast 3 700 square meters of floor space.

Room for further growth

"This new facility relieves space shortages and provides an ideal environment for working with our customers," says Rob MacKenzie, Managing Director of Endress+Hauser South Africa.

Scaw chairperson appointed Seifsa president

Scaw Metals executive chairperson Ufikile Khumalo has been appointed president of the Steel and Engineering Industries Federation of South Africa (Seifsa), succeeding outgoing president Henk Duys who served a two-year term.

Khumalo is a professional engineer, who has previously held various executive positions at Exxaro Resources, Credit Guarantee Insurance Corporation and Digicore Holdings, besides others.

Newly appointed Seifsa executive director Kaizer Nyatumba, who assumed his new role on November 1, welcomed Khumalo to the 70-year-old federation.

"The team and I look forward to working with [him] as we embark on a journey to raise the federation's public profile and to ensure that its voice is heard on contemporary economic debates in the country," Nyatumba said.



Klaus Endress, CEO of the Endress+Hauser Group and Rob MacKenzie, Managing Director of Endress+Hauser South Africa unveiled the sculpture 'Loyalty and Responsibility' by Reinach artist Bruno Guthauser. The three intertwined bronze rings symbolise the loyal relationships among customers, associates and shareholders, and the company's economic, social and ecological responsibility. The same statue has been unveiled at every new facility of Endress & Hauser, worldwide

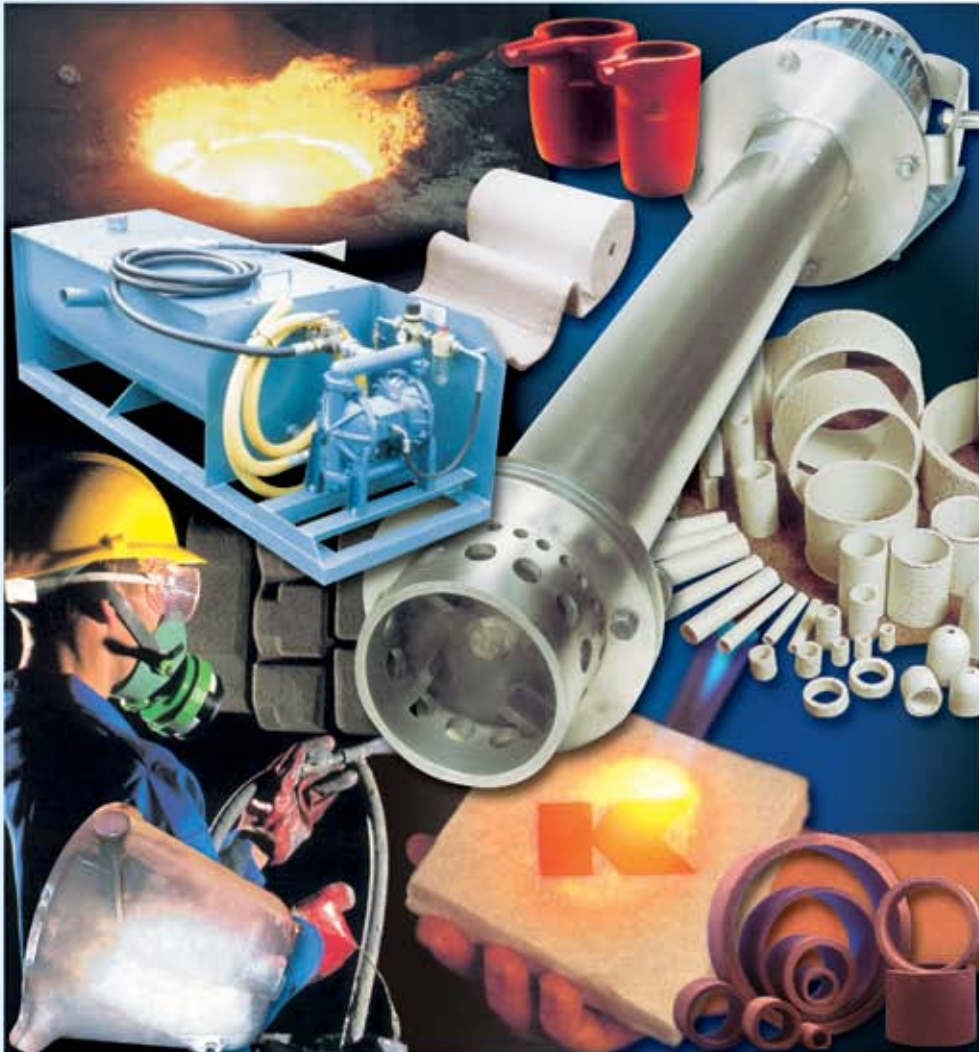
"We now have the right conditions for further growth in the sub-equatorial African market." Endress+Hauser invested R43 million (Euros 3.3 million) in the expansion. A high value was placed on an energy-efficient design. The environmentally-friendly building features a sophisticated air-conditioning system, solar panels and motion-sensitive lighting."

"South Africa is an important gateway to the African continent for Endress+Hauser. The measurement and automation technology specialist established a subsidiary on the southern tip of Africa in 1984. "We are one of today's leading providers of process control technology," explains Rob MacKenzie, who oversees around 120 Endress+Hauser employees in South Africa.

In order to optimally manage its customers, the company maintains offices in four cities around the country in addition to its headquarters in Sandton. The expanded headquarters also supports sales partners in around a dozen African countries south of the equator. The first Endress+Hauser factory on the African continent is also close by: With 25 employees located in Benoni near Johannesburg, Endress+Hauser Pyrotemp produces temperature sensors for the local primaries, metals and petrochemical industries.

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Foseco South Africa revamps its technical laboratory

Foseco South Africa has recently re-opened its laboratory at its facility in Alrode, Gauteng after it went through a major overhaul and revamp.

“The technical laboratory provides services for foundries in South Africa as well as being able to do local product development. The previous technical laboratory was in use with only some minor changes for almost the last 30 years and was desperately in need of a revamp and an upgrade,” said Jurgen Radstake, Foseco’s Laboratory Manager.

“A new layout and inventory was necessary in order to create a work environment that meets the high safety, health and environmental standards, as well as ensuring the customers demands are fulfilled,” continued Radstake.

“On the physical side the offices were separated from the laboratory and relocated to the 2nd floor above the technical laboratory. The entrance of the laboratory was provided with a ramp and guards to eliminate risk related to heights. Additionally a bigger area with new extraction and good working heights was designed for doing burn tests on sleeves.”

“The main laboratory was equipped with a new fume cupboard, extraction for the furnaces, an emergency shower and new furniture complying to the latest ergonomic standards.”

“Additionally the apparatus in the lab was extended with a GC, an aluminium analyzer and moisture balances. This has resulted in tests being done much faster and more accurately so that the customer will have a quicker response on their sand samples and other analysis.”

“Foseco South Africa will now also be able to assist foundries with a broader range of analysis. For the further development of existing products it means that Foseco South Africa is fully capable of customising products so that our customers are assured that the products they use are 100% suitable for their requirements and processes.”



Foseco South Africa has recently revamped its technical laboratory. Heinz Nelissen (Foseco’s Area Director Foundry Northern Europe) officially opened the laboratory together with Mark Wynn (Business Unit Director Foseco South Africa), Enno Krueger (Sales and Marketing Manager) and Jurgen Radstake (Laboratory Manager)

“Furthermore the knowledge of the laboratory employees is being further extended by participating in foundry knowledge courses and foundry visits to get a better understanding of the products application as well as the customers. In addition to that, quality control will be increased with more tests in order to guarantee a consistently higher quality standard of all of our manufactured products ensuring peace of mind for our customers.”

“A customer open day is also planned so that they can have a closer look at the new state-of-the-art facilities and what we can offer them.”

Foseco is a leading manufacturer and provider of proprietary consumable products and solutions to the global foundry industry. They are dedicated to helping customers improve their operations and businesses with innovative products and services, developing and commercialising the best ideas from customers, employees and their research labs to help customers reach the highest level of performance. Foseco operates in over 100 countries around the world.

For further details contact Foseco South Africa on TEL: 011 903 9500 or visit www.foseco.com





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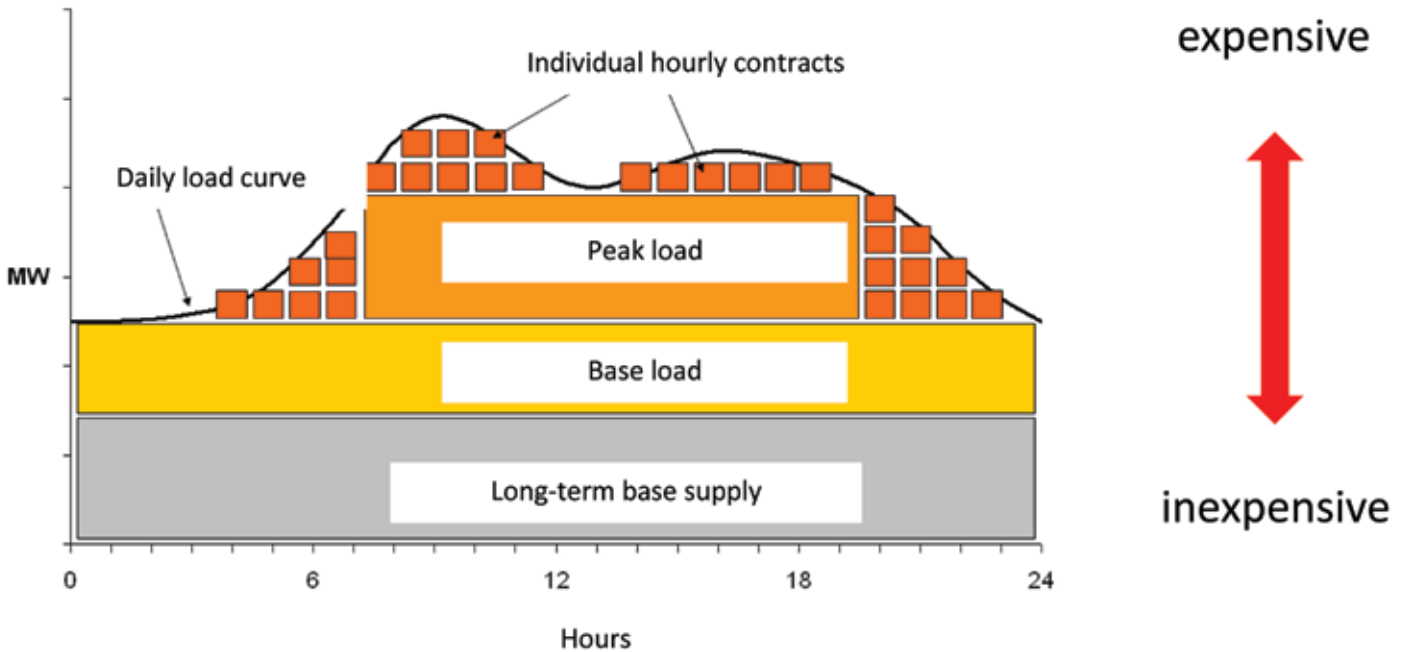
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Organised business supports high energy users in litigation against NERSA and the NMBM

The Nelson Mandela Bay Business Chamber has been extensively involved with the six of the thirteen companies that make up the High Energy User group through meetings, debates, correspondence and engagements with the Nelson Mandela Bay Municipality (NMBM) and the National Energy Regulator of South Africa (NERSA).

“For the first time, the Nelson Mandela Bay Business Chamber ventures into supportive litigation against NERSA and the NMBM, in the interest of protecting companies in our region from potential closure, the loss of jobs and resulting downward spiral of the Eastern Cape economy,” said David Mertens, spokesperson for the High Energy User Group in the Nelson Mandela Bay Municipality.

“As a co-applicant in the challenge against the manner in which Municipal tariffs are set by NERSA, the Chamber joins the litigation to represent its membership against increasing electricity costs, for the benefit of the broader business community,” continued Mertens.

“The NMBM foundries, comprising Autocast, Borbet and Weir Minerals, are applicants, next to companies such as Shatterprufe, Tenneco and Coca Cola.”

“You might recall that as a group of companies, we intensively engaged for the last two and half years to get better industrial electricity tariffs in our Municipality. Despite the obvious evidence of job losses and financial hardship for the companies, the NMBM decided to ignore our engagement and once again just increased the tariffs last July. NERSA followed by approving the NMBM’s application. This leaves us with another year of industrial electricity tariffs which are 35% above the equivalent Eskom Direct Tariffs.”

“NERSA themselves confessed in a parliamentary hearing in November 2012, that there are “structural and other problems with Municipal tariffs”. They also stated that Municipal Funding through electricity tariffs “has reached a tipping point and needs to be reduced” and that municipalities “do not seem to understand the impact on Industry”.

“Additionally, NERSA commented that; “Municipalities do not have the proper skills”, nor “do they have the proper information” to perform the distribution function. Despite the above, NERSA has failed to deal with this fundamental problem for the 2013 tariff determination for the NMBM.”

“This lack of strategic approach, when it comes to industry, needs to come to an end and unfortunately, industry’s only effective weapon in this battle is litigation.”

The litigants maintain the following:

- That NERSA has no constitutional power to impose a surcharge indirectly, or on behalf of any Municipality;
- In approving the relevant electricity tariffs, NERSA did not consider relevant information, and did not apply its mind;
- That business in Nelson Mandela Bay pays unjustifiably higher rates for electricity compared to business that fall outside of the Nelson Mandela Bay licenced area;

- That no concession is granted to industrial electricity users within the Nelson Mandela Bay Municipality licenced area;
- That the imposition of the Nelson Mandela Bay Municipal tariff did not comply with various legislative requirements, and is in violation of constitutional rights.

“Although the application concerns the NMBM tariffs, it is obviously an application with national relevance as the same arguments are applicable to most municipalities, which in total distribute 40% of the country’s electricity,” explained Mertens.

“The future and imminent impact of the tariff increases will require industries to recover the costs through increasing product and commodity pricing, resulting in the consumer paying more (over and above their home electricity bill), increasing the general cost of living and certain industries could consider foreclosure or relocation to alternate provinces.”

“Current and projected electricity tariffs have a significant adverse economic impact on the continued survival of the manufacturing industry and commercial sector in this region.

The electricity cost to industry in Nelson Mandela Bay is amongst the highest in the world and has reached a tipping point. The more a business depends on energy, the more it will be affected.”

“Municipal mark-ups on the NERSA tariff of up to 50% are a catastrophic reality for industry and business. Energy Intensive Users are already at a point where 950 jobs have been lost and investment has come to a grinding halt. The increase has considerable knock-on effects on the competitiveness, viability and sustainability of businesses, and the ability of industries to retain or even create jobs.”

“We need an electricity price path which will ensure that South African business remains financially viable and creates investment opportunities which attract investors, rather than deters them. One of these catalysts is to provide a sustainable utility, with good quality of supply that remains affordable for all South Africans.

“The Chamber has listed the main arguments in their statements. In the NMBM, we would only pay about 76% of the current tariffs if we were to be supplied by Eskom direct. We are obviously fighting this unfair “surcharge” or “factual taxation” which is levied on municipal electricity users.”

“We are offering our municipality this 76% on the back of this application, meaning we are underpaying in relation to the regulated tariffs.”

“Foundries and other companies in other municipalities might be interested in this litigation as a “copy and paste” version might be applicable for them. We do not expect a quick legal ruling regarding this case, but next year’s tariff determination might also be influenced by the content of this application.”

For further details contact David Mertens on
TEL: 041 402 8800 or email him on
David.Mertens@autocast.co.za

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Saveway Furnace Monitoring Africa installs second Savedry system at Tronox KZN Sands

Moisture in the refractory linings of metallurgical aggregates leads to premature wear or destruction of the refractory material. There is also a risk of serious explosions, especially if MgO deliveries lose their hydration fire resistance and mechanical stability. Regardless of whether this is residual moisture in relining or cooling water leakage, the actual measurement of the moisture is critical to the safe operation of the facilities.

The Savedry system detects the moisture content at the sensor. The operating principle is based on the measurement of ion conductivity of ceramic materials. Impurities in the refractory material, such as alkalis or salts dissociate into ions in the moisture, resulting in the electrical conductivity.

German refractory condition monitoring company Saveway is a leader in this field. The South African operation, Saveway Furnace Monitoring Africa, first installed a Savedry system at Tronox KZN Sands, Empangeni, KwaZulu Natal in 2009 and has now recently installed a second system.

"We have a long standing relationship with Tronox KZN Sands. They had their first Savedry system installed on Furnace 1 in December 2009. When Furnace 2 had to go out on a relining campaign we were given the opportunity to install another Savedry system into this furnace," said Karien Du Plooy, General Manager of Saveway Furnace Monitoring Africa.

"The system that was installed is uniquely designed as per the specifications of the client. By using the Savedry system it is now possible for them to determine the moisture content by evaluating the measured electrical resistance of the refractory lining."

"Appropriate arrangement of the sensors allows a partial or complete monitoring of the vessel. The localisation of cooling water leakages or remaining moisture becomes possible by the arrangement of several sensors. The sensors are chosen

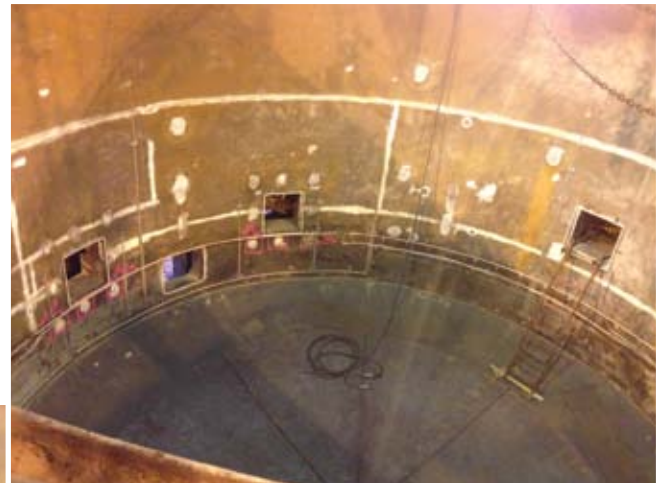
according to the required measurement and the design of the furnace," explained Du Plooy.

"Saveway have installed many of these systems worldwide as they have done with their other systems."

"We are engaged in the production, installation and worldwide sales and distribution of measuring technology for melting plants in the foundry industry, the steel industry, metallurgical industry as well as the glass industry. We provide conditions of utmost safety for operating staff and technical equipment."

"Our technique continuously monitors the condition of refractory linings during operation, thus providing accurate data on the residual lining thickness and the stage of drying, also detecting possible hot spots or cooling water leakages. Additionally, we provide techniques for selective shunt monitoring and a special technology that avoids or minimises the clogging on linings and refractory parts."

"As a result, our technology prevents furnace breakthroughs and plant damages, and avoids disruptions in operation. Since relining becomes predictable it ensures maximum service life of the refractory lining without any risk."



Arrangement of the Savedry sensors in a prefabricated rack at the tap hole and circumference of a DC arc furnace



"Automatic self-diagnosis of the systems ensures permanent function control and easy handling. The drying out process and the sintering of the vessel (e.g. furnace, ladle, etc.) can be monitored as well."

"All measured data are recorded in chronological order and can be displayed by history reports. Our service team supplies competent advice and remote maintenance at any time."

For further details contact Saveway Furnace Monitoring Africa on TEL: 012 667 2178



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Rapid Allweiler foundry starting to pump out castings

Decisions add up to solutions.

Rapid Allweiler celebrated its 80th birthday in 2012 becoming part of a select group of companies in South Africa that have proved that consistent quality and service lead to longevity. Established as a general engineering business in Booyens, Johannesburg in 1932, the company continues to grow from strength to strength.

From modest beginnings, supplying their own range of borehole and gear pumps to the market, the two founders, Mr AJ Hindry and H Day, soon saw the gap in the market for a quality centrifugal pump.

In 1952 the partners successfully established a partnership with Allweiler AG, the oldest pump manufacturing company in Germany. Allweiler AG took a 35% shareholding in the South African company. The company changed its name to Rapid Allweiler and initially acted as Allweiler's distributor before setting up to manufacture the products locally. This partnership continues to flourish today.

It remains, however, primarily a family business. Current MD Caroline Houghton, who took over the running of the company 10 years ago, is the granddaughter of one of the founding partners and husband Garry, who joined the company seven years ago, is the Operations Director.

"Allweiler, Germany's oldest pump manufacturer, was established in 1860 and is a member of the Colfax Corporation, which acquired Allweiler in 1998. The relationship between the two companies has been forged over many years and today we even export product and components back to Germany for use in Europe," said Caroline Houghton.

However it has not been plain sailing for Houghton, who believes that she is still the only female MD in this



A general view of the Rapid Allweiler foundry in Spartan, Gauteng

male dominated industry.

"My training is in the food and nutrition environment and before returning to South Africa to run Rapid Allweiler I was food and beverage manager for a prominent hotel in London. I had returned to South Africa on a family visit and I soon learnt that my grandfather's business was experiencing problems," explained Caroline.

"They had tried various routes to get an MD in place, with no success. This is when I jumped in and reluctantly my grandfather, who had been retired for several years, agreed that I could take up the challenge. What does a woman know about engineering or manufacturing were his thoughts?"

"But I did not believe that this would present a problem as I feel that good management principles are the same in any company or industry. My first task, working in close collaboration with a group of consultants that comprised experts on all aspects of business and management, was to restructure the company."

"We had to implement several tough changes, which I felt were necessary to ensure the future competitiveness of the business and return it to profitability. Establishing a good relationship with Allweiler again was another key achievement."

"A new corporate image was introduced, with redesigned logo and brochures, and a bright new look for the offices and workshops. Changes in the manufacturing processes took longer but they have transformed the whole environment in this area and we now have something that we can work with."

"Changes of this nature were not easy especially as we had to get the buy-in from staff, and secondly because of the cost involved. But today over 80% of our staff have 10 or more years of service and they realised that what we were doing were positive, long-term changes."



MD Caroline Houghton with husband Garry

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“We also integrated technological advances into as many aspects of the business as possible and the emphasis of the business was on service. The company had a proud history and one that was associated with quality, which I did not want to lose. Still today we will have a farmer calling to say he needs a spare part for a pump that he purchased in 1975 and we will supply him.”

Despite the challenges of implementing these changes and adapting to a new MD and senior management, Houghton is proud to report that the business has grown substantially.

However, she does not take the credit for this accomplishment: “I don’t run this business, we run it as a team, and this has always been my philosophy,” she says.

Although the Allweiler products are not at the low-cost end of the market, Houghton is confident that both the quality and technology of the pumps are superior to most similar products available in South Africa.

“The South African market is somewhat price-sensitive but it is becoming increasingly important, particularly in the mining and petrochemical sectors, for pumps to be energy-efficient.”

“An efficient pump saves on energy and, in many cases, the electricity saved is worth many times the capital expenditure of the pump itself,” she says.

“This is especially relevant in view of the Department of Minerals and Energy’s renewed focus on energy-efficiency and saving.”

Rapid Allweiler is a blend of German engineering and technology with quality products, precision machining and knowledge. The company has an extensive range of pumps and pumping solutions available.

Locally manufactured pumps include centrifugal pumps, chemical processing pumps, multi-stage and heat oil transfer pumps for industrial, petrochemical and agricultural uses, to name a few.



Lauds Machinery supplied a Lauds 3000 temperature sensitive no-bake blending unit. The unit supports the Lauds LT6-12TPH pivotal continuous mixer. The system is fed with a 10mt bulk fed hopper

The fully imported range from Allweiler includes screw pumps, progressive cavity, side-channel, macerators and peristaltic pumps.

The company is in addition the sole Southern African distributor for the Dutch manufactured Houttuin and Swedish manufactured IMO pump ranges. Houttuin’s pump range caters for the chemical and petrochemical industry, tank farms, power plants, offshore refineries, shipbuilding and marine, food and beverage, plastics, sugar and environmental industries.

Another product from the Colfax range – the centrifugal pump for the marine industry – is available to the local market as well. Houghton reports that Rapid Allweiler services the entire Allweiler, Houttuin and IMO product range in Sub Saharan Africa with its trained service and maintenance team, with pumps in plants such as the Kelvin power station, on the East Rand, and Engen’s petroleum plant in Kwazulu-Natal.

The company intends to manufacture an inline centrifugal pump range locally to DIN 24255 specifications and the EN733 centrifugal pump.

Houghton says that the company benefits from Allweiler’s research and development (R&D) team in Germany, but it also carries out its own R&D at its facilities in Isando, Johannesburg. Operating under the TUV ISO 9001:2000 quality management system, the company has a fully operational test-bed enabling it to carry out the testing of pumps at the factory.

The company supplies various pumps to the precious-metal industry, refinery, agriculture, and the general metal-finishing industry such as the automotive, chemical handling and hydro-carbon refineries, mining (including slurry pumps) and petrochemical sectors.

Foundry operation

Castings and raw materials were always sourced locally and all machining is completed at the factory in Isando. ▶



A pump being machined



The company has a fully operational test-bed enabling it to carry out the testing of pumps at the factory

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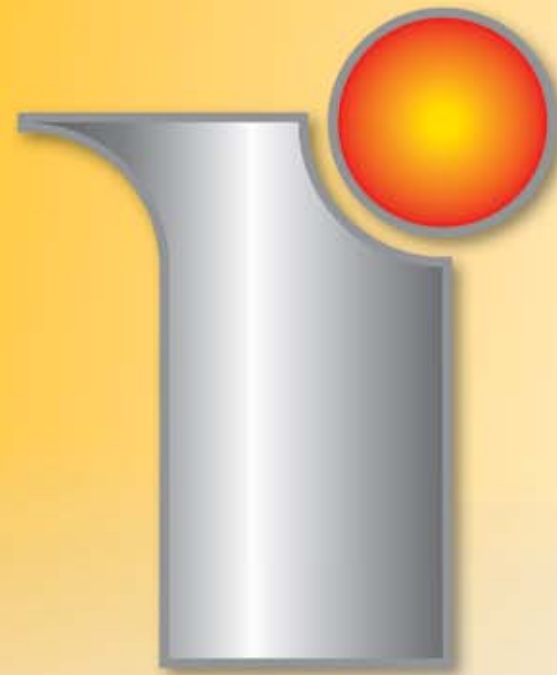
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- Insimbi Aluminium Alloys is a producer of quality deoxidants.
- Insimbi Nano Milling develops, manufactures and distributes nanosized products and composites.



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The 350 Kg LH Power furnace



The Spectro spectrometer that the company recently purchased

That was until earlier this year.

“All our units in the range are manufactured in cast iron, stainless steel - making them suitable for the petrochemicals industry and bronzes, depending on the industry requirements.”

“We operate in a very competitive environment, especially if you take into account the influx of imports these days,” bemoaned Houghton.

“Since I started running the company there has always been an emphasis on service and quality. These aspects, at the end of the day, rescued the company from its troubled position 10 years ago. Therefore we have to monitor these areas constantly and sadly we were being let down constantly by the local suppliers. Deliveries were always late and the scrap rate on castings reached a level of 25%, and you only found this out once you had completed 11 hours of machining on the component, and you can't recover this from the supplier,” said Houghton.

“In a way we were forced to make the decision to start our own foundry so we could control this aspect of the business. Every solution starts as a problem to be solved, and the process of getting from the problem to the solution involves research and evaluations, and decisions. Our decision was that much harder because

we were not in the foundry business and we will not leap into new territory until we are certain that we have the



Resin sand mould before closing and casting



Various castings manufactured by Rapid Allweiler for the company's own use

right skills and people for the task.”

“Our factory manager, Duane Peters, who has some experience of working in a foundry while completing his tertiary education in Zimbabwe, came across an advertisement that was offering some foundry equipment for sale. That was back in January this year and by March we were pouring metal,” enthused Houghton.

“The foundry is not a state-of-the-art masterpiece but is very functional and caters for our requirements adequately. We were fortunate that the equipment we purchased, which included a 350 Kg LH Power furnace, a coreshooter and a sand reclamation plant, was already set up in a foundry facility in Spartan, which is less than five minutes away from our current facility. Part of the negotiation was to rent the factory, where the equipment was installed. This certainly helped in getting us up and running so quickly as all the necessary services were in place. An added bonus was that there were a number of pieces of ancillary equipment essential to running a foundry that were also included.”

“We just had to get the equipment serviced, purchase a five ton an hour continuous mixer from Lauds Foundry Equipment and contact the consumable suppliers. We have set it up as a resin based foundry and I must compliment all the suppliers for the advice and help that they have given us.”

“We have subsequently purchased a Spectro spectrometer, which gives us the control on the metal quality, and are looking at other ways to improve our yield. The foundry occupies 2 000 m² and we have the option to double this space in the future.”

“Currently we are only pouring stainless 316 twice a week, which more than caters for our needs. The castings



The pattern shop

“We have progressed so quickly that we are now starting to export castings to Allweiler in Germany.”

range from three to 150 kilograms and include seal plates, stuffing boxes, impellers, Francis veins and others. Our capacity is roughly 1 500 tons a year. More importantly we are supplying the machine shop at our main facility with quality castings on time.”

“Next year we are employing two student metallurgists from UJ who will complete a year of internship with us and hopefully we will be able to take them on permanently.”

“We have progressed so quickly that we are now starting to export castings to Allweiler in Germany. Going forward we are looking at pouring other metals, and once we are confident that we are past our learning curve we will start looking to supply outside.”

Machine shop

The machine shop at the main facility is equipped with a number of CNC lathes, machining centres and conventional equipment. This includes a Haas CNC lathe and a Victor Fortune CNC machining centre.

The operational flow in this area has had a major overhaul in the last few years, as well as the inspection and assembly areas.

The company now manufactures over 3 000 new units a year and carries a vast range of spares. Servicing of existing units also forms an integral part of the company’s service offerings.

Other ventures

Not one to miss an opportunity, last year Houghton opened up a conference and banqueting centre, which can cater for up to 120 delegates, at the main facility in Isando and after five years of negotiation has obtained dual zoning rights for the site. Plans are currently being finalised to build a 16-bedroom boutique hotel and spa, as well as a restaurant.

“My focus is on the engineering and manufacturing aspect of the business and my grandfather, who sadly passed away three years ago at the age of 98, would be proud of me, but food, beverage and hospitality are still my passion,” said Houghton with a smile.

For further details contact Rapid Allweiler on TEL: 011 573 7400 or visit www.rapidallweiler.co.za



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Expect results

Hudaco Industries acquires The Dunford Group from Dunford Holdings (Pty) Ltd for R154.3 million

The purchase includes the businesses of Dosco Precision Hydraulics, Gear Pump Manufacturers, Joseph Grieveson and Engineering Technology Services.

Hudaco Industries Ltd has announced that the company has signed an agreement to acquire 100% of The Dunford Group (DG) from Dunford Holdings (Pty) Ltd. DG has two main areas of business: machining, repair and sale of hydraulic pumps for the local and export market and production of ferrous and non-ferrous castings for a diversity of industries in South Africa.

Hudaco Trading (Pty) Ltd, 85% owned by Hudaco, will become a 100% shareholder of the four companies constituting DG. In terms of the agreement, the seller is required to purchase a maximum of 927 000 Hudaco shares on the open market, which shares must be retained for a minimum period as follows: a maximum of one-third may be sold after one year, a further one-third after two years and the balance after three years.

The consideration, to be settled on the day all suspensive conditions are fulfilled, will be an estimated cash payment of R148.2 million; and an amount of R8 473 for each day between October 1, 2013 and the date of actual payment of the consideration, which is expected to be on or about November 30, 2013, with the maximum consideration payable being R154.3 million.

The acquisition is part of JSE-listed Hudaco Industries Ltd's key strategy to pursue the acquisition of new businesses in similar fields of activity as it focused on selling industrial products – an area of core competency for Hudaco.

Hudaco is a South African group of companies specialising in the importation and distribution of selected high quality engineered and security products in the southern African region. One of Hudaco's key strategies is to apply its strong cash flows to acquire new businesses in similar fields of activity when the opportunity arises.

"DG is an ideal fit for Hudaco in that it focuses on selling industrial products, which is an area of core competency for Hudaco. Hudaco will be able to utilise its experience and

expertise in those markets to enhance DG's position, resulting in long term benefits to shareholders. Furthermore, the GPM brand is owned by the group and therefore can be sold in world markets, unlike the Hudaco products which are restricted to Southern Africa by agency agreements," Hudaco said in a statement.

The group sources from more than 1 500 suppliers located in all parts of the industrialised world. It supplies 20 000 customers through over 100 physical locations, mainly in South and southern Africa, and carries 250 000 line items in stock.

Suspensive conditions

The transaction is subject to the following conditions, which are required to be fulfilled by 29 December 2013 at the latest: such approvals as may be required in terms of the Competition Act of 1998, as amended; the conclusion of a due diligence investigation, the outcome of which satisfies the board of directors of Hudaco; written confirmation from an independent expert acceptable to the JSE that the terms of the Transaction with the related party are fair as far as the shareholders of Hudaco are concerned; approval from the major suppliers of DG to continue supply on the same terms and conditions as in the past; the signing of new lease agreements relating to the properties from which

DG operates upon acceptable terms and conditions at market related rentals and any other approvals required by the JSE.

Management

Graham Dunford, an executive director of Hudaco, is a 60% shareholder of The Dunford Group and the remaining shares are held by Tommy Dunford, the CEO of DG.

Tommy Dunford will enter into a service contract for a minimum period of three years and a restraint of trade agreement in favour of Hudaco for a period of three years after employment ceases. Graham Dunford will enter into a similar restraint agreement.



A general look at the GPM foundry, which is located in Epping, Cape Town

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2013/14 South African Aluminium Industry directory and buyers guide of aluminium suppliers and manufacturers now published

The new and improved directory and buyers guide of aluminium industry related companies has been published and a free copy is available from the Aluminium Federation of South Africa (AFSA).

The directory covers the companies manufacturing and fabricating aluminium products in South Africa including plate, sheet, foil, castings and extrusion. Raw material suppliers, surface finishers and related service companies are also included.

The directory is an AFSA publication and it includes full details and activities of AFSA members and its sector Associations: ACA – Aluminium Casters Association; AFA/ASPA – Aluminium Fabricators and Sheet Products Association and; ASFA – Aluminium Surface Finishers Association (including Extruders). In addition it includes full details of those companies that are non AFSA members.

The directory also includes a review of the industry, educational sections on the properties and uses of aluminium and the role of aluminium in our modern day society.

New sections

Included in the 108 page Directory are: The Aluminium


Industry Overview, Aluminium as a Sustainable Metal, Aluminium as a Metal of Choice and the following technical publications:

The Introduction to Aluminium Pocket Guide, The Corrosion Resistance of Aluminium Pocket Guide, and the brand new Architectural Aluminium Surface Finishing Guide.

Distribution of the directory will be to end users of aluminium products and services throughout Southern Africa and members of AFSA. It will also be distributed to South African Commercial offices worldwide, as well as the relevant international Associations, Institutes, Federations and reference libraries.


A free copy of the publication is available from AFSA. To order your copy contact AFSA on TEL: 011 455 5553






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Pangborn Group inks distribution agreement with Mondeco



Pangborn Group, designer and manufacturer of surface preparation products, has named Gauteng-based Mondeco Solutions as its authorised distributor for Southern Africa.

Mondeco Solutions, a company that has established itself as one of the largest independent equipment supply and service companies for the foundry, forge, aluminium smelters, steel mill, steel fabrication, energy and minerals industries has recently been appointed the distributors for the Pangborn Group.

Pangborn Group designs, manufactures and services wheel blast, air blast and other surface preparation machines, blast machine components such as blast wheels, parts and related products to serve a range of industries, including foundry and forge, metalworking, automotive and heavy truck, ship and rail, defense, and energy.

Further, the company is an industry leader in the surface preparation industry, with unique designs, applications, and best-in-class service and support. It serves automotive, shipyard, forge and foundry, energy, heavy duty, metal and metalworking industries.

The Pangborn Group includes leading brands - Pangborn,

Pangborn Europe, Vogel & Schemmann, Berger Strahltechnik, Pangborn SES, and Pangborn China - and was founded in 2009, but with the roots of its integrated brands dating back to 1873.

“The experience Mondeco Solutions has amassed selling new equipment, providing equipment rebuilds and the highest level of customer service, will effectively increase the coverage of the Pangborn sales and service network while providing Mondeco Solutions a high-tech alternative to customers needing a more efficient solution to their surface preparation and blasting requirements,” said Mondeco MD Peter Petersen.

“This increased coverage in South Africa will bolster the expanding coverage of Pangborn equipment while increasing the availability of Pangborn parts to a wider audience,” Petersen commented.

“We are excited that we have joined the Pangborn team. Our high-tech product line, along with their incredibly experienced staff, makes for a great team approach to servicing the customer base locally.”

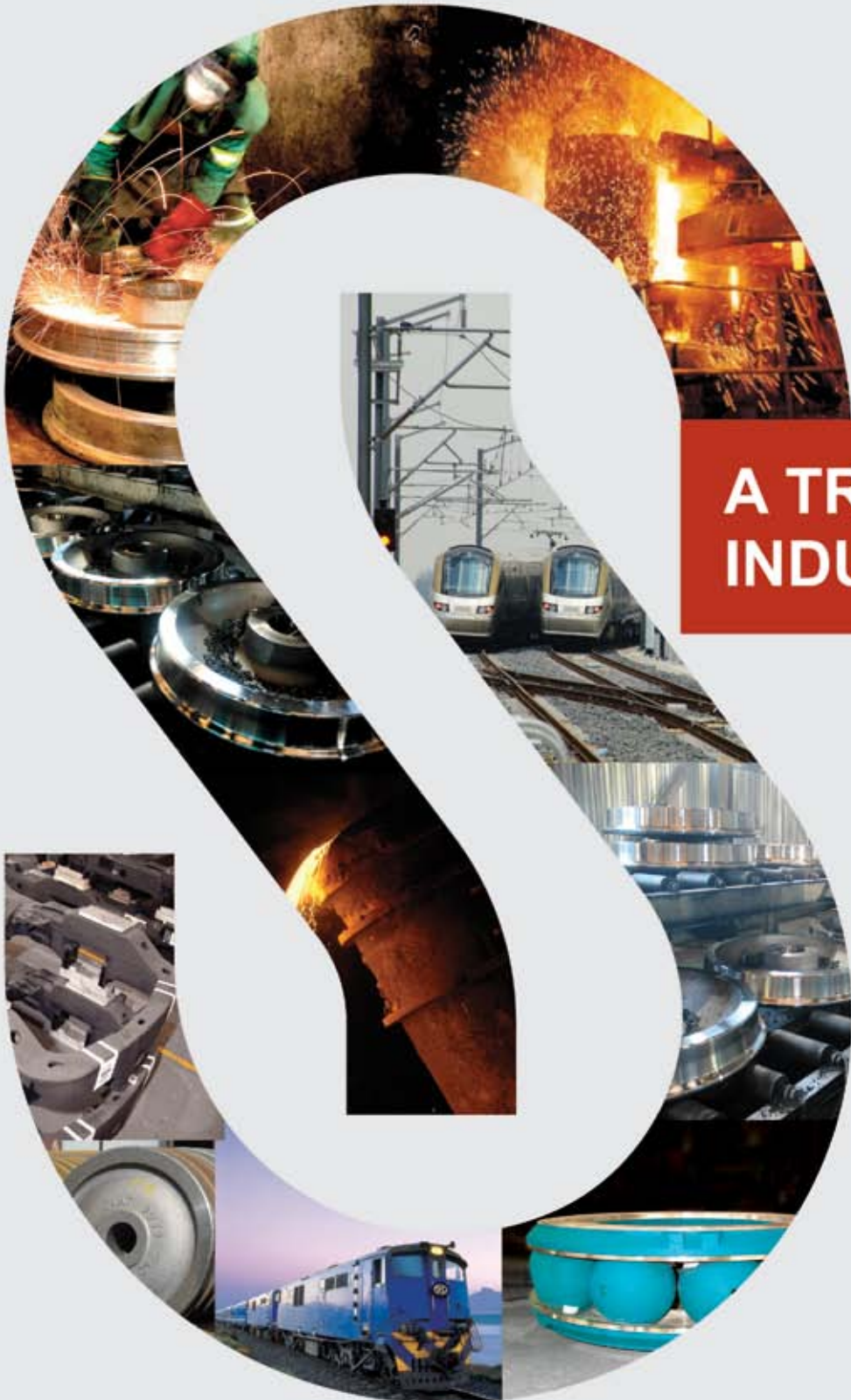
Business focus

“Through our international partner agency agreements, we now represent a number of renowned companies that deliver a wide range of solutions for industry end-users.”

“The products include induction furnaces, EAF/AOD, pouring technology, extraction hoods, vertical moulding, carousel or fast-loop mould handling, sand mixers, cooling drums, core solutions, roll-over, coating, heat treatment ovens, sand reclamation, steel-belt conveyors, decorating stations, fettling machinery, knock-off hammers, manipulators, grinding units, high-quality shotblast and surface preparation and dedusting solutions.”

For further details contact Mondeco Solutions on cell 079 448 1277 or email peter@mondeco.co.za or visit www.mondeco.co.za





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Integration of process manufacturing and design of castings and plastic components seminar

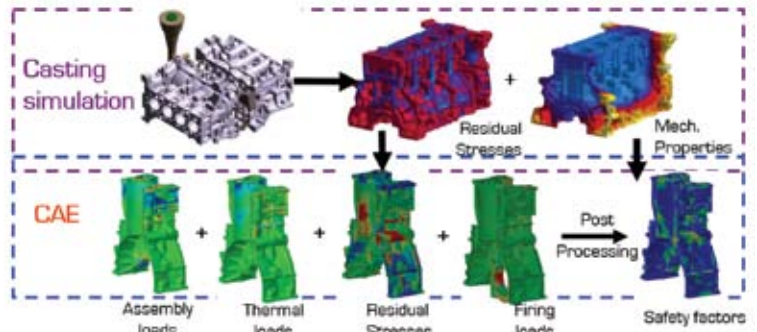
Ametex recently hosted a seminar regarding integration of process manufacturing and design of castings and plastic components at the Radisson Blu Sandton. The delegates comprised of foundry men and women, casting designers, plastic part specialists and various other industry players. Delegates had the opportunity to interact with guest speaker Marc Kothen, Manager for Magma in Turkey and the Middle East as well as the Magma Partner Manager, who provided insight into the importance of process simulation towards cost effective design.

“Modern vehicles are designed better, more efficiently and at a lower cost compared to the traditional trial and error techniques used in the past. As a result more components and products are moving in the same direction as manufacturers experience further pricing pressure. The secret is integrating the process simulation with the design of the product,” said Kothen.

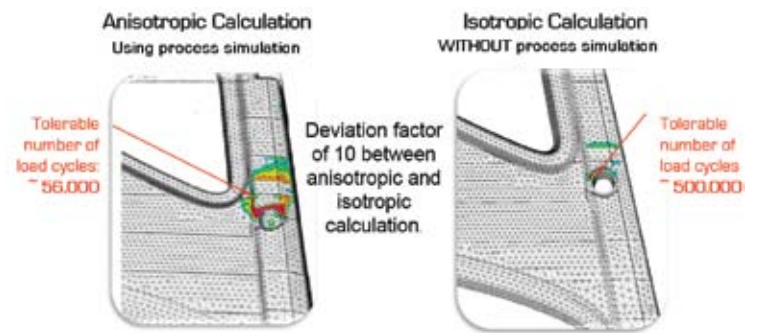
“Safety factors are more accurate these days, even where there are robust processes and, designs are easier to achieve. The casting and plastic injection moulding processes therefore influence the part’s eventual performance. Usually, components and castings are ‘over designed’ but mostly they are under designed. This can cause catastrophic failure well before the parts intended life cycle,” continued Kothen.

“Some of the advantages of integrating the process simulation with the component and casting design are as follows:

- Improved design robustness - manufacturability improves and strengthens the relationship between the designer/customer and the foundry/moulder
- Reduction in overall costs - Product designs can be improved without the need of trials to determine if the part is suitable for the process. Virtual product development is thus far more efficient
- Increase in process understanding - Casting and component manufacturers gain a better understanding of the intended part design and designers incorporate process capabilities. This is a major advantage that is seen worldwide where practiced.”



Prediction of porosity is not only important for foundrymen but also for their customers and casting designers



Casting designers and foundrymen can work closer in designing and manufacturing efficient castings

“Magma is a world leader in casting process simulation with over 1500 customers. Two of the main objectives of Magma are the "virtual foundry" and automatic casting process development.”

“The virtual foundry philosophy is where foundrymen and their customers develop the entire casting manufacturing process virtually. This includes pattern development, moulding, casting, heat treatment, machining and even more. The virtual foundry also makes Magma the most powerful tool any foundryman can use as it affects virtually every step of the foundry phase and beyond.”

“Automatic casting process development or automatic optimisation is where foundrymen easily "instruct" Magma to reach an "optimal" method or goals. The software uses special technology to reach the goals and the engineer only needs to evaluate the optimal result. This technology has been available since 2004 but the next release of Magma will see a quantum leap in this field. Using Magma in developing castings with designers makes sound cents!”

For more information on Magma or any of the other services Ametex provides please visit their website www.ametex.co.za or contact Andrew Mc Farlane on TEL: 011 914 2762 or email andrew@ametex.co.za.



It is easy to see why integration of process simulation with FEA is important. This is a plastic component example

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Spectrum Technical

appointed agents for Drache, global suppliers of
casthouse and foundry specialty refractories and filters

Spectrum Technical, based in Richards Bay KwaZulu Natal, has recently been appointed to market the Drache range of products in Southern Africa. The company has been serving the metallurgical industries since 1994, supplying a range of services and products.

Drache Umwelttechnik GmbH is a mid-sized company employing 80 people located in Diez, Rhineland-Palatinate (Germany).

Most of the current product range is produced in-house and focuses on ceramic foam filters for molten filtration in aluminium DC casting, aluminium foundries, iron and steel foundries, refractory ceramic components, Alu-Stop boron nitride coatings, thermocouple tubes, fully engineered components like filter boxes and launder systems for aluminium DC casting, transport crucibles and holding furnaces for aluminium foundries, together with the accompanying support and consultancy services.

Drache exports its products to more than 50 countries worldwide and, in addition to its foreign subsidiaries in the USA, Russia and the United Arab Emirates, has sales partners in more than 35 countries around the globe.

Drache is ISO 9001:2008 and ISO 14001:2004 accredited.

Aluminium foundries

Riser tubes made from silicon nitride and aluminium titanate for low pressure, die casting, baffle plates for degassers made from fused silica and sprue bushes made from aluminium

titanate for low pressure die casting are also included in the range.

Steel and iron foundries

Drache's product range for steel and iron foundries includes the Cerazirk ZrO₂ (96% zirconium oxide and 3% magnesium oxide) filters for steel castings, nickel based alloys and large iron castings as well as Cerasic SiC (silicon carbide) filters for iron castings. Furthermore, Drache Direct Feeders for direct pouring applications are offered.

Finally, Drache offers simulation services for foundries, running numerical simulations of the mould filling as well as solidification process.



Earlier this year Spectrum Technical hosted a Casthouse Seminar, which included delegates from Hillside and Bayside Aluminium, Mozal, Hulamin, Wispeco and Alumicor. Speakers included senior management from Drache in Germany, Tomorrow Technology from Italy, Precimeter from Sweden, STAS from Canada and a dross processing consultant from the USA

Casthouse technology seminar

Earlier this year Spectrum Technical hosted a two-day casthouse technology seminar at the Protea Hotel Imvubu Lodge in Richards Bay. The idea was to bring primary and secondary aluminium casting professionals together to share their knowledge and expertise.

International speakers delivered papers relevant to the industry, to spark discussion and conversations. Delegates were mainly metallurgists, chemical, mechanical and automation engineers.

The seminar left the delegates with practical tools and

Drache exports its products to more than 50 countries worldwide and, in addition to its foreign subsidiaries in the USA, Russia and the United Arab Emirates, has sales partners in more than 35 countries around the globe

knowledge to assist them with plant issues they are facing. They also made contact with their counterparts in other companies having similar experiences.

The international speakers included of Dave Roth of GPS Solutions (USA), Marc Andre Thibault of STAS (Canada), Frank Reusch and Jochen Schnelle of Drache (Germany), Thomas Jarlsmark of Precimeter (Sweden) and Giovanni Magarotto of Tomorrow Technology (Italy).

Invited delegates from Hulamin, Hillside and Bayside Aluminium, Mozal Aluminium, Wispeco, Alumicor and Enviroserv attended. In total of 60 delegates attended the seminar.

For further details contact Spectrum Technical on TEL: 035 789 6563 or visit www.spectrumtechnical.co.za ■

Hans Joubert appointed Technical Manager at Mineral-Loy

Hans Joubert, a senior metallurgist, who has worked in the foundry industry for over 18 years and has been with specialist foundry consumable supplier Mineral-Loy since 2008, has been appointed the company's Technical Manager.

After completing a four-year diploma in metallurgy at Wits Technikon Joubert spent 14 years with the Eclipse Group, working in both East and West plants in Benoni, Gauteng, before spending a year at Dimbaza Foundry in the Eastern Cape.

"When I began working in the foundry industry, it never occurred to me that I might one day be offering technical advice on products and methods to my peers in the industry. My experience of working hands on in a foundry certainly helps but now it is all about building those important personal relationships and camaraderie."

"In fact, the relationships I have formed are truly a feeling of family. This feeling of family perfectly describes how foundry suppliers relate to their customers. Just as successful foundries make it their business to understand their customers' needs, and fulfill those needs with quality castings, those of us who supply those foundries, treat our customers no differently."

"We at Mineral-Loy are always looking for alternative materials, methods and processes to offer so that the foundries themselves become leaner and meaner, more cost effective and improve their quality."

Mineral-Loy was established over 38 years ago to meet



the needs of the users of metals, minerals and alloys in the South African market. When it was established the focus was on the welding electrode industry, but the company soon widened its scope of activities to the iron foundries and the ceramic and refractory industries. More recently, the company has expanded its product range to cover some of the raw material requirements of the aluminium foundry and steel making industries.

Products made and sold in South Africa today include all grades of ferro-chrome manufactured by Samancor Chrome including Chromite Sand, medium and high carbon ferro-manganese and

silico manganese, ferro silicon, nickel briquettes and powder from Impala Platinum and Sorelmetal high purity pig iron, and rutile and zircon sand produced by Richards Bay Minerals.

Imported products include inoculants and treatment alloys from FerroPem Europe, a range of copper, nickel and aluminium master alloys from KBM Affilips Europe and ceramic filters and slag coagulant are imported from the Far East.

Mineral-Loy has successfully retained its Level 5 BBEE accreditation and strategies are in place to increase that quotient as per the officially recognised DTI scorecard. It also received its ISO 9001:2008 certification over a decade ago and continues to renew this important accreditation every year.

For further details please contact Hans Joubert at Mineral-Loy on TEL: 011 802 4050 or visit www.mineral-loy.co.za

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Energy and resource efficiency

will be in focus for EffSAFound 2 foundry project

The main objective in the EffSAFound 2 project is the increasing of energy and material efficiency in South African foundries.

With demand rising for lighter metal castings from industries including automotive, internal combustion engines, appliances, and aircraft, it is no surprise that foundries are hunting for ways to melt more efficiently and reduce spend in other energy-intensive manufacturing sectors within the foundry. However, because they don't want efficiency to come at the expense of product quality, there's also a search underway for the improved use and recycling of materials used in the casting process.

Support of research and industry projects is critical to maintain a strong, vibrant, healthy and continually advancing foundry industry. Funding has never been easy in the past for such endeavours.

Toward that goal, The Institute of Casting Technology (Institut für Gießereitechnik, IfG), based in Germany, has funded a research and implementation project entitled "Improvement of energy efficiency and recycling in Southern African foundries", which got off the ground in July.

Work objective two is the improvement of the work processes in a smelting operation and other energy-intensive manufacturing sectors in a foundry. More than 50% of the total energy of a foundry is used alone in the melting operation. Along with other energy-intensive sectors, such as the heat treatment facilities or areas with high consumption of compressed air or air-intensive technology, the energy use is significant and the potential to make savings could be meaningful to a foundry. These potentials therefore need to be identified and improvement measures implemented.

Work objective three is the employment of an efficient foundry sand management system. High purity quartz sand or chromite sand are valuable mineral substances used in foundries. After a sometimes intense use in a foundry, however, they are because of their mineral composition at present deposited as waste, which is both for environmental and economic reasons very unsatisfactory. The aim is to develop operational or company measures, to prepare

The objectives and definition of the EffSAFound 2 project will be to explore the situation in the South African foundry industry, as well as the economic conditions

The EffSAFound 2 project, with a value of €1.4 million (R16.5 million), is being managed by researchers from the Metal Casting Technology Station (MCTS), University of Johannesburg. The Project Engineer Miss Palesa Riba, who is directly employed by IfG, will over the course of the next 30 months engage with South African foundries with an aim to implement the main objectives of the project.

The main objective in the EffSAFound 2 project is the increasing of energy and material efficiency in South African foundries.

However, to achieve the overall objective of the EffSAFound 2 joint project, three work objectives to improve energy and material efficiency in South African foundries have been defined. These work objectives consist of new and yet to be developed solutions and tools that can open up a great ecological and economic potential for the desired working targets and can go beyond the global state of the art.

Work objective one is to improve the casting quality and reducing the amount of liquid iron per finished castings used when casting high chromium white cast iron for example. Reducing the mass of iron or steel, depending on salable casting (good casting), reduces material use and energy consumption, including in the energy-intensive smelting process in foundries. Castings made of wear resistant high chromium cast iron used mainly in the mining industry, is a special and typical South African casting type in the casting production.

the used sand and to re-use it in foundries or in other industrial sectors.

Summary

The objectives and definition of the EffSAFound 2 project will be to explore the situation in the South African foundry industry, as well as the economic conditions. The task is to determine the need and demand for operational measures to improve energy and material efficiency locally.

The MCTS has held initial meetings and seminars with South African foundries to launch the EffSAFound 2 project to industry. The project, which is scheduled to run over a 30 month period, is a joint project with the IfG and the German Federal Ministry of Education and Research. This is an international partnership for sustainable technologies and services for climate protection and environment.

The IfG was established in 1954 by the German foundry industry as a joint laboratory facility and research establishment. Then, as is now, the IfG's aim is to serve the foundry industry as a partner and to provide companies with valuable technology consulting and development support while ensuring that such expertise would find its way speedily into real-life production environments.

Should you wish to participate in the project speak to Farouk Varachia, Station Manager at the Metal Casting Technology Station on TEL: 011 559 6032 or cellular 082 788 4816 or email faroukv@uj.ac.za. ■



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Wind power could generate up to 18% of world's electricity by 2050, compared with 2.6% today, the new report IEA (International Energy Agency) Technology Roadmap: Wind energy – 2013 Edition finds.

Wind power seen generating up to 18% of global power by 2050

The nearly 300 gigawatts of current wind power worldwide must increase eight- to ten-fold to achieve the roadmap's vision, with the more than USD 78 billion in investment in 2012 progressively reaching USD 150 billion per year.

The report, an update of a document first published in 2009, envisages a much larger penetration of wind power than the 12% share on global electricity generation by 2050 considered in the first roadmap. It sees China overtaking OECD Europe as the leading producer of wind power by 2020 or 2025, with the United States ranked third. Wind power deployment under this vision would save up to 4.8 gigatons of CO2 emissions per year by 2050, with China providing by far the largest reductions. The reduction is equivalent to more than the current European Union annual emissions.

Recent improvements in wind power technologies, as well as the changing global energy context, explain the higher long-term target. Turbines are getting higher, stronger and lighter, while masts and blades are growing even faster than rated capacity, allowing turbines to capture lower-speed winds and produce more regular output. This facilitates installation in places beyond the best windy spots on mountain ridges or seashores as well as integration into power systems despite the variability of winds.

The cost of land-based wind power is close to competitive with other sources of electricity in an increasing set of circumstances. In some countries such as Brazil, wind power has prevailed over fossil alternatives in auctions for long-term power purchases, thanks to the hedge it provides against possible future price increases for fossil fuels. Offshore wind power remains expensive and technically challenging today, but has an important long-term potential. The roadmap lists the actions – by governments, industry, research centres, etc. – to target a reduction in wind power costs of 25% on land and 45% offshore by 2050.

But several obstacles could delay progress, including financing, grid integration issues and difficulties with permits



Cast parts – ever larger, heavier and more precise

and public acceptance. To achieve high penetrations of variable wind power without diminishing system reliability, improvements are needed in grid infrastructure and in the flexibility of power systems as well as in the design of electricity markets. However, some European countries already draw 15% to 30% of their electricity from wind power, thanks to improvements in forecasting, increased interconnections, demand-side response and storage. The roadmap identifies those challenges and proposes a set of actions to overcome them.

Strategic partnerships foster technological leadership

Climate change and a reduction of the carbon footprint, together with preferential treatment for renewable energies are making wind power an important source of energy. According to the European Wind Energy Association EWEA, 9.3 GW wind power capacity was newly installed in the EU in 2010. European wind power plants now already cover 5.3 % of the electric power consumption in Europe. Besides the EU, the main driving forces behind this wind energy boom are China and the USA.

Supplying foundries, like the steel foundry Torgelow GmbH deriving its name from the town of Torgelow in eastern Mecklenburg-Vorpommern, Germany, where it is located, are among those benefiting from this dynamic development. Together with Hilden-based global foundry supplier ASK Chemicals' development team, they have defined new manufacturing process concepts for core making which meet the demand in the field of large casting.

A functional value added chain plays an important role in achieving this. Innovations are developed and made ready for production together with suppliers and customers. Such strategic partnerships are an important building block for the future development of the Torgelow iron foundry.

Together with the ASK Chemicals development team, new "core" concepts were conceived for production processes in the core-molding plant that exceeded the requirements in the area of large-scale casting. In the process, the competence in



The correct mixture of furan resin is an indispensable success factor for large-scale casting



development and experience provided by ASK Chemicals was primarily focused on the adaptation of applications with sulfur boundary layers and special resins that exhibit a high degree of slippage or finishes that can withstand high thermal loading.

The uniform hardening of cast parts represents a special challenge. Today, specifically developed casting additives ensure the quality of the ever larger cast parts. The optimisation of control systems for sand mixing equipment also plays an important role in the production process. The adaptation of the furan resin system and the dosing of the mixer had to be oriented to the dimensions of large-scale cast parts. The objective was to quickly mix the sand for the 80-ton cast parts and to work effectively in the

process. This required that the furan resin system be equipped with specifically optimised components and that the correct mixing ratios were applied. Promptness, economic viability and precision were indispensable requirements in this case. These requirements were also solved within the framework of the strategic partnership consisting of ASK Chemicals specialists, mechanical engineering manufacturers and in-house specialists. Today, the iron foundry operates with sand mixing systems which are precisely optimised to large-scale casting and which permit extremely accurate dosing.

Applied Casting Solutions represent ASK Chemicals in Southern Africa. For further information contact Applied Casting Solutions on TEL: 011 922 1701 or visit www.chemsystems.co.za or www.ask-chemicals.com

12th Annual ICI casting design contest

The Investment Casting Institute is a trade association with over 230 member companies, with a mission to promote the investment casting process, and to collect and disseminate information about the industry and providing education opportunities to members.

Among other programs it administers, each year ICI conducts a design contest that highlights investment casting applications, process capabilities, and the important advantages of the design to the customer.

At its 60th Annual Technical Conference and Expo in Pittsburgh, October 6-9, ICI presented the winning investment casting designs in the latest contest. Four investment casting foundries took the top honors in this 12th annual casting contest, designated for designs that serve aerospace, automotive, industrial, and military markets.

Atlantic Casting & Engineering, Clifton, N.J., won for aerospace, PCC Air- foils LLC, Beachwood, Ohio led the automotive entries, Texas Precision Metalcraft Inc., Sugar Land, Texas won for industrial and Uni-Cast Inc., Londonderry, N.H. took top honours for military.

In addition, six finalists were recognised: Alcoa Howmet, Aristo-Cast Inc., Cera-Met LLC, Fenico Precision Castings Inc., O'Fallon Casting and Shellcast Inc.

ICI executive director Michael Perry said the contest demonstrates the strengths of the investment casting process, and the benefits to the producers as well as their customers.

"Each year of the contest we see how investment casters are manufacturing increasingly complex castings, and creatively solving problems both in their process and for the customer," Perry noted.



Atlantic Casting & Engineering, Clifton, N.J., won for aerospace

"Each internal passage, intricate coring detail, thin wall, and each difficult design element represents an advantage of the investment casting process and a potential problem solved for the customer."

"The use of investment casting can often result in total cost savings, because of reduced machining and finishing, combining part details into a one-piece casting, or improving surface finish," Perry continued.

The casting contest is open to members of the Investment Casting Institute, and recognises foundries that manufacture components that demonstrate and promote the benefits and flexibility of the investment casting process, or which demonstrate problem solving techniques for the customer.



PCC Air- foils LLC, Beachwood, Ohio, led the automotive entries



Uni-Cast Inc., Londonderry, N.H. took top honors for military



Texas Precision Metalcraft Inc., Sugar Land, Texas, won for industrial



Zero-emission foundry –

BMW Brilliance Automotive Ltd. lays foundation for new engine plant in Shenyang China

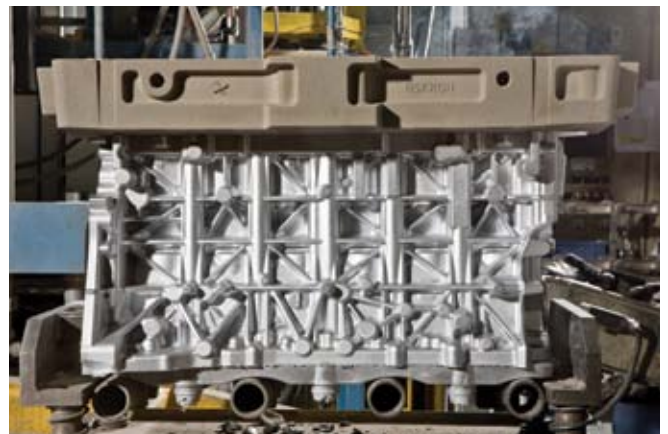
In August BMW Brilliance Automotive Ltd. held the foundation laying ceremony for its new engine plant in Tiexi district, Shenyang city, China. Based on a phase by phase approach of an overall plan, the first phase of the new engine plant begins construction in 2013 and will be put into production in 2016. It will produce the latest BMW engine products with a planned production capacity of 400,000 units a year, and be an exclusive supplier for local automotive models.

The new engine plant is located just beside the BMW Brilliance vehicle plant in Tiexi district, and it is an important part of the strategic expansion of BMW Brilliance. The new engine plant is designed as a full-fledged modern engine plant with foundry workshop, machining workshop (cylinder block processing, crankshaft processing, and cylinder head processing), engine assembly workshop and other supporting facilities. In the future, all key engine parts will be locally produced, including cylinder blocks and heads. Since 2012, the crankshaft, camshaft and connecting rod have been locally produced in Shenyang by BMW Brilliance Automotive Ltd.

The new engine plant will build BMW Group's first foundry workshop outside Germany, and it will be the second foundry workshop for BMW Group in the world. This light metal foundry

workshop will adopt the newest low pressure casting technology of BMW Group, and use the new eco-friendly inorganic binders to replace the traditional organic binders for making sand cores, so the emission of hazardous substances during the production process will be close to zero. Owing to this innovative production technology, the light metal foundry of BMW Brilliance will result in a reduction of 98 percent in the emissions of engine combustion residues. The design and construction of the BMW Brilliance's new foundry workshop is intended to once more innovate the newest technology of the German BMW Group. After completion, it will become one of the most advanced modern workshops, and will lead the development of the light metal foundry industry in China.

During the past four years, BMW Brilliance has experienced rapid growth in its local development. In 2009, the strategic expansion plan of the joint venture was signed by BMW Group and Brilliance China Automotive Holdings Ltd. In 2010, the new Tiexi vehicle plant foundation was laid, and in 2012, the Tiexi vehicle plant was officially put into production to produce the BMW X1 Series and the new-generation BMW 3 Series long wheelbase and standard wheelbase cars. In March last year, the engine plant of BMW Brilliance started to produce the BMW 2.0 litre four-cylinder petrol engines, and in August, this joint venture announced the plan to build a new engine plant. In 2013, marking the 10th anniversary of BMW Brilliance, the vehicle plants and engine plants of BMW Brilliance in Shenyang are taking a new round of expansion in construction and officially establishing the BMW Brilliance R&D Center. ■



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Breakthrough in study of aluminium should yield new technological advances

Researchers at Oregon State University and the University of Oregon announced a scientific advance that has eluded researchers for more than 100 years – a platform to study and fully understand the aqueous chemistry of aluminium, one of the world’s most important metals.

The findings, reported in Proceedings of the National Academy of Sciences, should open the door to significant advances in electronics and many other fields, ranging from manufacturing to construction, agriculture and drinking water treatment.

Aluminium, in solution with water, affects the biosphere, hydrosphere, geosphere and anthrosphere, the scientists said in their report. It may be second only to iron in its importance to human civilization. But for a century or more, and despite the multitude of products based on it, there has been no effective way to explore the enormous variety and complexity of compounds that aluminium forms in water.

“This integrated platform to study aqueous aluminium is a major scientific advance,” said Douglas Keszler, a distinguished professor of chemistry in the OSU College of Science, and director of the Center for Sustainable Materials Chemistry.

“Research that can be done with the new platform should have important technological implications,” Keszler said. “Now



we can understand aqueous aluminium clusters, see what’s there, how the atomic structure is arranged.”

Chong Fang, an assistant professor of chemistry in the OSU College of Science, called the platform “a powerful new toolset.” It’s a way to synthesize aqueous aluminium clusters in a controlled way; analyze them with new laser techniques; and use computational chemistry to interpret the results. It’s simple and easy to use, and may be expanded to do research on other metal atoms.

“A diverse team of scientists came together to solve an important problem and open new research opportunities,” said Paul Cheong, also an OSU assistant professor of chemistry.

The fundamental importance of aluminium to life and modern civilization helps explain the significance of the advance, researchers say. It’s the most abundant metal in the Earth’s crust, but is almost never found in its natural state. The deposition and migration of aluminium as a mineral ore is controlled by its aqueous chemistry. It’s found in all drinking water and used worldwide for water treatment. Aqueous aluminium plays significant roles in soil chemistry and plant growth.

Aluminium is ubiquitous in cooking, eating utensils, food packaging, construction, and the automotive and aircraft industries. It’s almost 100 percent recyclable, but in commercial use is a fairly modern metal. Before electrolytic processes were developed in the late 1800s to produce it inexpensively, it was once as costly as silver.

Now, aluminium is increasingly important in electronics, particularly as a “green” component that’s cheap, widely available and environmentally benign.

Besides developing the new platform, this study also discovered one behavior for aluminium in water that had not been previously observed. This is a “flat cluster” of one form of aluminium oxide that’s relevant to large scale productions of thin films and nanoparticles, and may find applications in transistors, solar energy cells, corrosion protection, catalytic converters and other uses.

Ultimately, researchers say they expect new technologies, “green” products, lowered equipment costs, and aluminium applications that work better, cost less and have high performance.

The research was made possible, in part, by collaboration between chemists at OSU and the University of Oregon, through the Center for Sustainable Materials Chemistry. This is a collaboration of six research universities, which is sponsored and funded by the National Science Foundation. ■

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ASK Chemicals signs up as a Gold Sponsor of the 71st World Foundry Congress

The multinational ASK Chemicals has signed up as a Gold Sponsor of the 71st World Foundry Congress, which will take place in Bilbao, Spain, between 19th and 21st May 2014.

The main supplier of chemical products to the international foundry industry is actively supporting the organisation of this important international technical event.

ASK Chemicals have an extensive range of products and services in the auxiliary foundry materials field. The company is active in 25 countries with an estimated workforce of more than 1800 employees. The reason why ASK Chemicals products are at the forefront of technology is due to the intensive developments and investigations carried out in the company's research centres located in Germany, France and the USA, which afterwards are transferred to the worldwide industry.

ASK Chemicals has reinforced its commitment to the foundry sector with this high caliber sponsorship, becoming the first official "Gold Sponsor" of the 71st World Foundry Congress.


The 71st World Foundry Congress

The working technical sessions constitute the main programme of the 71st World Foundry Congress, where investigators, technicians and professionals will present and exchange the results of their latest investigations and technological developments. Four keynote lectures will also be given by internationally renowned speakers in the areas of Energy, Environment, Innovation and Market trends and demands, subjects of great interest for the foundry industry nowadays.

"Advanced Sustainable Foundry" is the chosen theme of the Congress and this will serve as the starting point for the highly relevant and specialised topics covered from various




technical areas. The working sessions will include environment and sustainability, cast iron (spheroidal, lamellar and vermicular graphite cast iron, austempered ductile iron and alloyed irons), steel castings, non-ferrous and light alloys (aluminium, magnesium, titanium, other non-ferrous, alloy development and metal matrix composites), foundry technologies, equipment, manufacturing, robotics, and automation, energy, advanced engineering: (design, calculation and simulation tools), heat, cryogenic and surface treatments, moulding, core making and rapid prototyping technologies, pattern and tool making and management, education and training.

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Siemens continuous caster produces world's thickest stainless steel slabs



A single-strand continuous stainless-steel slab caster capable of casting thick stainless steel slabs was brought into operation in July for Pohang Iron and Steel Co. Ltd. (Posco) in Pohang, Korea. Siemens Metals Technologies built the machine in Posco's stainless steel plant SSCP 4. It is designed to produce 700,000 metric tons of austenitic and ferritic steel slabs with thicknesses of up to 300 millimeters, per annum. The new continuous casting plant expands Posco's capacity for producing high-quality stainless steels.

The continuous bow-type caster from Siemens is equipped with a straight Smart Mold. It has a machine radius of eleven meters and a metallurgical length of 26.9 meters. Slabs are cast with thicknesses of 250 and 300 millimeters in widths ranging from 800 to 1,650 millimeters. The casting speed can reach 1.1 meters per minute.

Siemens was responsible for the engineering, the supply of key components and technology packages, including the LevCon mold level control, the DynaFlex mold oscillator, and

DynaWidth for setting the slab width. The strand is guided by Smart Segments.

Thanks to DynaGap Soft Reduction 3D, it is possible to determine the position of the final solidification of the strand with high precision. This enables the roll gap to be controlled precisely and high internal slab quality to be obtained. A combination of the Dynacs 3D cooling module, DynaJet spray cooling and internally cooled I-Star rollers ensures efficient secondary cooling, an important prerequisite for achieving slabs with a high-quality surface. The scope of supplies and services from Siemens also included the complete basic (level 1) and process automation (level 2) of the casting plant as well as advisory services for construction and commissioning. ■

University of Sheffield acquires Castings Technology International

The University of Sheffield AMRC has announced plans to expand its research capabilities to include castings technology, after acquiring internationally renowned company Castings Technology International (CTI) at the Advanced Manufacturing Park in Catcliffe, Rotherham. The University of Sheffield has acquired the buildings and assets of CTI and Titanium Castings UK Ltd (TCUK) including the ongoing research work, commercial contracts and consultancy.

As part of the agreement, staff at CTI and TCUK are transferring to the employment of a University of Sheffield subsidiary company.

The new addition to their portfolio will allow the AMRC to offer state-of-the-art castings technologies to its industrial partners, adding breadth and depth to the University's collaborative research capabilities.

Professor Keith Ridgway CBE who founded the AMRC, said: "The AMRC plays a major role in supporting the UK's advanced manufacturing industry and with it the economic growth and skills which are so vital to our economy. Our aim is to work with our industrial partners to be at the forefront of advanced manufacturing research, helping companies to address real manufacturing challenges with an understanding of the full manufacturing process from design and prototyping through to materials and manufacture."

"Acquiring CTI will complement our existing strengths and provide another important aspect to our work with industry. Set in the context of the AMRC's overall vision to be the world's leading manufacturing technology research centre, CTI is a core element which sits alongside the AMRC with Boeing, Nuclear AMRC, Design Prototype and Test Centre, apprentice Training Centre, Namtec and the reconfigurable Factory 2050."

Professor Richard Jones, Pro-Vice-Chancellor for Research at the University of Sheffield, said: "We are delighted that CTI will be part of our AMRC, representing a significant investment by the University of Sheffield into driving economic growth by linking our academic research to the needs of industry."

"The new centre will develop techniques that will enable the UK sector to compete in current markets, and more importantly, provide the resources to take castings into new safety critical

areas, such as aircraft structures. The integration of CTI will bring about substantial leaps in casting technology, comparable to those that the AMRC has made in areas such as machining and composites. Sheffield is the home of engineering, and we're thrilled to be adding this to our portfolio."

CTI Chairman Tom Westley said: "This is a real win win situation for our members and staff. Our members will continue to receive all the services they have always enjoyed, but with the much enhanced resources of the University of Sheffield to support an ambitious expansion of our activities on the Advanced Manufacturing Park."

"Foundry member companies will benefit from a strong and regular dialogue with castings users from all over the world. Major OEMs will be working with us to ensure developments are focused to their needs and take full advantage of these world class facilities."

"The staff will benefit from an accelerated investment programme, which would not have been possible had CTI remained on its own."

The University of Sheffield AMRC has an international reputation for its ground breaking collaboration with industrial partners to identify research and resolve advanced manufacturing problems. The original Advanced Manufacturing Research Centre with Boeing, founded in 2001 as a partnership between The University of Sheffield and the Boeing Company, has grown to include collaboration with over 70 manufacturing companies, including BAE Systems, Rolls-Royce, Spirit Aviation, United Technologies and Messier-Bugatti-Dowty and other leading manufacturers. Core research areas include machining, assembly, welding, composites manufacturing and structural testing.

Additional information

The University of Sheffield AMRC includes the original Advanced Manufacturing Research Centre with Boeing; the Nuclear AMRC; Namtec, the National Metals Technology Centre; AMRC Diamond Jubilee Knowledge Transfer Centre; Industrial Doctoral Training Centre in Machining Science; and new AMRC Training Centre.

For more information visit www.amrc.co.uk ■



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Omega announces strategic alliance with Sinto

Omega Foundry Machinery Ltd, Peterborough, U.K., has had strong ties with Japan-based metalcasting equipment maker Sintokogio Ltd. for more than six years. Under a license agreement, Omega has successfully built and marketed the "USR" range of secondary reclamation units. Based on this and to further build upon the relationship, the two companies have formed a strategic alliance.

"Combining [our] strengths will allow us to consolidate existing markets with an improved product portfolio while at the same time expanding into areas that up until now have not been developed due to geographical constraints. These are very exciting times for Omega and we look forward to further growth with Sintokogio," said Omega chairman Mark Fenyes.

The alliance is intended to increase the range of products manufactured under license by Omega, further penetrate nobake markets, and improve service and support.

The Sintokogio Group is a global business enterprise, which consists of 42 companies in 10 countries with approximately 3,500 employees. Since its foundation in 1934, Sintokogio manufactures equipment for the foundry and process material industries. The Group is engaged in six business segments. The Casting segment offers casting machines,

vacuum-sealed processing equipment, molding sand processing equipment, automatic pouring equipment, casting shot blasting machines and related components. The Surface Treatment segment offers shot blasting machines, air-blasting machines, shot peening machines, barrel grinders, precise brush polishing equipment, high precision micro-fabricated devices, polishing materials and others. The Environment segment offers dust-collecting equipment, deodorisation equipment, muffling devices and others. The Carrier segment offers lifting and lowering devices, gravity conveyors, transportation systems and others. The Special Equipment segment offers inspecting and measuring devices, servo-cylinders, liquid crystal display (LCD) panel manufacturing equipment and others. The Others segment is engaged in the design of machinery, and the information-related and welfare businesses.

Omega is one of the largest designers and manufacturers of 'chemically bonded' or no-bake equipment for the foundry industry, worldwide. They specialise in sand mixing, mould handling, sand reclamation, coating plants, core making and ancillary items.

For further details contact Peter Petersen of Mondeco Solutions on cell 079 448 1277 or email peter@mondeco.co.za or visit www.mondeco.co.za



Omega Chairman Mark Fenyes with Sinto President Mr Atchi Nagai outside the Omega headquarters in Peterborough, UK

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Seawater magnesium process promises cheaper lightweight metals

The process could ultimately make fuel-efficient transportation more affordable and expand the American magnesium market.

PNNL is leading a \$2.7 million, three-year project to develop a novel method that removes naturally occurring magnesium from seawater. The project was by DOE's Advanced Research Projects Agency-Energy (ARPA-E).

"Demand for lightweight metals such as magnesium is growing, but it's expensive and energy-intensive to produce them," said the project's lead researcher, PNNL Laboratory Fellow Pete McGrail. "We expect our method will be 50 per cent more energy efficient than the United States' current magnesium production process. This will also decrease carbon emissions and the cost."

Magnesium is used in alloys that decrease weight and increase strength of parts used in vehicles, aircraft, power generation equipment, industrial processes and buildings. It is, however, about seven times more expensive to produce than the steel traditionally used in those applications. Furthermore, producing lightweight metals also requires a lot of energy.

A cheaper and more efficient production process is needed to enable the broader use of lightweight metals, leading ARPA-E to announce \$32 million in funding for new projects that will develop new processing and recycling methods.

The United States is home to just one bulk magnesium plant in Utah, where brine from the Great Salt Lake region is put through electrolysis to extract the metal from a molten salt. About a third of the nation's magnesium is imported, and China is the world's largest producer.

"Reinventing the magnesium production process so it's more

affordable can also help grow the American magnesium market and decrease U.S. reliance on foreign-made materials," McGrail said in a statement.

PNNL says it is developing a new, titanium-based catalyst that regenerates an important chemical used in the magnesium extraction process. The catalyst will enable a more efficient process and use less energy as the process will require temperatures of no more than 300 degrees Celsius, considerably lower than the 900 degrees Celsius required by the current U.S. process.

PNNL will draw on its expertise in catalyst development, molecular simulation, powder metallurgy and metal-organic chemistry for the project. Detailed computer modeling and follow-up lab tests will be used to pinpoint the catalyst's specific chemical makeup.

The project team plans to develop a prototype system that uses the new process. Commercial-scale magnesium production with the new process is expected to halve the current US production cost. It should cost less than \$1.50 and require only 25 kilowatt-hours of energy per kilogram.

PNNL is partnering with Global Seawater Extraction Technologies and Utah magnesium plant owner U.S. Magnesium, LLC. The new production method will use a crystallization process developed by Global Seawater Extraction Technologies and tap electrolysis and practical magnesium production experience from US Magnesium.

ARPA-E is providing \$2.4 million for the project, while PNNL's project partners will provide the following cost-share matching: \$210,000 from Global Seawater Extraction Technologies and \$60,000 from U.S. Magnesium. ■

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Mould coating helps determine drying status

Water-based Solitec DI coating offers colour indicator to moulds' wet/dry condition.

Through intensive R&D, ASK Chemicals aims to provide metalcasting operators with a continuous supply of new and efficient problem-solving techniques. Its most recent development is a fireproof, water-based coating that incorporates a wet/dry colour indicator. Solitec DI changes colour during drying, providing an easily discernible, optical indication of its drying status.

Typically, metalcasters have opted to apply fireproof solvent coatings. However, occupational health and safety and environmental protection standards, as well as economic considerations, encouraged some "rethink" among coating manufacturers.

The new approach was (and is) directed at developing environmentally friendly and sustainable solutions, in place of petrochemical byproducts like solvents. The water-based technology from ASK Chemicals is a successful example of the effective transfer of expertise from solvent- to water-based coating formulations.

ASK Chemicals has a longstanding reputation for developing new technologies and products to benefit the foundry industry and promote the use of econ-friendly products and processes. With Solitec DI,

the company has developed a technology by which the fireproof coating used undergoes a noticeable colour change as soon as it dries.

Complete drying of the coating layer is absolutely essential to avoid casting defects such as blisters, gas and slag inclusions, porosity, or a rough surface finish. Although insufficient drying will lead to rejection and incurs reworking costs, excessive drying often entails higher energy costs. Both situations result in loss of productivity and reduced efficiency.

As yet, there is no simple analytical method for metalcasters to determine a coating's degree of dryness. However, this problem is addressed by Solitec DI. The water-based coating changes colour when drying, acting as a wet/dry indicator, and in that way a previously unavailable tool for foundries to promote productivity and product quality. The visual confirmation of the drying state makes Solitec DI an exceptional quality assurance instrument.

If sand moulds or cores exhibit soft areas due to inadequate compaction, i.e. loose areas with low density, these will tend to absorb more moisture from the coating than the surrounding areas, which means they take longer to dry. Here, the clearly discernible colour change supports higher productivity, and optimises quality for cores and moulds. Problem cores and moulds are recognised easily and spoiled castings can be avoided before even greater investment outlay is incurred.

Solitec DI is being used successfully by metalcasters, with particularly strong acceptance by steel and ductile iron foundries. This acceptance demonstrates the cost benefits of processes, too.

The fireproof water coating with wet/dry colour indicator is an innovative approach that combines the original intended purpose, environmental considerations and a high degree of functionality in an otherwise familiar product.

Applied Casting Solutions represent ASK Chemicals in Southern Africa. For further information contact Applied Casting Solutions on TEL: 011 922 1701 or visit www.chemsystems.co.za or www.ask-chemicals.com.



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The new Bruker Elemental Q2 ION

Ultra-compact spark-OES metals analyser

Bruker Elemental's new spark spectrometer Q2 ION elevates metal analysis into new levels of simplicity and ease-of-use. Today Q2 ION is the smallest and lightest ultra-compact spark emission spectrometer for metals analysis available. It is a versatile multi-matrix system for comprehensive incoming material inspection and quality assurance of metal alloys. Its affordable price and low operational costs make it the ideal tool for smaller and medium-size businesses.

Q2 ION covers all major alloying elements in major applications such as iron and steels, aluminium, copper, brasses, and bronzes, and many more. It ideally addresses the requirements of small and mid-size foundries, metal processing industries, fabricators, quality control departments, warehouses, metal recyclers, and even inspection companies.

Q2 ION – performance and simplicity

It's design makes Q2 ION ultra-light, less than 28 kgs, so it can easily be hand-carried even to a nearby site for analysis. An optional case is also available. Despite its low weight, it is suitable for applications in which

ruggedness is required. Q2 ION also defines new standards in ease-of-use. Place your sample onto the spark stand and press the start button. In less than thirty seconds you get the complete elemental composition of your metal. The new generation now features an extended range of elements in all three matrices.

Q2 ION - patented optical system

The new patented Flat Field CCD optics is a masterpiece of optics design and mechanical engineering. Active Ambient Compensation (AAC) provides maximum stability in a temperature range between 10 and 45° C. The high definition CCD detector together with well-proven ClearSpectrum® technology provides best-in-class analytical performance.



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Oxford Instruments

launches a portable cordless metal analyser



Oxford Instruments has introduced a new portable arc / spark metal analyser, the PMI-Master Smart. It is the only true portable and full range optical emission spectrometer in the market, designed for metal analysis especially in hard to reach places. Despite its

15 kg light weight and compact dimensions, the PMI-Master Smart offers full analysis functions and high performance. The powerful rechargeable battery pack and well thought-out transportation concept complement the mobility.

Full analysis functions

Metal analysis, grade identification and sorting – the PMI-Master Smart offers the full range of analysis functions and it offers a wide wavelength range at optimum resolution. The patent pending optics, made of carbon fibre, is the key.

Mechanical expansion and tension, triggered by temperature changes and distortion due to change of position are virtually eliminated, guaranteeing stable measuring results.

“Our goal was to develop a truly portable metal analyser without compromising on the functions and analysis quality. The PMI-Master Smart even exceeded our own targets,” says Vito Angona, General Manager of Oxford Instruments Analysis GmbH.

Truly cordless

Power connections are typically not available in hard to

reach places. Equipped with a rechargeable and optional replacement battery pack the PMI-Master Smart is truly cordless and completely independent from mains supply. The battery pack provides power for the analysis of some hundred samples in ARC and/or SPARK mode, and 7 hours in standby. It also can be operated with the external power supply / charger, with or without battery and even during recharging.

Transportation concepts

The cases for the transportation of the PMI-Master Smart and its accessories easily fit into a car boot. Stacked up they can be dragged with a foldable trolley. For more intensive use a cart, holding a 10l bottle of Argon, probe and all accessories is also available. If you need to climb up to reach the place of analysis, the PMI-Master Smart can safely be carried on the back with the back pack frame.

Probe options

Three different probes are available for the PMI-Master Smart. The UVTouch probe analyses low carbon content (L grade separation) besides many others, the arc probe sorts different metals with Arc in air atmosphere in only 3 seconds, and the rugged spark probe analysis standard elements with minimum Argon consumption (Linde ECOCYL 1l Argon bottle recommended).

For further details contact Monica Galliford Van der Merwe (Sales Manager) at SMM Instruments on TEL: 011 540 6000 or visit www.smmafrica.com or www.oxford-instruments.com ■



In the quest to harness the wind for SA's renewable energy resources...



... we're right up there

Supplementing our ageing coal-fired power stations, and the move towards clean energy is a primary challenge for the energy generation industry. Traditionally, wind farms in South Africa have been constructed with imported components, but local manufacture is making inroads into this burgeoning industry. Together with our German technology partners ASK GmbH, who have a wealth of experience in developing resins for the many castings used in wind turbines, Applied Casting Solutions is ideally placed to provide the South African foundry industry with the expertise and product quality for these exacting applications. Our Furan resin systems, Askuran™ and Beranol™ are specifically formulated to meet the demands on resin systems for large wind turbine castings

Improved Formulation

- ▶ Higher strength
- ▶ Good through-cure
- ▶ Improved mould and core surface

Enhanced productivity

- ▶ Prolonged work time
- ▶ Favourable ratio between work and strip time

Environmentally superior

- ▶ Low Nitrogen content
- ▶ Low Sulphur content
- ▶ Reduced pollutants

Applied Casting Solutions are your technical application specialists. We are dedicated to doing all we can to enhance the quality of your castings and give your foundry the competitive edge.



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