# castings sa

volume 26 number 3
October 2025

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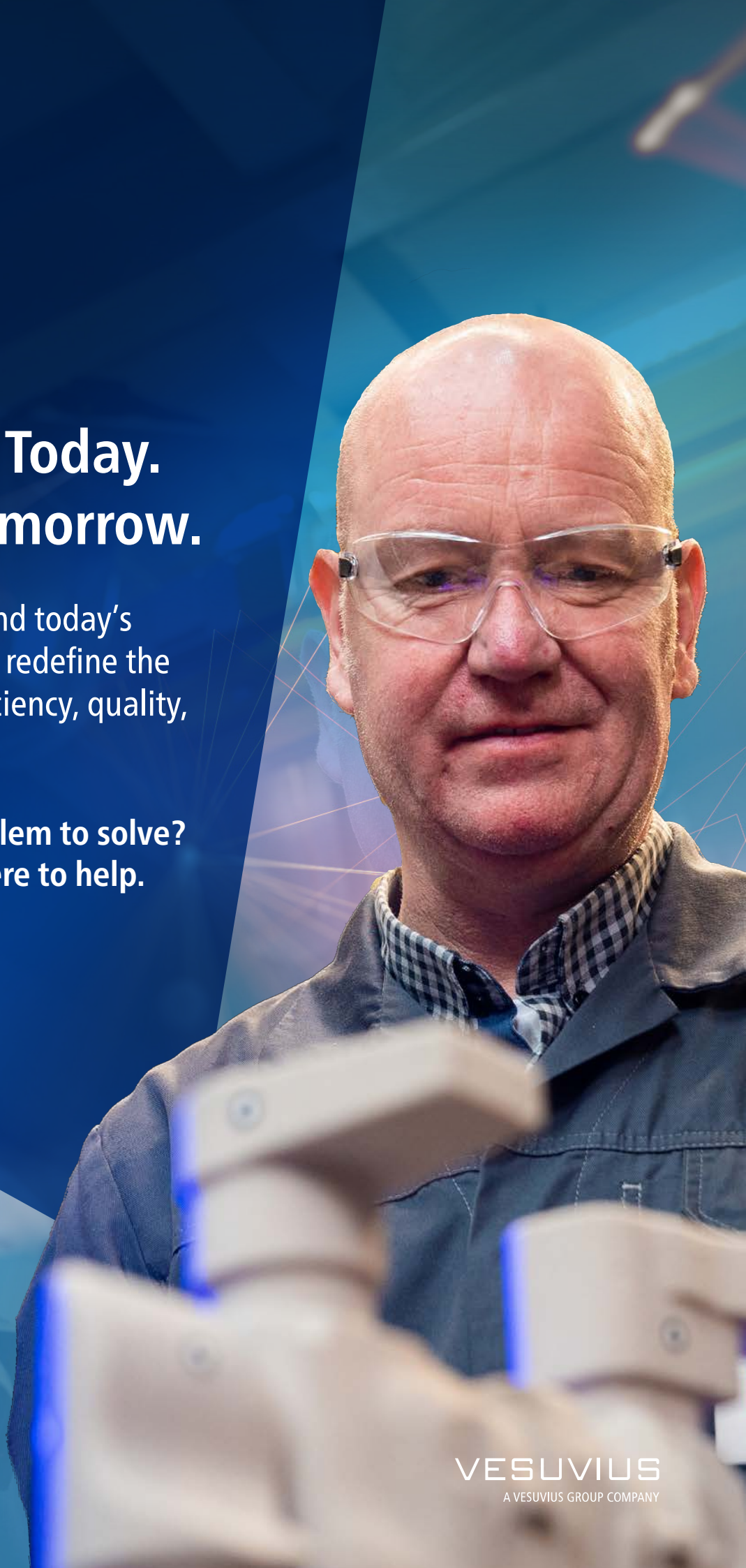

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# castings sa

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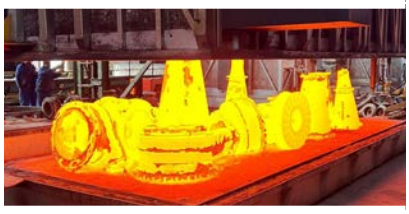

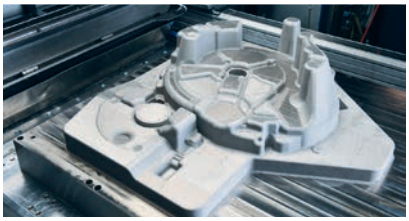

# Can AGOA be saved?

There have been reports emanating from our land-locked neighbours – Lesotho – that the United States plans to extend the African Growth and Opportunity Act (AGOA), which gives the continent preferential access to US markets, by a year, after a trade delegation returned from a visit to Washington.

Led by Lesotho's Minister of Trade, Industry and Business Development Mokhethi Shelile, a Lesotho trade delegation visited the US from 15 to 19 September and met US officials responsible for AGOA on the House of Representatives Ways and Means Committee and the Senate Finance Committee.

AGOA expired on 30 September and companies that benefit from it have warned that any delay in renewing it risked significant job losses and factory closures.

"They all agreed that AGOA has to be extended and they promised us that by November or December, at the latest, it will be extended by a year," said Shelile at a press conference after returning from the US.

The visit by the Lesotho trade delegation was because of the tariffs that US President Donald Trump imposed on global trading partners on April 4 that have hit countries hard. They were widely seen as the death knell for the quarter-century-old AGOA deal, putting millions of livelihoods at risk. Lesotho initially got hit with the world's highest tariff of 50% on Trump's so-called "Liberation Day" – ruinous for the tiny mountain kingdom's export-led development model, which was almost entirely dependent on textile factories selling jeans and T-shirts to the US. Trump reduced the tariff to 15% in August.

While tiny Lesotho is doing something to help the country and its citizens, we in South Africa get a support desk, established by the Department of Trade, Industry and Competition (the dtic), which will serve as a direct point of contact for companies affected by the US tariff hikes. Big deal!

To many it looks as if the South African government as a whole, do not seem to be taking the threat of United States sanctions seriously. Add to the already imposed tariffs the possibility that South Africa may be hit by sanctions, including being kicked out of the SWIFT payment system, a move that will effectively isolate us from global finance. South Africa is on a knife's-edge and risks permanently souring relations with the world's most powerful country. And for little good reason.

Now, just to add insult to injury, the South African National Defence Force (SANDF) will be participating in wargames with China and Russia during the G20 summit. The timing, and the fact that we are still participating in military exercises with cold war enemies of the United States, sends a clear signal to the US that we do not care about repairing relations. This is on top of President Cyril Ramaphosa's roasting by President Donald Trump in the White House where certain demands were given and nothing has been done about them, General Rudzani Maphwanya's – Chief of the SANDF – support for Iran against the United States, and the government's support for the countries that are involved in devasting war currently. All of which is in opposition to the US's stance and many other examples that the US does not look upon favourably.

This is despite the 30% tariffs already resulting in tremendous volatility in the economy. Many jobs are at risk, especially affecting our agricultural and automotive industries. Tariffs only started in August 2025, so at the time of writing the full extent of the economic damage is yet to occur.

On top of this the local automotive OEM manufacturing industry is in turmoil because of all the cheap imports from China flooding the market.

This is not a political statement – it is the reality of the scenario in South Africa. Reduced competitiveness in the world's most lucrative consumer economy will only serve to slow down our economic growth and export markets. We cannot afford the resultant job losses.

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# Pier Foundry's installation of Inductotherm's VIP® Dual-Trak® power supply unit and a five-ton furnace boosts melt capacity by 30%

A decades-long collaboration with Inductotherm has helped Minnesota, USA-based's Pier Foundry to achieve a significant milestone in productivity and capacity.

Pier Foundry has achieved a new level of efficiency and productivity thanks to an innovative addition to its melt shop. In November 2023, the Minnesota foundry installed a five-ton furnace and the second half of its VIP® Dual-Trak® power supply unit, finally completing its objective to increase output by 30%. This upgrade is part of the ferrous foundry's thoroughly planned, long-term expansion strategy to maximise casting output.

"The foundry did not initially invest in the full VIP® Dual-Trak® unit, with its alternating power capabilities. Instead, it purchased half of it – the VIP® Dual-Trak® Ready – which includes the 3 000kW power supply that could connect to a single furnace, otherwise known as the VIP® Power-Trak®," explained Patrick O'Connor is a District Manager with Inductotherm Corp.

"However, this power supply was 'ready' to be upgraded with its second half, once Pier Foundry decided it was ready for that step."


***Inductotherm's five-ton, heavy steel shell was an ideal choice for Pier Foundry's output needs, due to its durability and reliability***

"For Pier Foundry, this meant seamless integration of the new five-ton furnace with the existing VIP® Dual-Trak® Ready unit, even though that had been installed in 2012. The plug-and-play compatibility of the power system ensured a smooth transition to a full VIP® Dual-Trak® power supply unit, so the foundry could meet rising product demand with minimal downtime."

"The result? Just over a year later Pier Foundry produces an impressive volume of finished castings each month. It's an impressive achievement driven largely by the enhanced melt capacity the full VIP® Dual-Trak® power supply unit provides."

**A powerhouse of efficiency**

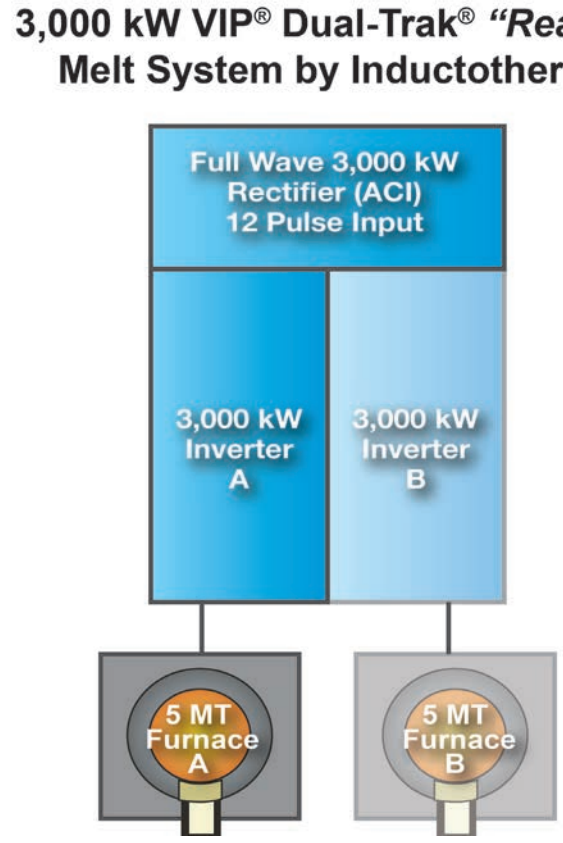
"Inductotherm's VIP® Dual-Trak® system is a game-changer for continued innovation in induction heating and melting. Designed with flexibility, scalability, and efficiency in mind, this advanced technology offers foundries the ability to ▸

***Pier Foundry installed the second inverter of its VIP® Dual-Trak® in 2023***

adapt and grow without extensive – and expensive – infrastructure changes. The modular design of Inductotherm's line of Multi-Output™ systems typically consolidates the capacity of multiple power units into a larger power output. This saves valuable shop floor space and minimises investment costs for each ton of metal produced."

"Another key operational benefit is that it allows equipment utilisation approaching 100%, to melt more metal in less time with less power. Foundries know they are able to do more with less, and achieve greater success with long-term investment purchases."

"Since VIP® Dual-Trak® power supply units allow for the same amount of power to be distributed between two furnaces, foundries like Pier Foundry can be sure that they are getting the maximum productivity from the equipment, whether it's a 50/50 split or one furnace melting as the other is pouring."




***Inductotherm's VIP® Dual-Trak® unit allows 3 000kW's to be split between two furnaces. In 2012, the VIP® Dual-Trak® Ready unit was custom-designed for future flexibility***

**A legacy of collaboration**

Pier Foundry's partnership with Inductotherm spans four decades, a relationship defined by shared goals of growth and innovation. This began in 1980 when Pier Foundry replaced a cupola furnace with an Inductotherm induction furnace, revolutionising its ferrous metal melting process. For 32 years, this furnace was the backbone of the operation, delivering efficient and reliable results.

"When Pier Foundry installed a five-ton Inductotherm furnace paired with a 3 000kW VIP® Dual-Trak® Ready power supply unit in 2012, this was yet another leap forward. This strategic move not only expanded the casting capabilities and laid the groundwork for future growth in their furnace line, as these systems are designed to easily expand when production demands increase."

***Inductotherm's VIP® Dual-Trak® power supply unit***

"The 2023 installation marked another milestone in the long-term partnership. With the addition of a new five-ton furnace, Pier Foundry further cemented its position as a metalcasting leader. By leveraging the scalability of Inductotherm's systems, they achieved a 30% increase in melt capacity without requiring additional power infrastructure. One year later, their furnace remains powered by the VIP® Dual-Trak® unit and continues its expected output."

**Planning the future**

"Pier Foundry isn't stopping here. Building on its success, the current plan is to expand the power supply capabilities and automate the charge system to achieve full power utilisation."

"With Inductotherm as a partner, Pier Foundry is well-positioned to continue growing, and prospering. This partnership is a testament to the power of long-term collaboration and advanced technology to deliver industry-leading results. And as Pier Foundry shows, combining strategic planning with cutting-edge equipment can unlock new levels of productivity and efficiency."

For further details contact Cerefco on TEL: 011 845 3253 or visit www.cerefco.co.za or www.inductotherm.com ■

# Meehanite Africa and Casting Materials certifies Mafoder Fonderie with the Meehanite license

Registered trade mark is recognised around the world as a label of quality and only foundries licensed with the patented Meehanite® process can provide you with a genuine Meehanite® casting produced to exacting standards.


***Mafoder Fonderie, a foundry based in Casablanca, Morocco, has been licensed by Meehanite Africa and Casting Materials to use the Meehante process***

"In 2018 I received an email from Mafoder Fonderie, a foundry based in Casablanca, Morocco, requesting the Meehanite license. Myself and Mike Low travelled to Mafoder Fonderie to meet with the company owners. On this visit we were shown the foundry, pattern shop and laboratory facilities. This visit also constituted what is known in Meehanite terminology as a pre-installation visit," said Brian Wiggill who is the Meehanite franchise holder for South Africa. Wiggill is also the MD of B P Wiggill Engineering (Pty) Ltd, a licensee of the Meehanite quality standard and ethos.

"The license agreement between Meehanite Africa and Mafoder Fonderie was drafted, presented and small corrections were made. This was signed in 2019 at which point we began the formal licensing procedure, which requires that Meehanite Africa write a pre-installation report where the licensee foundry is given detailed drawings and specifications of the equipment they require to run the Meehanite process. Once Mafoder Fonderie advised us that they had met the requirements as per the pre-installation report, which predominantly requires the future licensee to invest in the Meehanite wedge testing equipment required to run the Meehanite process, we could proceed further. An installation visit was then undertaken in 2019 to instruct and teach the foundry personnel about the implementation of the Meehanite process."

"Mafoder Fonderie made enquiries about the Meehanite license for their client, the OCP Group. The OCP Group control and operate the phosphate mineral mines in Morocco. During the 2018 visit Mike Low and I were taken to two of the OCP Group mines for discussions with their engineering and technical staff about the Meehanite materials and processes they could use to manufacture castings and components that would be suitable for use in the sulphuric acid plants."

"The OCP Group have access to vast amounts of phosphate rock raw materials, which is used for the production of fertiliser. Sulphuric acid is used to further process the phosphate rock for the manufacture of phosphoric acid, a main ingredient in

fertilisers. Morocco is understood to have two thirds of the world's known phosphate reserves."

"Sulphuric acid is a corrosive chemical in the initial processing stage and besides being harmful to humans in concentrated forms it is very hard on the processing equipment used in further processing and manufacturing operations. Mafoder Fonderie is the designated foundry to manufacture raw and machined cast iron and steel wear parts for the equipment and products used for processing and manufacturing the rock. These range from a few kilos to 4 tons. Components and spare parts for the OEM pumps used by the OCP Group and other industrial users as well as for the Mafoder Group's own slurry pump range. The cement industry is also major client of the company. The materials used for the phosphoric acid processing plant are predominantly stainless steels."

"On our initial visit to Mafoder Fonderie, we were able to identify that they had vast knowledge in the production of jobbing foundry type castings. We were introduced to their technical staff who had extensive knowledge of the production of ferrous castings. This, Meehanite recognises as proprietary technology for the foundry, bearing in mind that none of the foundry personnel to that point had had any exposure to the Meehanite methods or technical material such as recommended chemical compositions and metal treatment methods."

"Mafoder Fonderie's client, the OCP Group, had experienced a major materials failure due to the material, which did not meet the requirements of the Meehanite process, being sourced from a non-licensed foundry. We understand that they had previously been supplied castings by licensed foundries in France and Japan and that these had given them excellent service life. Hence their insistence that their suppliers have the Meehanite license. This was explained to us on our visit. In Meehanite we often see materials which may appear similar but perform very differently in service."

**Introduction into Mafoder Fonderie**

"In 2019 Mafoder Fonderie became the fifth African foundry to be licensed as a Meehanite foundry. Meehanite is not simply a range of high-quality engineering materials. The ramifications ▸

***In 2018, Mafoder Fonderie manufactured the first 100% Moroccan centrifugal pump, co-developed with the OCP Group. The company now delivers castings and products all over the world including to the Netherlands, Germany, France, Algeria, Tunisia, Sub-Saharan Africa, and the Middle East***

of the Meehanite process are such that it pervades all aspects of casting production to create a total manufacturing system. Licensees undertake to meet the most stringent casting standards in order to uphold the Meehanite quality ethic."

Meehanite is an organisation comprising a worldwide network of licensed foundries sharing co-ordinated development and interchange of technology. Meehanite is a full range of material types, developed to suit all casting applications. Meehanite is a metallurgical process, which controls the degree of nucleation and the solidification behaviour of cast irons, ensuring that the castings have dense, fine-grained structures, with good machinability. Meehanite is a practical quality assurance system, geared to the advancement of casting standards. Meehanite is an information service, communicating product development and technological interchange to the mutual benefit of foundry and customer alike. Meehanite provides a service to casting users, designed to optimise casting performance. Meehanite is a vehicle for sales promotion.

And, finally, Meehanite is a registered trademark, recognised internationally as a label of quality.

Besides the Meehanite license Mafoder Fonderie is also ISO 9001:2015 certified for its Quality Management System and ISO 45001:2018 certified for Occupational Health and Safety.

In 2018, Mafoder Fonderie manufactured the first 100% Moroccan centrifugal pump, co-developed with the OCP Group. Since 2020, Mafoder Fonderie has successfully completed the previously unthinkable challenge in Morocco of developing a range of complete centrifugal pumps, which they have named FARAS. This was the first time that the dream of Moroccan engineers and technicians to manufacture local industrial pumps has been realised in Morocco.

The company now delivers castings and products all over the world including to the Netherlands, Germany, France, Algeria, Tunisia, Sub-Saharan Africa, and the Middle East and exports represents 50% of sales. There are three main activities within the Mafoder Group: steel and cast-iron foundry products, prefabricated concrete, and outdoor furniture. Urban development and planning solutions are also an important part of the Group's activities.

**Meehanite Africa**

"Meehanite was introduced into South Africa in the mid 1930's and one of the first licensees was Thos Begbie & Co. Cemenco Foundry, which evolved from the WD Wiggill Foundry, was also a licensed Meehanite foundry. The South African Iron and Steel Industrial Corporation (Iscor, which is now ArcelorMittal South Africa), signed up for the Meehanite license in 1996 and is still a licensee. In the years that followed Meehanite Africa had approximately fifteen licensees."

"In those years all cast iron production was from cupola melted iron. At the time Meehanite had great technical and metallurgical material for the successful operation of cupolas. There are currently no Meehanite Africa foundries in Africa operating cupolas."

"My late father Des Wiggill purchased the franchise for Meehanite in Southern Africa from a friend Adrian Gray, in 1984 and we have continued to run the franchise in that company to this day. The company, Meehanite Africa was registered in 1938. Dad was very passionate about the Meehanite process until his passing in December 2015. I now own the franchise for the Meehanite process in Africa and besides my own company B P Wiggill Engineering and Mafoder Foundry the other licensees are ArcelorMittal, Lusafrica and John Thompson in Cape Town."

"Bill Moore, whose father owned Standard Brass in Benoni, worked for Meehanite in the USA, and eventually became President of Meehanite Worldwide. The current President of Meehanite Worldwide is Pekka Kemppanian of Finland. Everything is run by agreement of the Meehanite Worldwide Corporation."

"In terms of our résumé new developments are conveyed to licensees based on our assessment of their need for this information. Sharing of co-ordinated developments and the interchange of technology are priorities amongst us companies and are to the mutual benefit of the foundries and customers alike."

"We are proud to have introduced the world-renowned and respected process into a fellow African country and hope to educate a few more."

Contact Brian Wiggill on TEL: 011 892 3874 for further details or visit www.meehanite.co.za or email address: meehaniteafrica@meehanite.co.za ■

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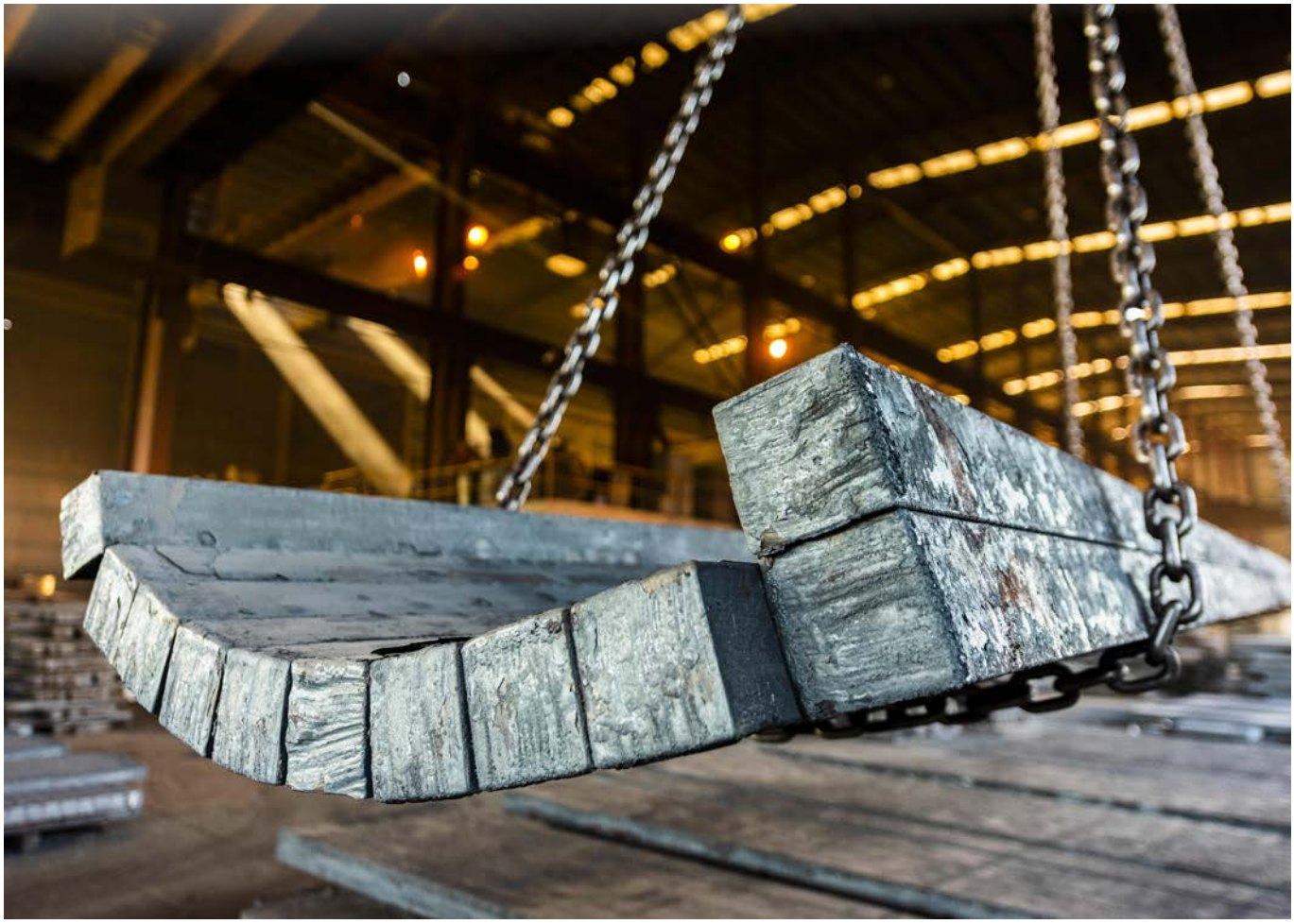
# CEFA sounds urgent industry alert – ITAC steel tariff review threatens jobs, businesses, and consumers



While public discourse has touched on the surface implications of ITAC's steel tariff review, the preliminary findings released on 20 August 2025 carry far-reaching and deeply concerning consequences that have not yet been fully acknowledged.

"As the Cape Engineers & Founders Association (CEFA), a 105-year-old employers' organisation representing 128 companies and nearly 10 000 employees in the Western Cape – 75% of whom are SMMEs – we feel compelled to raise the alarm. The proposed measures threaten to destabilise the very foundation of South Africa's downstream manufacturing sector," said a CEFA spokesperson.

**CEFA listed their key concerns:**

**Import permits on everyday goods**

"The review proposes extending import control to hundreds of items – from raw materials to consumer products. This includes basic goods such as cutlery, padlocks, tools, stoves, and cookware. South Africans may face widespread shortages."

**Corruption and cronyism risks**

"The permit system introduces delays, inefficiencies, and opens the door to arbitrary decision-making. It creates fertile ground for corruption and political favouritism."

**Downstream devastation**

"Far from protecting jobs, these measures will cripple hundreds of manufacturers, retailers, and service providers who rely on steel inputs. The ripple effects will be felt across the economy."

**Protection of a few at public expense**

"The review appears designed to shield a single entity – ArcelorMittal South Africa (AMSA), which is 70% foreign-owned – despite repeated taxpayer bailouts and preferential treatment. This comes at the expense of thousands of local businesses."

**Politicised and flawed process**

"The scope of the tariffs is unprecedented. The review has been rushed through with minimal transparency, and the public participation process has been reduced to a procedural formality."

**Escalating costs across the value chain**

"With duties raised to WTO-bound rates and import controls imposed, costs will surge. Permit applications will carry fees, administrative burdens will grow, and supply chain delays will force businesses to hold excess stock – driving up prices for consumers."

CEFA asks who really benefits: "The review claims to 'protect the metals manufacturing industry,' yet AMSA is its clear beneficiary. Despite bailouts (R1.7 billion in 2025), anti-dumping tariffs (58%), and subsidised electricity, AMSA remains uncompetitive."

"The IDC's interest in acquiring a failing mill – while also falling under the DTI alongside ITAC – raises serious governance concerns."

**The myth of 'cheap imports'**

"The narrative that imports are 'killing local manufacturing' is misleading. Quality and delivery are as critical as price. Local steel often fails quality benchmarks, as noted by NAAMSA in its ITAC submission. AMSA has received extensive government support and still cannot compete."

"So why does South African manufacturing really struggle? The reasons are numerous and include the fact that electricity costs have risen over 500% in 15 years, coupled with an unreliable supply. Rail infrastructure has virtually collapsed, forcing costly road transport. Labour costs are among the highest globally for unskilled workers, compounded by weak training and frequent strikes and SETA failures continue to burden industry with a lack of and inefficiencies in skills."

**Import permits = self-imposed sanctions**

"The preliminary report effectively imposes a sanctions regime on South African businesses. ITAC will determine who may import, how much, and under what conditions. Everyday goods – many with no local production – are included."

**Risks to consumers and small business**

"This regime will choke small businesses with red tape, delays, and uncertainty. Retailers, hardware stores, furniture makers, and end-users will all be affected. The cost burden will cascade through the economy."

"These proposals are not protective – they are punitive. They favour one failing company at the expense of hundreds of others. They risk shortages, price hikes, and systemic corruption. South Africans deserve a transparent, inclusive debate – not a rushed political intervention."

"We urge media centres, chambers of commerce, and institutional stakeholders to amplify this message and demand accountability. CEFA stands ready to collaborate with all parties committed to protecting South African industry, jobs, and consumer rights." ■

# Harchris Heat Treatment under new ownership

With the imminent retirement of Managing Director Errol Preston, Harchris Heat Treatment has been acquired by Erindale Holdings (Pty) Ltd, new owners that have a background in the agriculture and mining sectors. As part of the agreement, which was signed just over a year ago, Errol Preston has remained on in a consulting capacity to oversee the handover and mentor the new owners.

"The acquisition of Harchris Heat Treatment is an important milestone for us as the new owners and provides significant end market diversification and additional reach, both of which are key strategic drivers for our business. We are pleased with this recent development and look forward to furthering our core values of customer service, quality, technical expertise, and providing solutions to our customers," said Shane Potgieter, who is the new Managing Director.

"It was decided to purchase Harchris as a going concern, and therefore, the majority of the original staff have stayed on. Additionally, we have appointed a Business Development Manager, a Junior Production Manager and a Processing Plant Engineer."

"The services that Harchris Heat Treatment, one of South Africa's oldest heat treatment companies, offer includes stress relieving, annealing, spherodising, sub-critical annealing, solution heat treatment, normalising, water and oil quenching and we also specialise in annealing and hardening of chrome iron. The services include both the non-ferrous and ferrous sectors." ▶


***Harchris Heat Treatment is a reliable service provider in the ferrous and non-ferrous sectors. The company's services include stress relieving by heating to a suitable temperature and maintaining the targeted temperature by reducing the residual stresses. They also offer comprehensive services such as annealing, spherodising, sub-critical annealing, normalising, solution annealing, water, oil and air quench, refractory dryout, as well as hardening services and tempering the metals***

"As part of constantly improving our customer service, we have endeavoured to turn Harchris into a one-stop manufacturing shop. Therefore, we have partnered with a local shot blasting company and can now offer shot blasting, corrosion protection, and painting services. In addition to this, we have a 500-ton press on the premises and a 30-ton, 14-ton and 7-ton truck for any transport requirements."

"Future expansion plans include the commissioning of a brand-new pit furnace with recuperative burners by the end of 2025, as well as the commissioning of a muffle furnace in the second quarter of 2026."

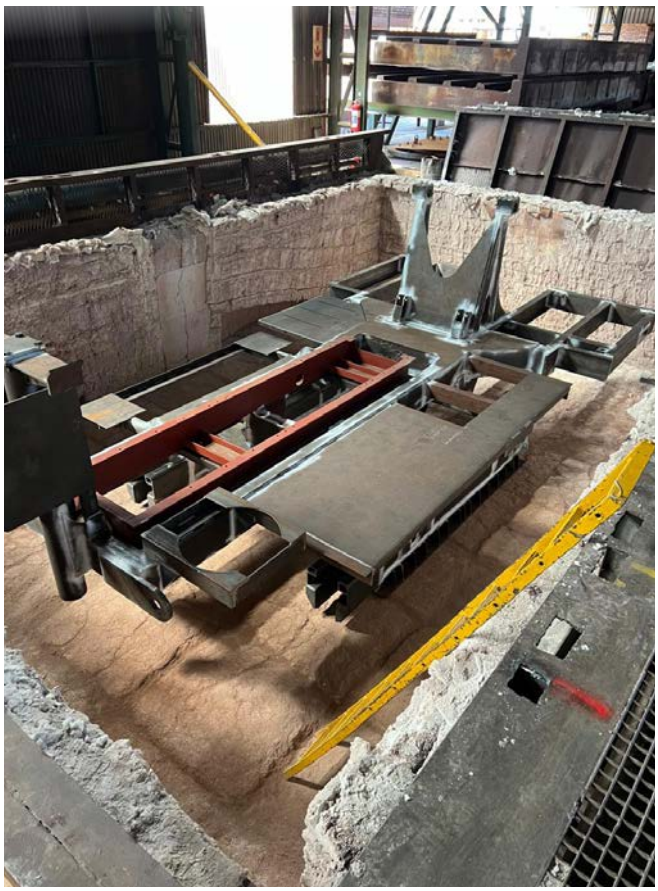
### Energy saving and carbon footprint

Harchris also have a number of environmental considerations to take into account, and they know, they have to remain on the path towards the reduction of their carbon footprint. Already in 2019 the company installed a 80KWP Solar PV rooftop mounted grid tied system with a backup generator startup.

"Through this intervention Harchris was able to operate efficiently through the whole loadshedding period providing us with the major benefit of uninterrupted production."

"From the company's inception, Harchris has regularly upgraded their equipment and as a result implemented firsts in the local industry and the African continent. The rationale behind the move was to not only reduce the carbon footprint of the older technology, but also to keep abreast of ever-changing technologies in the industry, while keeping up with customer demands for better quality products with enhanced lead times."

***The process of improving the characteristics of various metals such as steel or aluminium includes techniques by heating the metal to a high temperature, which then drops to below melting point and then cooling the material. A few distinctive advantages include reducing the brittleness and internal stresses of the metal***



***The primary reason why tempered metal alloys are more malleable than other materials is attributed to the energy transferred to the moving electrons. Metals can be described as malleable because of the metal's ability to be beaten into smaller components of sheets as well as the characteristics of the metal being ductile. The ductile characteristic implies that the metal can be pulled out into wires. The ability of the atoms to be transferred to an alternative structure without breaking the metallic bond also contributes to the alloys being more malleable than the conventional techniques***

### History

Harchris was established by Harry Preston, father of the previous MD Errol Preston, in 1950 as Central Welding Works – a general engineering company. In 1951 the company moved to New Era, Springs, Gauteng and still occupy the original premises. Heat treatment became more popular in the 1960's as a concept to reduce stress originating from welding. As stress relieving became more common, so did hardening and tempering and a host of other processes.

"Heat treatment is a controlled industrial thermal process that accomplishes three primary enhancements to the material properties of metal castings and fabrications, namely improving mechanical properties, enhancing corrosion resistance, and reducing residual stresses. This ultimately results in the enhanced machinability of castings, prevents engineering failures, and increases the lifespan of components," said Potgieter.

"The company now has 25 furnaces of various sizes, shapes and methods of heat treatment. The majority of furnaces are gas-fired, and the balance electrical heating. At Harchris, we can accommodate jobs up to 18 metres in length, five metres in width and 50 tons in lifting capacity. The majority of work currently heat treated include high pressure vessels, fabrications, castings, bars, billets, plates, pipes and wire rod."

"The reputation of Harchris is built on the uncompromising ▶

quality of our work, establishing us as a trusted leader in the industry. We prioritise precision and efficiency to deliver cost-effective solutions with good turnaround times, enabling our clients to meet their goals while fostering trust and long-term partnerships. Rigorous quality control measures are applied throughout every stage of the process to ensure consistent results that meet the highest standards. Guided by innovation as one of our core principles, we continually invest in the latest technology and industry developments, allowing us to evolve with changing demands and to provide our clients with exceptional service."

***A brand-new pit furnace with recuperative burners***

"Furthermore, we place as much value on relationships as we do on metallurgy: every job is handled with the same care we would expect for our own. With us, you gain more than a supplier – you gain a partner who is personally invested in your success."

For further details contact Harchris Heat Treatment on TEL: 011 865 4939 or visit www.harchris.co.za ■

# Ceramic & Alloy

# Specialists sign distribution agreement with CAT International Ltd

UK company specialises primarily in the area of metal filtration.

Specialist supplier of raw materials, consumables and crucibles to the South African molten metal industry including the foundry, aluminium smelter and steel manufacturing industries – Ceramic & Alloy Specialists – has announced that it has signed an agreement to distribute CAT International Ltd's products in South Africa.

***Ceramic & Alloy Specialists has signed an agreement with CAT International Ltd to distribute their filter products in South Africa***

**Ceramic innovation**

CAT International Ltd was founded 25 years ago to commercialise the ideas of the R&D company Carbon Application Technology Ltd, primarily in the area of metal filtration, resulting in the development and production of the CERACAT range of filters for steel and iron.

"International sales of the CERACAT filter range continue to grow year on year and investment in our Staffordshire manufacturing facility has been matched to accommodate future expansion," said Mike Leaney, one of two partners that own CAT International Ltd.

"This is why we have signed a strategic distributor partnership agreement with Ceramic & Alloy Specialists who have been distributing product to our primary target market since 1998."

"We have never taken the easy path. Developing new unique materials and manufacturing processes has been a challenge we've not shied away from and this continues to be our focus for the future. In 2016 we set out on a programme of adapting our material technology to Additive Manufacturing, the results of which exceeded our expectations and drives a large part of our current activity. Additive Manufacturing / 3D Printing of ceramic parts is the present, not just the future... and CAT is at the heart of this revolution," said CAT International Ltd partner Dr Kassim Juma.

"CERACAT is a 'composite' ceramic and it marries the positive properties of multiple materials and technologies to offset any negative aspects and give a very stable strong filter that can be manufactured at lower cost compared to zirconia but with much higher strength than carbon bonding alone," explained Dr Juma.

**How is this done?**

"Foam filters are manufactured by taking a soft reticulated polyurethane foam and building up layers of ceramic slurry on the foam structure, drying and re applying layers until a sufficient layer is built up that when fired gives a ceramic foam structure that will withstand its intended use. CAT has developed a way of layering different ceramic materials within this structure. The base layer is ceramic giving good mechanical strength with a low material cost," said Dr Juma.

"Subsequent layers are blends of high alumina and proprietary ingredients developed by CAT to ensure the 'marriage' of the dissimilar particles on firing. Carbon is also present within the structure but to a maximum of 10%," explained Dr Juma.

"This 'composite' ceramic can be layered differently depending on application. This gives a material that is high in strength, thermally stable for steel and heavy iron application temperatures, high filtration affinity i.e. the surface will chemically attract, attach and retain oxide particles, lower

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relative manufacturing costs and the lack of shrinkage during the manufacturing process compared to zirconia enables the cost effective manufacture of very large filters."

CAT International Ltd has been manufacturing technical ceramics in Staffordshire for over 20 years. The Hixon facility has two buildings with one housing production of the CERACAT foam filter utilising technology developed in-house for combining carbon and ceramic. The CERACAT filter gives zirconia performance for steel and heavy iron applications but with a much lower energy input, significantly reducing manufacturing costs, enabling CAT to competitively export worldwide.

At the heart of the business are the two owners, Dr Kassim Juma and Mike Leaney. Kassim has spent 50 years in ceramic R&D and Mike 35 years in foundry and foundry supply.

"Today Ceramic & Alloy Specialists' product portfolio is made up of Elkem foundry products, Mammut-Wetro crucibles, Hoesch Metallurgy GmbH grain refiners, modifiers, magnesium and fluxes, Becker insulation products, Selee Corporation filtration products, ICP ceramic gating components, Ceralcast industrial ceramic solutions, Remet investment casting products, Schafer Mettalurgie GmbH fluxes and de-gassing products for the non-ferrous industry, Ceranovis die casting coatings, Newform thermal foundry products, Orton cones and PCTR rings and Insertec induction furnace linings as well as tin, ferro molybdenum and ferro silicon," said Wouter Retief, who took over the leadership of the company from his father Mike, the founder of the company, who recently passed.

"We had already been trading in and selling a range of raw materials and consumables to the South African molten metal industry. The range includes ferro alloys, cored wire, aluminium alloying additions, ceramic castings and filters, minor and special metals, minerals and foundry consumables and still does," explained Retief.

***CAT International Ltd has been manufacturing technical ceramics in Staffordshire for over 20 years***

"Adding the CAT International Ltd range to our product portfolio will certainly add value. We are working towards becoming a one-stop shop as a foundry supplier. We now regard ourselves as a specialist supplier to the molten metal industry rather than a bulk supplier," explained Retief.

For further details contact Ceramic & Alloy Specialists on TEL: 011 894 3039 or visit www.ceramic-alloy.co.za ■

# Maxion Wheels energises a 2.9 MWp solar project to power the manufacturing plant

## Solar project powering Gauteng facility for world's leading wheel manufacturer is now live.

***Maxion Wheels South Africa's business is all about manufacturing and supplying OEMs with aluminium wheels – some more complicated than others***

Maxion Wheels, one of the world's leading producers and suppliers of wheels for passenger and commercial vehicles, and Terra Firma, a leading commercial and industrial solar and storage solutions provider in South Africa, have announced that a 2.9 MWp solar project installed at Maxion's manufacturing plant in Johannesburg is now live and powering the plant. The energisation was celebrated at Maxion Wheels South Africa's recent 60th anniversary event.

The carport and ground mount solar installation will supply approximately 20% of the facility's annual energy needs, reducing Maxion's reliance on the national grid and providing protection against energy-related tariff increases. It will also reduce greenhouse gas (GHG) emissions by approximately 5 100 tons per year. ▸

A second phase of additional rooftop solar capacity is scheduled for completion in Q1 2026, with the possibility of integrating a Battery Energy Storage System (BESS) for energy arbitrage and backup power.

The panels cover a total area of 13 250m², which is made up of an unused open area of 1 250m², another ground mount open area of 9 500m² (2 000kWp) and the roof structures of the carpark account for 2 500m² (475kWp).

The installation side of the project took 7 months to complete, starting in March 2025 and ending in September 2025.

The 1.6 MWp Phase 2 of the project will be installed on the rooftop of the manufacturing facility.

It is worth noting that the solar power project installed at the Maxion Wheels, Gauteng facility is now the largest in the Maxion Wheels Group network. The following Maxion Wheels sites are also solar powered: Saraburi – Thailand, Pune – India (three plants), Ostrava – Czech Republic (CZA aluminium plant), Manisa – Turkey (JAWS plant), Chihuahua – Mexico and San Luis Potosi – Mexico.

***Maxion Wheels have installed a 2.9 MWp solar project to power the manufacturing plant. The panels cover a total area of 13 250m², which is made up of an unused open area of 1 250m², another ground mount open area of 9 500m² (2 000kWp) and the roof structures of the carpark account for 2 500m² (475kWp). The 1.6MWp Phase 2 of the project will be installed on the rooftop of the manufacturing facility***

***Initial melting of ingot and scrap metal before degassing is done on two Striko tower furnaces before the metal is transferred to the individual low-pressure die-casting machines***

**Boosting automotive industry competitiveness and sustainability**

South Africa's automotive industry contributes 5.3% of GDP and supports over 500 000 jobs across the value chain. However, the sector is under increasing pressure due to global trade barriers, growing competition and decarbonisation requirements.

For manufacturers such as Maxion Wheels, where electricity is one of the largest input costs due to energy-intensive processes, managing energy spend is critical to maintaining competitiveness. Solar power offers an accessible solution that enables manufacturers to reduce and manage costs, improve resilience and reduce climate impact.

**Focus on engineering precision**

As one of the world's leading manufacturers of steel and aluminium wheels, Maxion Wheels produces approximately 50 million wheels per year across its 31 locations on five continents. The Johannesburg plant produces high-precision aluminium wheels for major automotive OEM customers in South Africa.

Given the plant's intensive industrial processes, continuous uptime is mission-critical for Maxion. The plant relies on extensive machinery including various robots, integrated foundry systems and automated conveyor networks operating around the clock.

For Terra Firma, this meant ensuring continuous power supply while meeting strict health, safety and operational standards at every step of the solar project deployment process.

Under a comprehensive multi-year Power Purchase Agreement (PPA), Terra Firma developed, designed, engineered and installed the project, and will manage and maintain it for its lifetime. The PPA delivery model offers the cost and GHG emission reduction benefits of solar power, without the capital expenditures or risks of ownership.

"The 60th anniversary of Maxion Wheels South Africa is an opportunity to celebrate our legacy of manufacturing excellence while looking ahead to how we can continue strengthening our leadership and resilience for decades to come. Integrating renewable energy into our operations marks a significant milestone in our Roadmap Zero strategy towards net-zero emissions by 2040, and reinforces our position as a global leader in advanced manufacturing," said Milos Despotovic, Managing Director, Maxion Wheels South Africa.

"We thank Maxion Wheels for entrusting Terra Firma as their energy partner to bring this project to life. Together, we're demonstrating how solar power helps enable long-term sustainability, resilience and global competitiveness for South Africa's automotive manufacturing sector," said Grant Berndsen, CEO, Terra Firma.

For further details visit www.maxionwheels.com ■

# Becoming a blacksmith – the evolution of Conrad Hicks

Becoming a blacksmith was not something Cape Town born sculptor, artist, toolmaker and self-taught blacksmith Conrad Hicks imagined of himself when he was younger.

It was more a case of something that he became drawn to as he got older and began exploring his creativity as an artist and designer. Born in 1966, Hicks studied Art and Design at the Cape Technikon, graduating with distinction in 1986. His parents were both architects and artists and lectured at the University of Cape Town, so perhaps it was inevitable that his creativity would find a way to manifest itself in some form.

Hicks has honed his skills and understanding of the materials – mostly copper, iron and steel – he works with through decades of hand-forging, hammering, manipulating and experimenting with the properties of these metals by creating functional and attractive tools and pieces of art.

"We are meant to be using our hands to make things," says Hicks. "It is in our DNA to use them to make tools and other implements. We as humans have been doing this for millennia."

"For me, it's about mastering your material until it becomes subconscious – you are not consciously thinking about what you are doing. I use the material to express myself."

"It's a combination of the one side of your brain performing the metallurgy and the other side of the brain recognising the art and the functionality – I recognise it in the material and then I start to bring it out – then the piece starts telling me what it's about – that's the artist at work. Hand-forged objects for me must be functional and beautiful, but they can also be statements that portray a deeper personal meaning."

***Becoming a blacksmith – central to Conrad Hicks' evolution as a blacksmith has been his anvil***

***The hot forging process is indispensable to Conrad Hicks' technique as a blacksmith and artist***

**The anvil**

Central to Hicks' evolution as both a blacksmith and an artist is his anvil. It still stands proudly, almost as an enigma, on the floor of his forge.

"I purchased the anvil in about 1988 before I even really knew how to use it. It had spent a part of its life being used for railway work by a guy who predominantly made flanges. At the time I purchased it from him when he retired, I was working for a company that was mainly doing restoration work on things like balustrades, hinges and refurbishing locks and that kind of thing."

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***Large solid piece of copper in process on a power hammer – becoming a solid copper chaise***

***Before and during the shaping process, metal is first heated in a fire in a forge before it becomes soft and easier to manipulate. Once hot, the metal is transferred to an anvil or to a power hammer where it can be shaped using various tools***

"After that, I spent some time overseas and worked for a company learning a bit more about the restoration trade as well as artwork restoration."

"It was only really when I returned to South Africa that I started working with the anvil – not intending to set up a business with it because you can't make a living with just an anvil – maybe a few hundred years ago yes, then it was like a laptop or something. But I started getting commissioned more regularly, bending up architectural type stuff, I had the fire and was doing a bit of forging, making tools and jigs, also doing some welding work."

"Then I realised I was actually slowly becoming a blacksmith. Slowly learning how to do it. I had a couple of guys that were working for me doing some of the striking work. Remember, this was a time before the Internet so I managed to get hold of a few books to read to help me along. And then in around 1995, once the Internet got going, I was able to get in touch with a few blacksmiths in America, purchased my first power hammer and progressed from there in my knowledge and techniques. I was fortunate though in that I had the design side background so that helped a lot. That original power hammer – I have since sold it on – paid for a lot of things, including the deposit for this building. And the anvil has been a part of all of that."

"The design experience meant that I could do simple blacksmithing, but make it beautiful. It's all good having the technical knowledge but without being able to make it look good, nobody is going to buy it. The connections, the joins, how it hangs and comes together are all very important – this is how something gets its meaning. It's the source of its composition. The traditional methods of blacksmithing really appeal to me."

"A blacksmith is basically a toolmaker and the tools that I make to create my art become extensions of my body."

Walking around the forge with Hicks and seeing the

hundreds of tools and tongs that he has made over the years to craft his works you can see the relationship he has built with them. Some for specific purposes only, and others for more general use. Each tool or tong he picks up and holds immediately becomes exactly that – an extension of his body as he manipulates and holds it in his hands.

"I realised that what I was doing when I was making tools to make something else was that if I approached the making of the tool as if I was doing a drawing or making a sculpture, that the same set of instincts around form and composition applied. So, if you make a tool that is beautiful, then it will work well. And this applies especially when forging, you're working very quickly with the power hammer coming down repeatedly so you need to be able to work intuitively. Then you work toward what you understand in terms of beauty and form and it will be right in terms of its engineering."

"I want to show people what I see when I am working and the things I see," Hicks explains. Hicks works with both raw and recycled materials and says each has its own set of advantages and disadvantages. Specifically speaking about heating the materials in his fire and the manipulation that follows, he says material will fracture and form differently depending on its purity and that its form will take shape accordingly. Cracks that emerge in recycled copper become beautiful he explains. And in turn the artwork evolves with this.

### Archaeology and anthropology

"Over the years I have studied a lot of archaeology and anthropology and I have a big fascination with stone tools. And if you look at how we as humans developed these tools, we figured out what works well and what also looks beautiful. And because it worked, we also found pleasure in it. If you make things by hand, it's unpleasant to do a bad job."

Hicks has also travelled extensively and experienced many cultures' perspectives of blacksmithing and its unique cultural heritage, symbolism and significance all over the world. He has collected many pieces of work from around Africa and is fascinated with their forms and the techniques used to make them, notably the tribalistic figurines, many of which are displayed in his on-site gallery set adjacent to his forge and workshop.

***Woven Bench – antique wrought iron pieces woven together with bronze wedges and stainless steel panels***

He says that technology represents a society's values and aspirations, and the early blacksmiths created objects that held not only artistic beauty but symbolic and idealistic properties too.

### Hand-forged cooking pans and skillets

"I can't really remember how it came about – making cooking pans and skillets – I think it was more an exploration

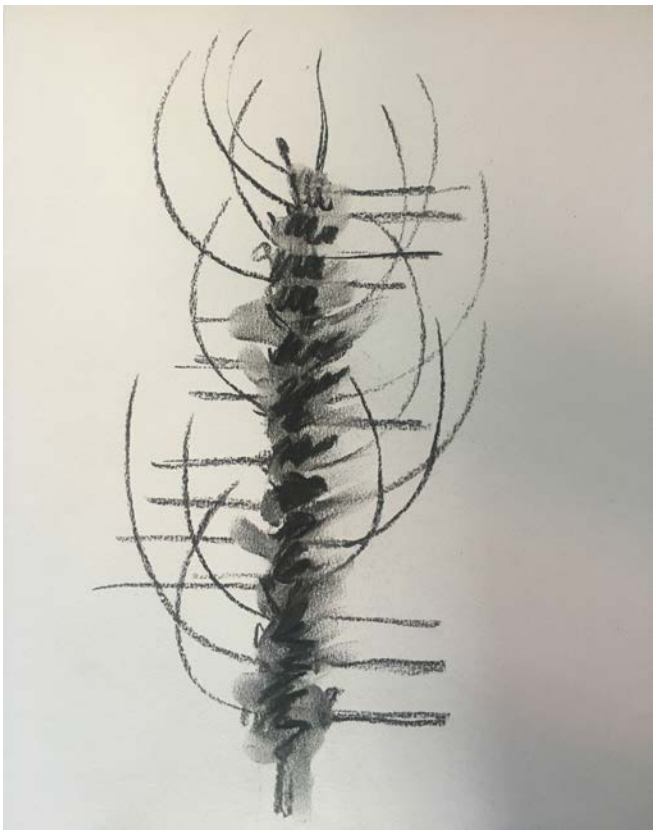
***Forged Solid Copper Chaise – the person who lies in this chaise is meant to press themselves against the material to feel the energy of the copper. Expressive, sensual lines and forms evoke the pressure of emotions explored during the forging process***

***Phoenix Table III – Patinated Forged Copper, Stainless Steel & Iron Side Table – a side table derived from the Maquette series, using copper, stainless steel, and iron to contrast the nature of the metal***

to see whether I could make a tool to create the form for the pan to create functional cooking implements. I then ended up making a few pans for my friends too. The intention was never to start a business with it."

"Then my kids – still teenagers at the time, this was about 2013 – wanted some pocket money. And so, I said, 'Ok, let's start a little business,' and make these pans."

"So we started to make these pans and the kids would go off and sell them at the old Oranjezicht City Farm and Market. They learned so much from the process – how much effort goes into just making a pan – to selling it and the interpersonal skills that go along with that. They really



***Sketch of the Wind Sculpture. Abstract drawings prompt Conrad Hicks' creative processes before a sculpture eventually comes to life in a physical form***

***Wind Sculpture – symbolising relationship. The sculpture is made from steel and copper, and the exploration between the two. Copper is tied to Venus (feminine) in contrast with steel and Mars (masculine)***

benefitted from the whole process."

"The kids then went overseas to study and Covid came along and I thought well I better look at what other streams of income I can look at. So I decided to put the pan making business online – it had sort of taken a backstep after the kids left – I was still getting requests for pans, but I hadn't given it much thought. Then it suddenly took off. I think it had all the right elements that people were looking for at that time – people were shopping online, it was handmade, functional and it looked good and felt good when you held it."

"The idea really was just to make things that I like using. Something I would use in my own home. And I guess people relate to that."

"This also relates back to my various exhibitions and all my sculptures over the years – I call them implements, they are all tools – they communicate values, they are vehicles to say something."

"My grandfather was a toolmaker on the railways and he started working on his apprenticeship when he was 12. He told my father, 'You don't want to do this, this isn't a nice life.' So we kind of went through a few generations where everyone was wanting to be a professional – we were discouraged from doing apprenticeships and trades because it was dirty, hard work – but what are professionals? Young people are now realising the value in making something, they want to make things with their hands again. It's a rare skill and they also don't seem to have the association that working in a factory is a problem anymore."

The skillets, pans and roasting pan are now available in various sizes, crafted from 4mm steel and feature concave hand-forged handles and are heat treated with beeswax that penetrates the steel, creating an almost non-stick layer. If looked after properly, the pan will last a lifetime.

**The Bijou**

Hicks purchased the building he operates from in 1998. It was an old Art Deco cinema called The Bijou that is located in Observatory, Cape Town, and this is still the building's name today. Over the years, Hicks has transformed it into a multifaceted workspace that houses not only his forge, workshop and personal gallery and collection of art, but a space that is also now a home and creative hub for other artists and craftsmen and women. It offers studios for rent, space for exhibitions and other events.

Hicks' intention was always to retain as much of the building's character as possible when he was restoring it after a fire had ravaged it before he purchased it. He says the character and form of the building have given him inspiration for his own works.

***The Fibonacci Sculpture. "It represents the principle of growth first described by Fibonacci: If you add a constant percentage to a given quantity, it will increase exponentially in a spiral. This is demonstrated graphically or through objects which demonstrate natural growth such as trees, flowers, and plants. It can also apply to creativity when there is an algorithmic stability present. The Fibonacci pattern rests on the base of this sculpture; its shape illustrates Fibonacci concept of growth. The corners of the squares are made up of sculptures or metal pieces. All the pieces are identical in size and as they come closer together, they begin to press against each other according to the base structure or algorithm; this causes the pieces to have to be forged taller because there is no space for them to spread out. This is a system or algorithm and what creates a stable platform for growth and creativity to occur."***

***Bronze Angel – experiment with different bronze mixtures. Often Hicks creates a maquette before beginning a larger a project, but the maquettes are beautiful in their own right***

***Hand-forged cooking pans and skillets – Hicks says hand-forged cooking implements started as an exploration to see whether he could make a tool to create the form for the pan to create functional cooking implements. They're available via one of Hicks' projects – The Tool Room – in various sizes, crafted from 4mm steel, featuring concave hand-forged handles and are heat treated with beeswax that penetrates the steel, creating an almost non-stick layer. If looked after properly, the pan will last a lifetime. Pictured: Joubert "Juba" Tulleken of Endless Africa on an overlanding tour. Juba says he can't imagine cooking with anything else***

***Bronze samples forged using different techniques. Hicks has honed his skills and understanding of the materials – mostly copper, iron and steel – he works with through decades of hand-forging, hammering, manipulating and experimenting with the properties of these metals by creating functional and attractive tools and pieces of art. "We are meant to be using our hands to make things," says Hicks. "It is in our DNA to use them to make tools and other implements. We as humans have been doing this for millennia. A blacksmith is basically a toolmaker and the tools that I make to create my art become extensions of my body."***

The Bijou now houses tenants that include MercerBikes – handmade steel bicycle frames crafted by David Mercer, various artists and even a baker.

Some of Hicks' notable works include the Kirstenbosch Gates in Kirstenbosch Botanical Gardens, the metal gates, screens, doors, and spiral staircase that Hicks designed for Tokara Winery. Hicks also created the gates at The Cape Quarter and he completed six sculptures for the 2010 World Cup Hero Walk in Cape Town. He has also been commissioned to blacksmith and sculpt numerous private works that can be found all over the world.

Apart from his forge and anvil, Hicks makes use of a number of power hammers, a ring roller, hundreds of hand-forged tongs, various handheld hammers – including one that belonged to his grandfather that he uses extensively – a press, a variety of tools and pencils and paper that he begins his design process with before creating a maquette for a project.

Hicks has recently started forging with bronze and says that this is his new challenge as forging bronze comes with its own challenges, none more so than very careful temperature control. "I love the natural patina that comes from working with copper, but I'm getting a bit bored of working with copper."

"Creativity happens when you have a solid technical base and you master your understanding of your material," concluded Hicks.

Hicks' next upcoming exhibition titled, Implemente IV, will be 20th of November 2025 at Objects With Narratives in Brussels.

Images courtesy of Conrad Hicks and Endless Africa.

For further information visit: https://conradhicks.com or https://toolroomonline.co.za ■

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# Keeping hazardous materials out of the recycling stream

## What you need to know about the MRA's HAZCOM.

Hazardous materials continue to find their way into loads of scrap metal, posing serious risks to workers, equipment and the environment. Items such as radioactive gauges, sealed pressurised containers, explosives and even weapons have been discovered in material destined for recycling. These items often enter the stream through theft, loss, or improper disposal and the dangers are real.

Past incidents have caused severe damage to facilities, serious injuries, and even loss of life.

To tackle this challenge, the Hazardous Materials Communication (HAZCOM) Committee was established in 1999 by the Metal Recycling Association of South Africa. It is a collaborative effort between recyclers, regulators, and safety experts, working to identify dangerous materials, share incident reports, and promote safer handling practices across South Africa.

The MRA has been a key partner in this initiative, ensuring that members and the wider recycling community are equipped with the knowledge and tools to keep hazardous items out of the stream.

"HAZCOM is about keeping hazardous materials out of the recycling stream. Every recycler has a role to play in spotting risks before they cause harm by protecting people, protecting equipment, and protecting the industry's reputation," says Quintin Starkey, Committee Member of the MRA.

The MRA continues to support HAZCOM by raising awareness, encouraging training, and helping recyclers access detection equipment and reporting tools. The aim is to empower both formal and informal recyclers, who are often the first to encounter hazardous materials, to recognise potential dangers, and know what steps to take.

For guidance, training opportunities, or to report hazardous materials, visit HAZCOM DGR's official website https://hazcom-dgr.co.za/ ■

# South Africa's steel Liberation Day tariffs are upon us

In one of his recent blog posts on his company website, Donald MacKay of Global Trade Advisors gives his viewpoint on the intended tariffs that ITAC will impose on imported steel. The blog was encouraging users to attend a conference which he was hosting.

"There is a steel importer who will see their duty liability increase by R119 million on the day ITAC imposes their proposed steel tariffs. I don't know who this company is, but our own Liberation Day will deal a hefty blow to their income statement. Maybe you think they deserve it for not buying more of their steel locally, because as President Trump has taught the world, importing is bad, local manufacturing is good and exporting is the best. How you trade now has a strong moral component to it."

"The theory in this case, as in America, is to localise more production, which feels like a very good thing to do. More localisation means more jobs and more jobs means more money to spend on other things made locally and before you know it, our economy is booming, everyone has a job and no one cares about the localisation project underway in the US of A."

"There is a global problem in the steel industry, largely created by China's massive over production. This is not a momentary event, so paying attention to this is very important. ArcelorMittal South Africa (AMSA) is failing, despite being given R2 billion and extremely vigorous protection. The subsidised mini-mills, making steel from scrap metal, are putting even more steel into an already over supplied market, placing further pressure onto AMSA. This is a crisis wrapped in a bubble, inside a policy failure, to misquote Winston Churchill and I don't think the solution to this problem lies in these incredibly sweeping ▸

duty increases. I understand the temptation, but I am sceptical that the patient will be cured with this Bad Medicine ('I ain't got a fever, got a permanent disease and it'll take more than a doctor tariff to prescribe a remedy...')."

"The proposed duty increase will add R6 billion in potential duties collected. Maybe some of those purchases will go to local suppliers, but I am, again, sceptical. When you reduce competition, which is what tariffs do, prices tend to rise. When prices rise, consumption usually falls. The problem is aggravated in this case by 77% of the tariffs being applied to intermediate goods (stuff that will be used as raw materials to make other stuff), 14% to gross fixed capital formation (capital goods) and only 9% to goods ready for final consumptions (stuff you can buy in a shop). The further upstream you apply duties, the greater the pressure you apply to the downstream industry and in the case of steel, 90% of the employment is downstream."

"This is a very big deal. It is difficult to imagine any place you can possibly be, which does not contain steel. It is the raw material used to make everything from staples to ships so when we make steel more expensive it is consequential. ITAC has a tough job trying to balance the interests of this very complicated value chain, so my criticism should not be seen as attacking them, yet still I believe such sweeping increases will cause more harm than good. In fairness, ITAC offers some rebates of duty, but these should be considered with caution. Rebates are not the same as no duty. They come with conditions and some of those conditions cost more than the benefit itself. They can be whatever the regulator wants them to be and it's not uncommon to see the requirements to access the rebates morph over time."

"But ITAC can only work with what is in front of them just 101 responses were received when 819 imported more than R10 million of products in the scope of this investigation in the last year. If you don't speak up, how can you expect ITAC to hear your words? Some companies presumably thought someone else would have their say, others hoped an industry association would give their views, but at the end of the day, very little ended up being said and ITAC can only base its decision on what is before them. This might be the most important lesson to take from all of this."

"This is not over yet, nor does this blog post tell you everything you need to know about the review."

For further details visit https://www.xagta.com/blog/ ■

# South Africa negotiating with Chinese automakers to boost local vehicle production

South Africa is in talks with Chinese automakers to encourage them to invest in local production, with one manufacturer showing strong interest in building cars locally, a senior government official said recently.

South Africa is engaging in high-level discussions with Chinese automakers to establish local manufacturing of vehicles, especially hybrids and electric vehicles (EVs) in response to declining domestic auto output and a surge in vehicle imports from China. Deputy Minister of Trade, Industry & Competition Zuko Godlimpi informed Parliament that at least one Chinese automaker has expressed strong interest in setting up production facilities in either East London or Port Elizabeth.

Africa's most developed car manufacturing hub is at an inflection point, with a drop in domestic output and a surge in imported vehicles, mostly from China.

Competition is intensifying, meanwhile, with the likes of Toyota and Volkswagen vying for market share against electric vehicle producer BYD as well as Chery, Great Wall Motor and Beijing Automotive Group (BAIC).

Trade, Industry & Competition Deputy Minister Zuko Godlimpi told lawmakers in Parliament that discussions are under way with several Chinese automakers to manufacture their cars in South Africa instead of importing them.

"One area of their interest is to invest in hybrid vehicles and electric vehicles because that is the market that they are servicing globally," Godlimpi said.

One Chinese company had talks with the trade and industry department in August and expressed an interest in establishing operations in either East London or Port Elizabeth, he said.

To escape pressure from a damaging price war in their home market, Chinese automakers are expanding into Africa in search of profits. BYD and Chery are among about 15 Chinese car brands active in South Africa, with Geely, Leapmotor and Changan set to join them soon.

South Africa is also reviewing its tariff regime as it seeks to protect the sector from low-cost imports.

"We've also been trying to move up to the highest ceiling of import duties to make sure that cheap imports do not price out South African-manufactured cars," Godlimpi said, adding that such changes take time to implement. ■

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# The formation of tiny diamonds inside grey iron castings

Gregor Brümmer, Rainer Thomas and Klaus Scheiblauer.

Methods of investigation from other sciences adapted for the foundry industry have a long tradition and have always yielded new insights. Mineralogists' research on inclusions in rocks has proved its worth in determining the formation conditions of mineral zones. Raman spectroscopy is particularly suitable for investigating them, which, with a few exceptions, is unknown in the foundry industry. The best-known inclusion of cast iron is graphite and so it was obvious to take a look at it through the Raman spectrometer. This allowed interesting insights to be gained [1], but even more surprising was the finding that phases occur in cast iron that should not be there, including small diamond-like structures in the matrix with a size ranging from less than one to over 20µm in diameter (figure 1) [2], [3].

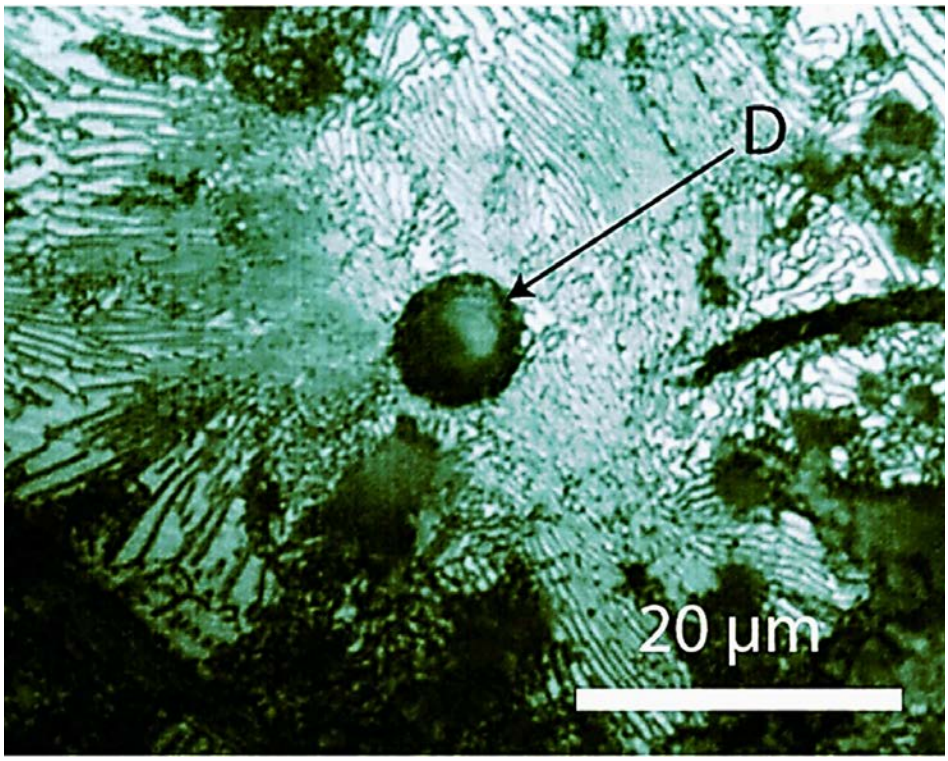


***Figure 1.: Spherical isolated single diamond grain (D) in a pearlitic grey cast iron matrix of sample No. 5. The diameter of the diamond grain is 8.5µm. In this sample, there are more isolated single diamond crystals, which are generally spherical***

Further investigations revealed that these inclusions, spectrometrically identified as diamonds, are resistant to hydrochloric acid and appear bright in reflected light, making them easy to miss. In addition to these, other phases such as calcite and within this in turn hydrocarbons such as methane and benzene were found. All these phases which, according to common understanding, can only exist under high pressures in an environment of a hot material such as cast iron.

During the solidification of cast iron at 150°C, pressures in the range of a few GPa are hardly possible, but iron has a special feature. When the eutectoid transformation temperature is reached at about 750°C, the matrix changes its crystal structure from cubic face-centred to cubic inside-centred. This is associated with an increase in volume of about 8% in theory, less in reality of a carbon-saturated crystal doped with silicon, but still roughly estimated at 2 to 3%. At the same time, the carbon solubility of the matrix drops abruptly by about 0.5%.

This means that the conversion of austenite to ferrite results in considerable stresses within the structure, which obviously lead to a drastic short-term pressure build-up in small parts of a casting and force the elements carbon and hydrogen fleeing from the matrix to form joint phases, which can then be hidden in slag particles, or the carbon crystallises as diamond. After the overpressure has been released into the environment by deformation, the structure formation will fall back to the familiar path, the remaining carbon will diffuse more slowly from the supersaturated matrix and deposit as graphite on the eutectically formed spheres or lamellae or, in the case of impaired diffusion, lead to cementite in the form of perlite.

The fact that the synthetic formation of diamond preferentially takes place in the vicinity of FeSi or FeSiNi alloys even at low pressure has been proven by various studies (e.g. [4]). This closes the circle between geoscience, physical laboratory and foundry practice and makes it plausible that diamonds appear in cast iron, where they precipitate under higher internal pressure, but probably not at standard conditions needed to transform carbon to diamonds.

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For further details contact Garth Sinclair of Met-Link on 082 463 2315 or email garth@met-link.com ■

# ArcelorMittal South Africa's (AMSA) talks with the Industrial Development Corporation to sell its South African unit have stalled over valuation differences

ArcelorMittal's talks to sell its local unit to South Africa's State-owned Industrial Development Corporation (IDC) are being held up by differences over the entity's valuation, according to a Reuters report.

Talks about a takeover by the IDC – the steelmaker's second-biggest shareholder after billionaire Lakshmi Mittal – have emerged as the South African authorities try to preserve steel operations crucial to the domestic economy. Since November 2023, AMSA has threatened to shut two loss-making mills that produce grades of steel essential to the automotive and mining industries.

Talks about a takeover by the IDC have emerged as the South African authorities try to preserve steel operations crucial to the domestic economy.

The Luxembourg-headquartered company said in July that talks with the South African government have so far yielded little progress to avert the closure of its loss-making long steel operations at its SA unit.

While the IDC and ArcelorMittal may still reach an agreement on the fate of ArcelorMittal South Africa (AMSA) before the end of a due diligence period, which was due to end on 30 September 2025, the Luxembourg-based company wants considerably more than was offered. Offers of as much as R7 billion for AMSA have been discussed according to information received by Reuters.

Earlier this year, the IDC and South Africa's Department of Trade, Industry and Competition brokered a deal with AMSA to extend a loan and to consider boosting its 8.2% stake. In return, the DTIC agreed to review AMSA's complaints about competition from cheap imports, scrap-metal discounts for rivals, high electricity costs and inefficient rail services.

"The company has been exploring various strategic options while the IDC has simultaneously been conducting its due diligence into the company and the government has been pursuing structural interventions," AMSA said in a statement to the stock exchange in Johannesburg. "Significant effort has been given to this exercise, which remains ongoing."

Still, in the absence of a firm commitment, AMSA said it's switched off the blast furnace at its Newcastle steel mill and has begun talks with employees about the potential closure of its so-called longs business. In total, AMSA's steel mills in Newcastle and Vereeniging employ about 3 500 people and support as many as 100 000 jobs at clients and suppliers, according to industry estimates.

AMSA isn't prepared to cover any more losses at the Newcastle mill and neither is the IDC, the people said, meaning that even if the IDC does take over all of AMSA, it may still be mothballed.

Mittal took over the South African steelmaking operations of Iscor, a State-owned steelmaker and iron-ore miner that had been sold to private investors, in 2003. After Mittal merged his global steel company with Arcelor, the South African business was renamed AMSA.

The company's stock has declined 19% this year in Johannesburg to R1.08, giving it a market value of R1.23 billion. That compares with a peak of R116 billion in 2008. In its most recent financial year, revenue was almost R40 billion.

To effect a takeover, the IDC – which has provided billions of rands of loans to AMSA – may need to bring in a strategic partner to help run the business, the people said.

In addition to Newcastle and Vereeniging, AMSA runs the Vanderbijlpark mill, which produces so-called flat steel used in appliance making and the car industry. It also has a number of idled plants, including one at Saldanha on South Africa's west coast. ■

# Laempe Mössner Sinto and Lüber sign strategic partnership agreement

## Two long-standing competitors in the core shooting machine sector are joining forces.

***Laempe Mössner Sinto (Germany) and Lüber (Switzerland) have announced that the two companies are entering into a strategic partnership to combine their strengths in a rapidly changing market environment***

Laempe Mössner Sinto (Germany) and Lüber (Switzerland) have announced that the two companies are entering into a strategic partnership to combine their strengths in a rapidly changing market environment. "Rising costs, increasing complexity, global competitive pressure, and technological change in the foundry industry are posing major challenges for manufacturers worldwide. Together, the two companies want to continue to support their customers with innovative, reliable, and service-oriented solutions in the future," said the two companies in a statement released by them.

Laempe Mössner Sinto is considered to be one of the leading international full-service providers of core making technology. The company develops and manufactures core shooting machines, sand processing plants, automation solutions, and automatic visual inspection systems. As an innovation leader, Laempe also drives forward new technologies such as its proprietary L3D-200 3D printer for flexible core production. The target group ranges from large automotive and commercial vehicle manufacturers to medium-sized foundries that rely on maximum precision, efficiency, and process reliability. The company was established in 1980 by Dipl.-Ing Hans-Joachim Laempe.

Lüber has specialised in modular core shooting machines, mixing systems, and gas generators for decades. The company serves customers ranging from medium-sized businesses to large international foundries that value robust, tailor-made solutions and reliable service. Lüber's particular strength lies in adapting its systems to individual customer requirements and in its compact, flexible design. Lüber was established in 1972 by Werner Lüber.

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The partnership means that both portfolios complement each other perfectly. In product development, Laempe and Lüber want to combine their expertise, test environments, and development cycles in order to implement innovations more quickly, more economically, and in a more customer-oriented manner, without jeopardising existing product lines. In production, capacities will be shared as needed to ensure delivery capability and flexibility even during bottlenecks and peak utilisation periods. In the service and spare parts business, customers will benefit from an expanded service network, better coordinated spare parts supply, and optimised resource utilisation.

"This partnership is more than just two manufacturers joining forces – it is a response to the complex challenges facing our industry. Together, we can react more quickly to market changes and continue to offer our customers excellent solutions," explained Andreas Mössner, Managing Director of Laempe Mössner Sinto.

"Our close geographical proximity and complementary market segments make this cooperation strategically sensible. We are strengthening our flexibility, securing expertise in the region, and thereby delivering immediate added value for our customers. In terms of succession planning, I also want to ensure the long-term survival and further development of my company. In Laempe Mössner Sinto, we have found a reliable, qualified partner with whom we can establish a very good, future-oriented cooperation," said Wilhelm Bovens, Managing Director of Lüber.

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***Laempe Mössner Sinto is a full-service provider of core making technology and Lüber has specialised in modular core shooting machines, mixing systems, and gas generators***

Bazenheid locations (130kms) facilitates operational cooperation, and the different market orientations ensure that there is no cannibalisation, but rather a genuine synergy of cooperation and development and a step toward a long-term, future-proof strategy in industrial mechanical engineering for both companies.

**Ten year partnership: Laempe Mössner Sinto and Sintokogio**

In May 15, 2015 Laempe & Mössner GmbH and the Japanese foundry machinery leader Sintokogio Ltd announced their strategic partnership. Today, a decade later, Laempe Mössner Sinto GmbH looks back on a successful collaboration that has created technological progress, global market presence, and sustainable synergies. The publicly listed Japanese technology group's investment in the then Laempe & Mössner GmbH in 2015 marked the beginning of a new phase of internationalisation. The long-established family business, headquartered in Meitzendorf (Saxony-Anhalt), has since been operating as Laempe Mössner Sinto GmbH. While the Mössner family remains the majority shareholder, the company has used the partnership to expand its international sales offices, particularly in Asia.

**Lüber partnerships**

In 2015 Lüber partnered with ABC Industries Co. Ltd. To be their authorised channel partner to sell and service their product for the South Korean market. ABC Industries also has a partnership with ExOne Company, a global leader in industrial sand and metal 3D printers using binder jetting technology. In 2016 the company formed a partnership with Nippon Eirich Co. Ltd, based in Nagoya, Japan, a manufacturer, importer and distributor of materials processing technology.

**Laempe Mössner Sinto forms strategic alliance with Endeco Omega Sinto**

In 2023 the German family-owned company Laempe Mössner Sinto announced that they had formed a strategic alliance with local engineering and manufacturing company Endeco Omega Sinto to market and service all Laempe Mössner Sinto's equipment that includes core shooters, sand mixers and gas units to complement the core shooters and automated visual inspection systems.

"As a result of the Laempe and Lüber strategic partnership agreement Endeco Omega Sinto are now the authorised channel partner for both Laempe and Lüber products in South Africa. We are very excited to now be able to offer the extended range of core making technology equipment, modular core shooting machines, mixing systems, gas generators, sand processing plants, automation solutions, and automatic visual inspection systems," said Endeco Omega Sinto's Managing Director Rui Dias.

Contact Rui Dias of Endeco Omega Sinto on TEL: 011 907 1785 for further information or email roy@endeco-omega.co.za or visit www.endeco-omega.co.za ■

# Foseco India acquires 75% stake in Morganite Crucible India

Foseco India Limited (FIL), a leading player in the foundry sector and part of the global Vesuvius Group, has announced the signing of a definitive agreement to acquire a 75% equity stake in Morganite Crucible (India) Limited (MCIL). The stake will be purchased from existing promoters Morganite Crucible Limited and Morgan Terrassen BV, both part of the Morgan Group. This acquisition represents a strategic expansion for Foseco India as it seeks to strengthen its position in the fast-growing non-ferrous segment of the Indian foundry industry.

MCIL is the parent company of the Molten Metal Systems (MMS) business in India, which is widely recognised for its advanced crucible technologies catering to non-ferrous metal applications. By integrating MMS's specialised product range with Foseco India's established offerings, the acquisition will significantly enhance FIL's ability to serve customers with a comprehensive suite of solutions. The move also aligns with the larger vision of the Vesuvius Group, which recently announced the acquisition of the global MMS business from the Morgan Group to accelerate its global growth strategy.

The acquisition will be executed through a share-swap arrangement. FIL will issue 1 150 800 new equity shares to acquire the 75% stake in MCIL, based on a swap ratio of ▸

***Through this acquisition, Foseco India is not only broadening its product portfolio but also strengthening its role in India's rapidly evolving foundry ecosystem. Picture ScanX***

274 FIL shares for every 1 000 MCIL shares. In compliance with SEBI's takeover regulations, FIL will subsequently make a mandatory open offer to acquire up to 25% of MCIL's equity shares from public shareholders. Upon completion of this process, FIL will hold a controlling interest in MCIL, making the MMS business an integral part of its operations.

The deal, which is subject to shareholder approval, regulatory clearances, and other customary conditions, is expected to close by early October 2025. Once finalised, the acquisition will strengthen Foseco India's leadership position in India's foundry sector, particularly in non-ferrous metal processing – a segment that is witnessing rapid growth due to rising demand in automotive, aerospace, and industrial applications.

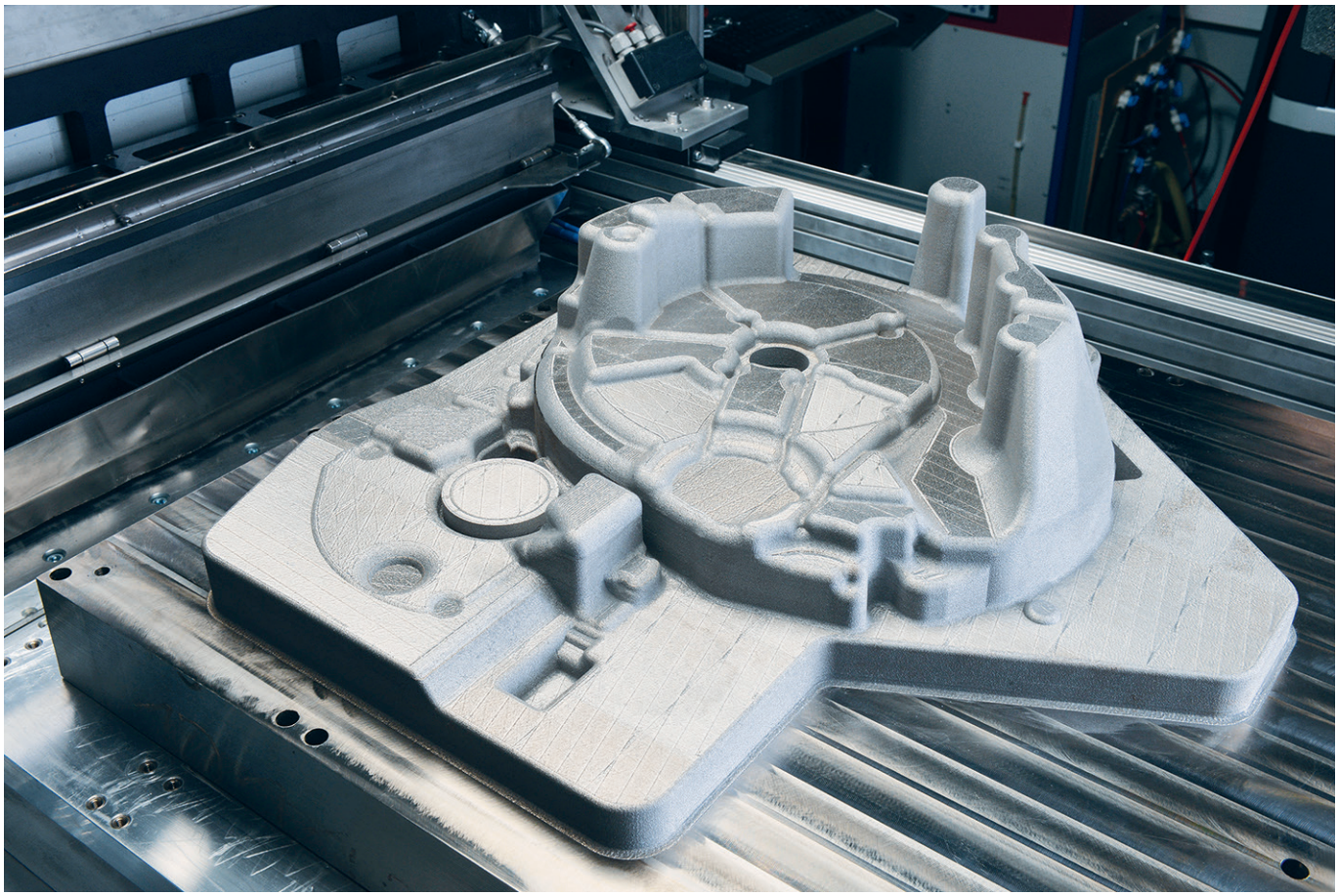
Commenting on the acquisition, Ravi Kirpalani, Chairman of Foseco India Limited, said: "This acquisition enhances our capabilities by bringing in MMS's high-tech product range. The combined business will benefit from global R&D synergies, increased customer reach, and a broader product offering – further reinforcing our leadership in the foundry industry."

The integration of MMS's crucible technologies with Foseco's product portfolio is expected to deliver substantial value to customers by improving efficiency, reducing production costs, and enhancing sustainability in foundry operations. Crucibles and related solutions are critical in non-ferrous metal applications such as aluminium and copper melting, where performance, reliability, and durability directly impact overall productivity. By combining these capabilities, Foseco India will be able to offer foundries in India and beyond advanced solutions tailored to modern industrial demands.

For the Vesuvius Group, this transaction represents another step in its global strategy to expand in high-growth markets and reinforce its position as a technology leader in metallurgy and foundry solutions. India, with its expanding industrial base and increasing demand for non-ferrous materials, represents a strategic priority in this growth journey.

Through this acquisition, Foseco India is not only broadening its product portfolio but also strengthening its role in India's rapidly evolving foundry ecosystem. By leveraging global R&D resources, local manufacturing expertise, and an expanded customer network, the company is well positioned to drive innovation, efficiency, and growth across the sector. ■

# Additive Manufacturing for complex die casting tools: Scalable process for large aluminium components successfully demonstrated



***Additively manufactured die cast tool inlay made from tool steel L-40: The large volumetric mould was produced at Fraunhofer ILT using laser powder bed fusion with conformal cooling.***
***©Fraunhofer ILT***

The Fraunhofer ILT and MacLean-Fogg have jointly produced a complex die casting tool inlay using Laser Powder Bed Fusion (PBF-LB/M). The specially developed L-40 tool steel enables the additive manufacturing of heavily loaded, large-volume tools for the first time and thus the implementation of conformal cooling. Initial results from smaller tools, which Toyota is already using in series production, indicate a significantly longer service life for the additively manufactured tools. In the current project, a hybrid, large-volume tool was created for the transmission housing of the Toyota Yaris Hybrid. The combined process with conventional preforms plus additively manufactured structures shortens the production time, reduces costs and allows a high number of variants on a combined tool platform.

The automotive industry is in the midst of a profound upheaval. Cost pressure and the transition to electromobility are forcing many manufacturers to fundamentally rethink their vehicle architecture and production processes. Many manufacturers are currently reducing the number of individual pressed parts and striving for as few but highly complex structural components as possible. Particularly in the case of large aluminium components, such as frame or transmission components, this also increases the demands on the tools: They must be thermally highly resilient, allow variants and be able to be adapted to new geometries as quickly as possible.

This change brings with it new challenges: The required casting moulds not only have to be larger than before, but also more resistant, with complex geometries and shorter development times. This is precisely where a project at the Fraunhofer Institute for Laser Technology ILT, together with the L-40 powder manufacturer MacLean-Fogg and Toyota as the end user, comes in.

By using a gantry-based PBF-LB/M machine developed at the Fraunhofer ILT with a scalable build volume and the tool steel developed by MacLean-Fogg for additive

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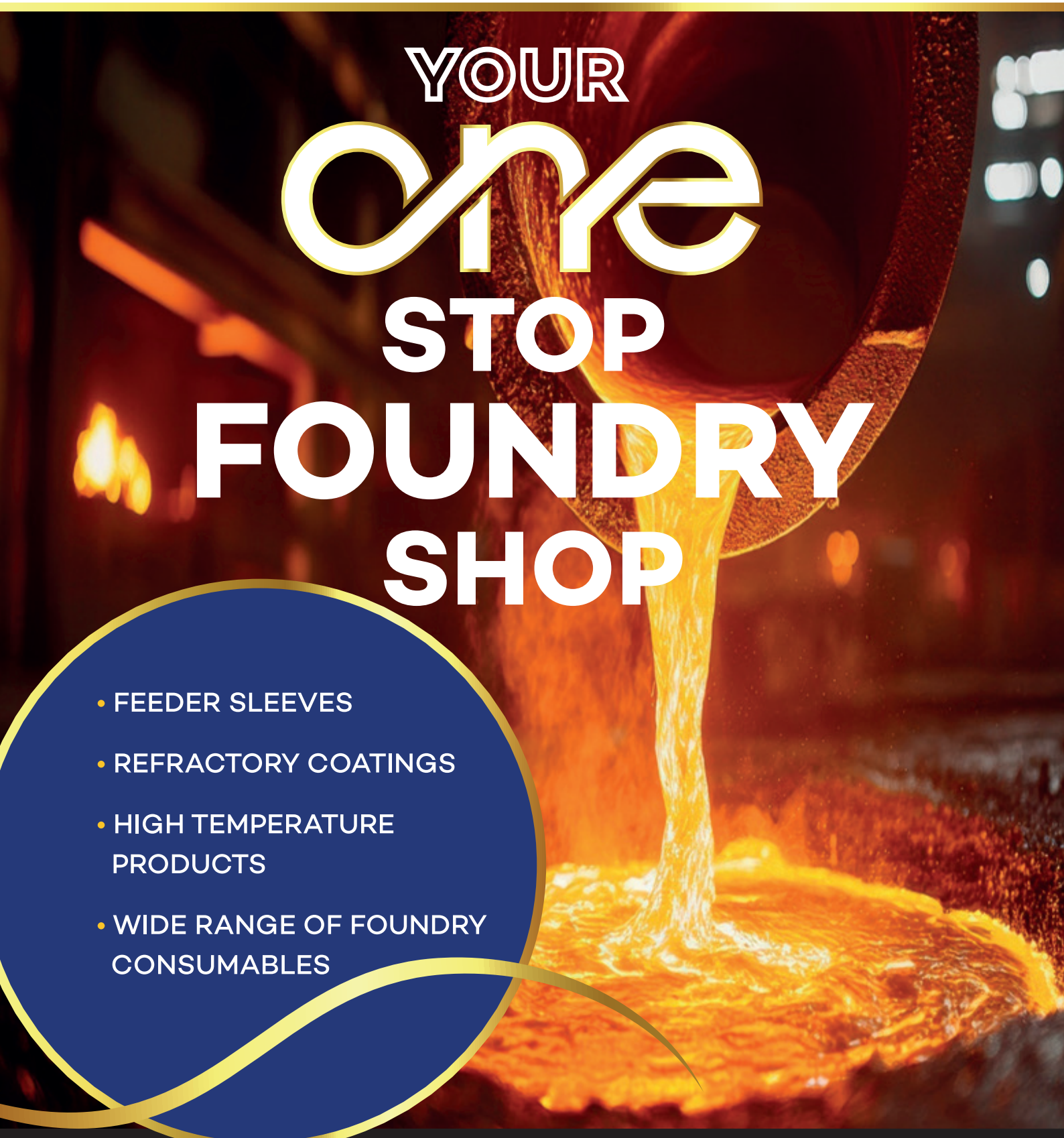

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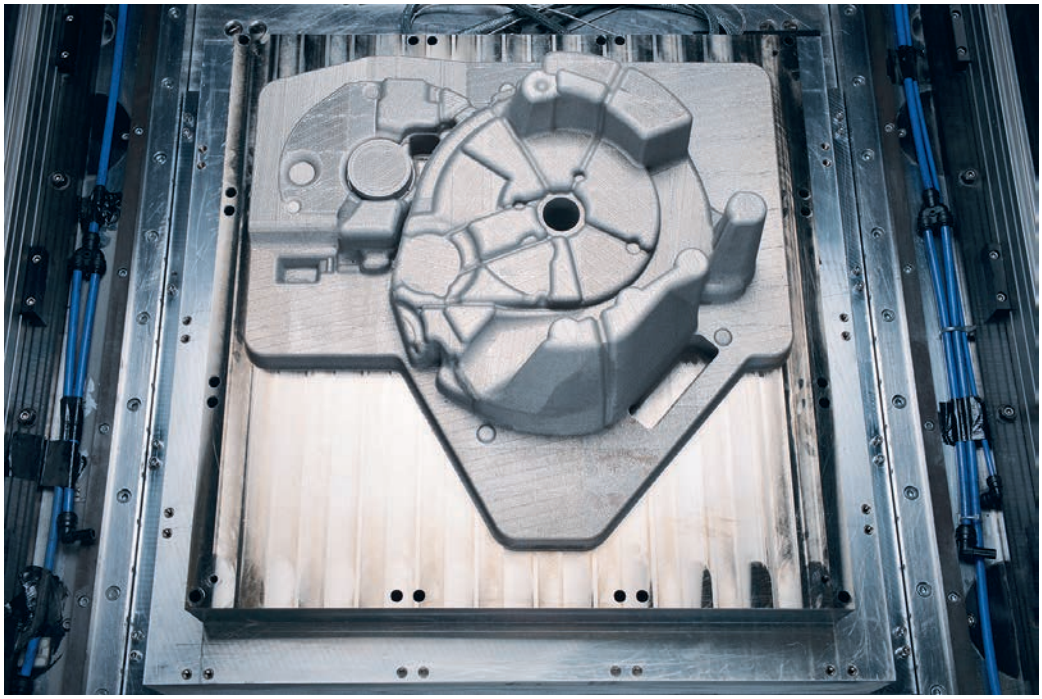


***Thanks to the gantry-based large-format system at Fraunhofer ILT, even complex, resistant tools with a volume of over 20 000cm³ can be printed reproducibly – a milestone for industrial applications in aluminium die casting. ©Fraunhofer ILT***

manufacturing, very large die casting moulds with near-contour cooling could be additively manufactured for the first time – suitable for large-volume high-pressure die casting (HPDC) components.

Massive geometries previously led to residual stresses and critical defects in parts made with PBF-LB/M.

As large casting processes are becoming increasingly established, the demands on the tools used in HPDC are growing. The moulds must repeatedly maintain precise component quality at very high quantities and withstand extreme mechanical and thermal loads. In order to ensure a sufficient service life of the tool inlays, they need complex, internal cooling structures, which cannot be made with conventional manufacturing processes.

Two key problems have so far limited additive processes from manufacturing such large-format die casting moulds: Firstly, the available construction volume of classic PBF-LB/M machines is too small to produce die or mould inserts with dimensions of 600 by 600mm² or more in one piece. Secondly, the tool steels used to date – in particular H11 (1.2343), H13 (1.2344) or M300 – cannot be processed reliably in this size range (>20 000 cm³). Even with optimum parameters, there is a risk of cracking, thermal distortion and inadequate mechanical properties.

This applies both during laser-based build-up and during downstream heat treatment. The greater the temperature gradients within the component during the manufacturing process, the greater the risk – an effect that is particularly pronounced with large-volume workpieces.

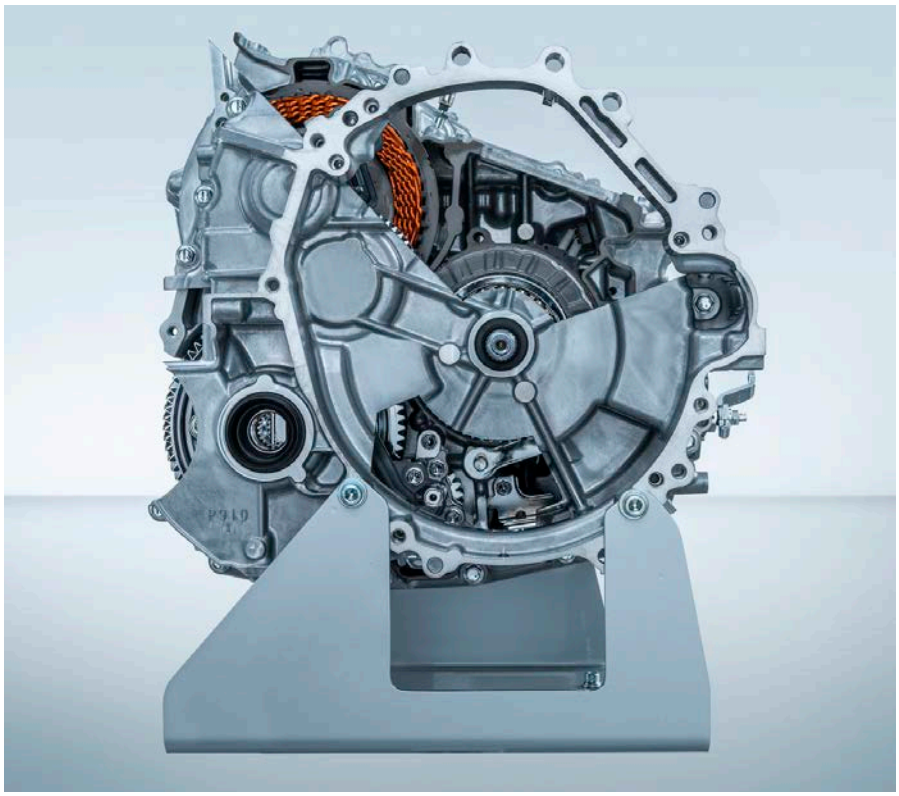
"To overcome these limitation, we need a new generation of machines and materials specifically tailored to the requirements of large-format HPDC tools," explains Niklas Prätzsch, Group Leader LPBF Process Technology at Fraunhofer ILT. "It was precisely this combination that was the subject of the latest changes we have implemented."

The new material and machine technology makes it possible for the first time to produce large-volume tools with a free-form cooling structure. This not only allows local temperature peaks in the casting process to be reduced in a targeted manner, it also increases the number of variants while simultaneously increasing service life. This means that different components can be manufactured on one tool platform without having to produce new tools each time.

To read the full article visit:

https://www.ilt.fraunhofer.de/en/press/press-releases/2025/9-10-am-die-casting-tool.html

For further details contact the Fraunhofer Institute for Laser Technology ILT or visit www.ilt.fraunhofer.de ■



***The additively manufactured aluminium die cast tool is part of the tool for the transmission housing of the Toyota Yaris hybrid vehicle. It was chosen due to its size and the challenges of soldering and high maintenance time. ©Toyota Europe***

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# Metal Additive manufacturing comes of age in Apple's flagship products

On September 9, Apple announced that metal Additive Manufacturing is being used in three of its new products, the Apple Watch Series 11, the Apple Watch Ultra 3 and the new iPhone Air. This is the first time that Apple has officially confirmed its use of the technology.

The company stated that Additive Manufacturing was used for the titanium cases of the Apple Watch 11 and the Apple Watch Ultra 3, as well as a titanium USB-C charging port housing in the new iPhone Air.

Whilst the use of metal Additive Manufacturing in smartphones and consumer electronics is not new, Apple's public embracing of the technology marks a significant milestone and can be regarded as its acknowledgement of both Additive Manufacturing's ability to deliver extremely high volumes of components, and its confidence in the existence of a supply chain with the necessary capacity and flexibility to meet demand.

While the specific metal Additive Manufacturing processes used have yet to be confirmed, Laser Beam Powder Bed Fusion (PBF-LB) and Binder Jetting (BJT) are considered to be the front runners.

PBF-LB, also known by various commercial terms such as SLM and DMLS, is referred to as a 'direct' AM process, producing fully dense parts in the build chamber of an Additive Manufacturing machine.

Binder Jetting, on the other hand, requires parts to be sintered to achieve dense metal parts, similar to Metal Injection Moulding (MIM), a process widely used by Apple.

**The watch cases**

The company stated that the additively manufactured titanium Apple Watch Series 11 and Ultra 3 cases are produced with 100% recycled titanium and, thanks to a reduction in machining steps, just half the raw material is required compared to previous generations. Production is powered by 100% renewable electricity across the supply chain.

**The iPhone Air USB-C port**

Apple stated that its new titanium USB-C housing for the iPhone Air is thinner and stronger, thanks to production by metal Additive Manufacturing. It also uses 33% less material than other production processes.

Apple has significant experience in manufacturing small, precision charging port components using metal powder-based processes, with its Lightning connector, in production from 2012 to 2024, being produced by Metal Injection Moulding. Over this period, hundreds of millions of MIM parts were manufactured.

**AM technology and materials supply chain**

Apple has not confirmed its AM technology partners. As with the vast majority of the company's component manufacturing, AM production is likely outsourced to specialist suppliers close to where its products are assembled. With China's Additive Manufacturing capabilities and materials supply chain widely regarded as being on par with those in Europe and North America, its suppliers are as likely to be from China as they are from other countries.

This is in sharp contrast to when Apple confirmed its adoption of MIM technology in 2012. At that time, it had to establish an entirely new supply chain in China, relying on local MIM suppliers equipped with Western technology and materials.

**The critical role of post-processing**

As-built PBF-LB parts and as-sintered BJT parts lack the surface finish required for visible consumer electronics applications – specifically those with complex internal structures and polished surfaces. As with MIM, components must undergo significant post-processing, from CNC machining to surface treatments, polishing and coating in order to obtain the desired finish.

The importance of an integrated approach to post-processing in the mass production of high-end products was recently highlighted through a collaboration between an AM machine maker and a company specialising in surface treatment for watches and jewellery.

As reported by Metal AM in December 2024, the BJT process has been successfully used to produce high volumes of consumer electronics parts.

**Why Apple is leveraging metal Additive Manufacturing**

The use of Additive Manufacturing to produce watch cases is not new. Whilst it may not have been used at the volume expected to be seen with Apple, a number of watchmakers are taking advantage of the AM process.

Compared to conventional production methods, building parts layer by layer, as in the Additive Manufacturing process, reduces reliance on costly machining processes and minimises material waste, making it more sustainable and cost-efficient.

The technology also provides unprecedented design freedom, enabling the creation of complex internal geometries and lightweight structures that are difficult or impossible to achieve with conventional manufacturing. Together, these benefits allow Apple to optimise performance, streamline production, and bring innovative product designs to market more quickly.

Importantly, the technology also supports Apple's broader environmental commitments. The company's Apple 2030 plan aims to achieve carbon neutrality across its entire footprint by the end of the decade. ■

# Arc Impact to acquire key Desktop Metal and ExOne assets in $7 million bankruptcy sale

The US Bankruptcy Court for the Southern District of Texas has approved a deal that will see Arc Impact Acquisition Corp, based in New York, USA, acquire core businesses from Desktop Metal, Inc. and its subsidiaries, including ExOne's metal binder jetting technology, for $7 million. The sale, finalised September 4, 2025, also includes the assumption of certain liabilities and contracts.

The agreement comes after Desktop Metal filed for Chapter 11 protection in July 2025. Although acquired by Nano Dimension in April 2025, the bankruptcy filing was reported to be the decision of Desktop Metal's independent Board of Directors.

Arc Impact, a public benefit corporation led by CEO Bryan Wisk, emerged as the successful bidder for a package of subsidiaries covering both Additive Manufacturing hardware and advanced materials.

Entities transferred in the sale include ExOne Americas LLC and ExOne Operating LLC, alongside Adaptive3D LLC, Adaptive 3D Technologies, Desktop Metal Operating, Inc, and Desktop Metal Securities Corporation. Intellectual property, manufacturing equipment, and customer contracts tied to these units also moved under Arc Impact's control.

Not all of Desktop Metal was included. International subsidiaries such as ExOne GmbH (Germany) and ExOne KK (Japan) were excluded and are being acquired separately by an affiliate of Anzu Partners. Other carve-outs, including EnvisionTEC GmbH and Figur Machine Tools, remain outside the Arc Impact transaction.

The acquisition enables the continued operation of ExOne's US-based Additive Manufacturing businesses under new branding, with Arc Impact assuming relevant assets, contracts, and obligations. The transaction allows Arc Impact to take control of Desktop Metal's binder jetting and advanced materials operations in the US, while excluding international subsidiaries and certain business units. The court-approved sale is reported to support the preservation of commercial relationships and continuity of business operations. ■

# Dongfeng Motor's 16 000 ton gigacasting factory passes completion inspection


***With an investment of around 1 billion yuan, one 10 000 ton and one 16 000 ton line will be installed in the first phase, giving the plant an annual production capacity of 200 000 unit components***

On September 4, the Second Construction Co., Ltd of China Construction Third Engineering Bureau announced that the world's largest integrated die-casting plant, built for Dongfeng Motor, had been completed 25 days ahead of schedule.

The completed facility covers 47 000 square meters and serves as the core production base of Dongfeng Motor's entire gigacasting industrialisation project. To ensure the plant could move quickly toward mass production, the construction team relied on Building Information Modeling (BIM) to streamline the building process, ultimately handing it over nearly a month ahead of contract deadlines.

Inside, the plant is being equipped with dual integrated die-casting lines featuring 16 000 ton and 10 000 ton gigacasting machines – the largest of their kind worldwide. Once operational, the production lines are expected to significantly raise both output and efficiency in Dongfeng Motor's new energy vehicle (NEV) manufacturing.

Construction began in November 2024, making Dongfeng Motor the first automaker to adopt 16 000 ton gigacasting technology, the largest die casting capacity currently available.

Gigacasting uses ultra-large machines to cast multiple parts into a single structural component under high pressure. This approach strengthens vehicle bodies as well as enhances both safety and efficiency in NEV design.

According to public filings, the project will focus on research, production, and sales of super-large-scale gigacasting structural components for NEVs, including rear floor assemblies and battery casings. Mass production is expected to begin in June 2026.

The project is being developed in two phases. The factory building has been completed in a single phase, while the casting lines will be rolled out gradually. With an investment of around 1 billion yuan, one 10 000 ton and one 16 000 ton line will be installed in the first phase, giving the plant an annual production capacity of 200 000 unit components. Four more lines will be added in the second phase, ultimately bringing total output from both phases to 600 000 unit components per year. ■


# Megacasting to start at Honda in Ohio

Six large-scale, high-pressure die casting machines have been installed at Honda of America's Anna, Ohio, engine plant, as anchor operations for the automaker's EV Hub.

A series of six "gigacasting" presses have been installed by Honda of America at the Anna (Ohio) Engine Plant as a core manufacturing element of the EV Hub the automaker will launch later this year.

Announced in late 2022, the Ohio EV Hub includes retooling and new capabilities now projected at $1 billion for the engine plant and nearby Marysville, OH, assembly plant. Honda projects it will have capacity for roughly 220 000 units across all vehicle types at Marysville once the Hub is complete.

Later this year Honda will start assembling the new Acura RSX EV at Marysville, which will be followed by electric vehicles based on prototypes Honda unveiled in January at the 2025 Consumer Electronics Show, the Honda 0 SUV and Honda 0 Saloon.

Honda's goal is for all its products to be zero-emissions vehicles by 2040.

"The Honda EV Hub provides Honda with the flexibility to produce ICE, hybrid-electric, and EV models on the same production lines so we can quickly respond to shifting customer needs and market conditions," stated Bob Schwyn, senior vice president, Honda Development & Manufacturing of America, LLC. "Beyond adding the capability to produce EVs, we completely reimagined our approach to manufacturing, transforming the Honda production environment with more human-friendly processes and sustainable manufacturing practices."

The Hub also will include a joint-venture EV battery plant starting up later this year, L-H Battery Co., where Honda and LG Energy Solution have committed to invest $3.5 billion and plan to produce approximately 40 GWh annually.

The EV batteries will be enclosed in high-pressure die cast aluminium cases that will be gigacast on the new, 6 000-ton machines – independently reported and now confirmed to be Carat 610 machines supplied by BühlerPrince – and will be the largest parts Honda has ever produced, it noted. Future Honda EVs are expected to incorporate gigacast front and rear vehicle structures, which is similar to Tesla's breakthrough use of gigacastings in its electric vehicles.

Gigcasting, or megacasting, are generic terms of high-pressure die casting operations developed to produce large-dimension parts that allow automakers to minimise subassembly for vehicle structures, saving production time and labour costs. Honda suggested that future gigacast parts could include body frames and internal-combustion or hybrid-electric engine components.

As Bühler managing director for die casting, noted: "We have a long history with Honda, and with the Carat 610, we are very pleased to provide the company with a solution to realise their megacasting ambitions. Our Carat series is the most successful solution on the market and is driving forward megacasting production across the world. Together with Honda, we have installed our megacasting solution in Japan. It was the first of its kind in the country."

The Carat 610 was commissioned by Honda last March in Tochigi, Japan, for research and development, to evaluated different casting conditions and to ensure and improve the finished part quality. "Several parameters such as the casting temperature, the pressure, the casting speed, and the cooling rate can be varied in order to examine their effects on the properties of the parts," Mendler offered.

The Anna, Ohio, Engine Plant opened in 1985, and in addition to producing Honda engines it casts a range of engine components, and manufactures vehicle transmissions, camshafts, crankshafts, and CVT components. According to Honda, installing the 31-foot tall gigacasters required modifications to the plant, including placing pylons 80 feet below the concrete plant floor to provide a stable foundation.

The aluminium battery cases will be produced in two sizes, for midsize and large EVs – with one-half of the case common to each size. The completed battery cases will be packed with fuel cells produced at L-H Battery as power plants for Honda's EVs. ■

# According to an EY report

## the world's largest automobile manufacturers collectively suffered a sharp drop in profits in the first half of 2025

According to a study by the auditing and consulting firm EY, the operating profit (EBIT) of the world's 19 largest automakers almost halved – a 49.2 per cent drop. From January to June, revenue was €42.8 billion (compared to €84.3 billion in the same period last year). However, overall sales stagnated. In light of slumping profits, the established Western auto industry is in a deep and structural crisis, as EY auto expert Constantin Gall comments. Electric cars are selling significantly weaker than expected, and cutthroat price competition is prevalent in key sales markets.

"The problems in China are being exacerbated by the fact that Asians are increasingly turning to national car brands," Gall continues. High transformation and restructuring costs, recalls, and supply chain disruptions are also causing problems. The global auto industry's weak phase will therefore continue for the time being.

**Car companies should rid themselves of their legacy burdens**

That, at least, is what Gall predicted with a view to the future. The storm whipping up the headwinds will not subside anytime soon. The expert justified this assessment, among other things, with the continued weak economy. The geopolitical situation and tariff policy are also unlikely to develop positively in the foreseeable future. "For many manufacturers, the entire business model is at stake. For some manufacturers, this will pose a threat to their very existence in the medium term," the EY expert fears. This makes it all the more important that car companies make tough decisions. According to Gall, the good old days are not coming back! The industry has fundamentally changed. And the automotive industry must try to adapt economically to this. Car companies must rid themselves of legacy burdens, Gall warns. The far too large portfolio should be reduced so that they can focus on the essentials – on clearly defined customer segments and a clearly defined, yet competitive, model range. Because, according to Gall, size isn't everything. As we see today, size can also become a hindrance when it comes to adapting to new circumstances. ■

# Breakthrough in aluminium recycling for aircraft

Constellium and Tarmac Aerosave support circular economy by transforming end-of-life aircraft aluminium into new high-performance material.

Aircraft and engine storage, maintenance and dismantling firm, Tarmac Aerosave, and aluminium solutions and recycling provider, Constellium, have achieved a major breakthrough in sustainable aerospace by successfully recycling aluminium from end-of-life aircraft into high-performance material suitable for use in new aircraft manufacturing.

The milestone demonstrates the viability of a full circular economy model for metallic aircraft components, highlighting the potential to significantly reduce waste and carbon emissions without sacrificing material quality.

The achievement follows months of joint research and development, supported by Airbus and recycling specialist ValoER.

Using aluminium recovered from retired aircraft by Tarmac Aerosave, Constellium remelted the material into aerospace-grade aluminium that meets the stringent performance standards required for new aircraft production.

With aluminium recycling requiring just 5% of the energy of primary production and producing 95% fewer CO2 emissions, the collaboration underscores the environmental benefits of circularity in aviation materials.

The next step will be to scale the process to industrial levels and expand it to include a wider range of aluminium alloys used in aircraft manufacturing.

As the aerospace industry accelerates efforts to lower its environmental impact, the success of this initiative offers a promising model for sustainable innovation.

Tarmac Aerosave's president and CEO, Alexandre Brun, said: "The circularity of aeronautical materials is at the heart of TARMAC Aerosave's DNA. It's what built its worldwide reputation as a leader in aircraft recycling, before becoming a one-stop shop."

"Aluminium is one of the materials that we have always sought to sort and recover in the best possible way in order to increase our recycling rate, which is now more than 92%. We're proud to have joined forces with partners who share our commitment to advancing circular solutions for aviation."

Philippe Hoffmann, president of Constellium's aerospace and transportation business unit, said: "At Constellium, recycling is at the core of what we do. We have extensive experience in giving aluminium an endless life across various industries."

"What makes this initiative truly exciting is that it demonstrates – through a real-world example – that even complex aerospace aluminium alloys from end-of-life aircraft can be fully recycled into material suitable for new aerospace applications. It's a proof point for the circular economy in aviation." ■

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# Mobile metrology:
## Portable measurement devices with ZEISS GOM

***Mobile 3D scanner ATOS Q***

Accuracy and speed in production are no longer just desirable but essential. That's why mobile metrology is becoming increasingly important. It enables flexible and efficient inspection and measurement of components and systems directly on-site, saving time, reducing costs, and improving product quality by allowing immediate corrections during the production process. With ZEISS mobile measuring instruments, you can achieve your measurement tasks easily and accurately.

**What is mobile metrology?**

Mobile metrology involves using mobile and portable measurement devices to take measurements directly at the location of the objects being inspected. Unlike stationary measurement systems, which are often installed in specialised measurement rooms, mobile measuring instruments offer greater flexibility and are not tied to fixed measurement locations. They are used to precisely capture and store critical measurement values.

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***Hand-held 3D scanner ZEISS T-SCAN hawk 2***

The technology behind mobile metrology allows for the digitisation and analysis of complex geometries and structures in 3D, which is particularly important in industries like automotive, aerospace, and heavy machinery manufacturing. Mobile measurement systems, such as 3D scanners and photogrammetry systems, are optimised not only for precision and robustness but also to function reliably under various environmental conditions. They play a crucial role in meeting high product quality demands by enabling continuous monitoring and optimisation of production processes.

**Mobile 3D scanner ATOS Q**

ATOS Q is a compact 3D scanner designed specifically for use in production environments. This portable measurement device can perform complex inspection and measurement tasks while meeting high metrological standards. Even under challenging conditions, the measurement system delivers reliable and precise results. Combined with ZEISS INSPECT, ATOS Q provides an optimal and easy-to-use solution for accurate part measurement.

**Hand-held 3D scanner ZEISS T-SCAN hawk 2**

The portable ZEISS T-SCAN hawk 2 is a lightweight 3D laser scanner known for its metrological precision and user-friendliness. A red laser marker helps you find the perfect distance from your measurement object for optimal scan results. Thanks to its handy size, you can use the 3D scanner anywhere without being tied to a rigid setup.

**Small 3D scanner GOM Scan 1**

The GOM Scan 1 may be small, but it delivers impressive results. Thanks to its fringe projection and Blue Light Technology, you can take accurate measurements. It's especially effective for scanning small to medium-sized components, even in tight spaces. Combined with ZEISS INSPECT software, you can elevate the quality of polygon meshes to the next level and complete your measurement tasks with maximum accuracy.

**Mobile metrology in the production process**

Mobile metrology plays a central role in the modern production process. Thanks to this technology, quality control can be carried out directly on the production line without having to transport the components to a specialised measurement room. This results in significant time savings and increased operational flexibility. Performing measurement tasks quickly and directly at the assembly site allows for immediate feedback and adjustments to the production processes. Mobile metrology also helps minimise downtime and maximise efficiency by identifying and correcting issues before they lead to costly production stoppages.

Contact RGC Engineering on TEL: 011 887 0800 or alternatively visit www.rgcengineering.co.za for further details. ■

***Small 3D scanner GOM Scan 1***

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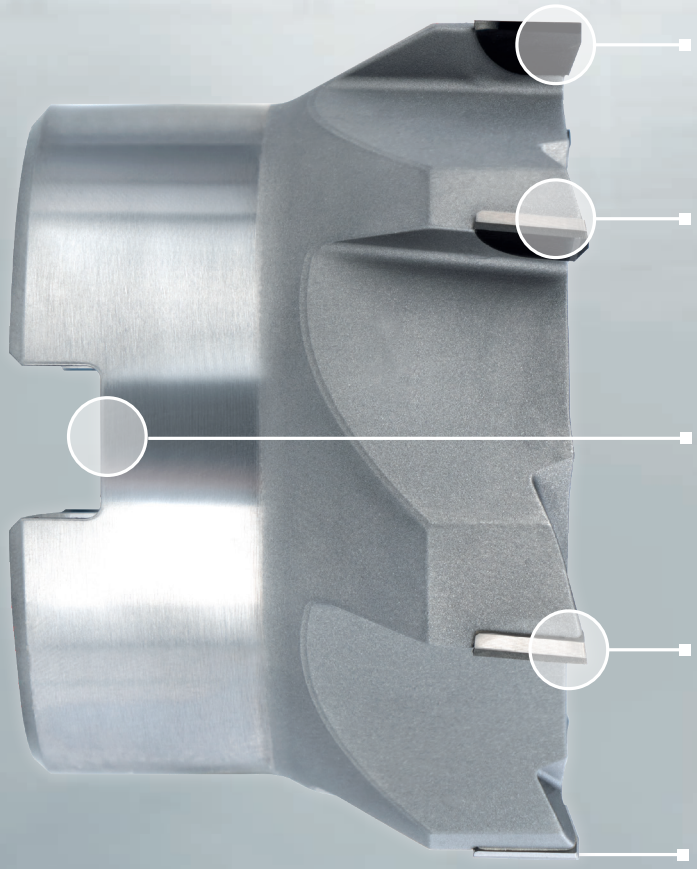

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# General Kinematics' melt deck equipment: Optimise melt operations with charge feeders

General Kinematics (GK) melting and sprue cleaning solutions automate your melting operations. From scrap cleaning to furnace charging, GK has a solution to improve the safety and productivity of your melt operations.

**Cleaning and conveying**

Returning clean scrap to the melt deck is important to produce a cleaner pour. To get your scrap back, vibratory conveyors from General Kinematics offer quiet, reliable conveying with low maintenance requirements. On the way, GK's DUCTA-SPRUE® removes sand through aggressive tumbling action and prepares scrap for remelt.

**Building your charge**

Proper metallurgy is determined even before you melt. GK's alloy addition, ladle addition, and charge make up solutions automate this process to provide a consistent charge make up every time.

**Heavy-duty Furnace Charging**

General Kinematics furnace charge feeders are the most reliable and durable vibratory charge feeders available. Each machine is custom engineered for your specific tonnage and furnace type. Feeders are available in a variety of mobile configurations to best fit your facility and process. Combine this with our charge makeup solutions for the ultimate in melt deck performance.

**Vibrating charge feeders**

General Kinematics vibrating furnace charge feeders and charge systems give you precise automated batch control, optional scrap drying and other charge enhancement capabilities. Equally important, automated systems help improve worker safety.

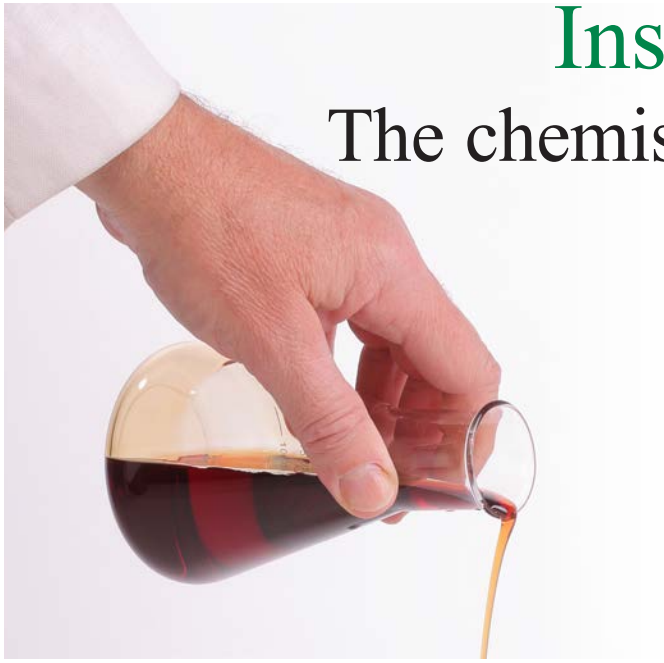
Charger nosepiece is designed specifically for your furnace to control fumes and direct the charge into the centre of your furnace. Vibrating furnace charge systems can be motorised to move forward, backward, up, down, or transversely as well as full control with wireless weighing.

**Features**

The patented charge feeder nosepiece expands to prevent jams, fits tight to the furnace hood to contain fumes and any potential splashback, and directs the charge into the centre of the furnace to reduce furnace damage. Additionally the feeder is fitted with noise reduction vibrating feeder troughs for quiet furnace feeding, is designed for 24/7/365 operation with little maintenance requirements, which reduces your planned downtime, a two-mass, natural frequency charge feeder design requires very little energy to operate, reducing your HP and energy costs, is designed with soft isolation springs that limit transmittal of forces to your furnace deck and with a variable speed material discharge to keep your furnace crucible full as material is demanded.

For further details visit https://www.generalkinematics.com/product/vibration-furnace-charge-feeders/ ■

# Inside Kaltharz 8500:
## The chemistry behind the solution



In modern foundries, performance alone is no longer enough. Industries demand efficiency, sustainability, and safety alongside high-quality casting results. For decades, classic furan resins have been the standard in no-bake binder systems, providing the strength and curing speed that foundries depend on. However, as the industry evolves and demands greater sustainability, safety, and efficiency, new solutions are needed. The emergence of hybrid binder systems offers precisely that – a smarter, cleaner way to achieve the performance foundries require.

At the heart of this transformation is the Kaltharz 8500 hybrid binder system – a solution rooted in chemistry.

**From furan to hybrid – a shift in resin chemistry**

Traditional furan resins have long been the backbone of no-bake binder systems. Their curing power comes from strong acid activators, often leading to high sulphur emissions, odour problems, and operator risks.

Hybrid resins like Kaltharz 8500 change the equation. Instead of relying solely on acids, they incorporate a special FA-phenolic polymer (PRFuran). This transfers curing ability directly into the resin structure, reducing the need for aggressive acids while maintaining strong curing performance.

The impact is significant. Strong acids are no longer mandatory, emissions are reduced, and curing becomes more controlled. Yet, performance is not sacrificed. Hybrid formulations are designed to achieve curing results comparable to classic furan resins containing 85–90% furfuryl alcohol (FA) where necessary.

**Cleaner by design**

The chemistry is engineered for low emissions, Free sulphuric acid <0.3% compared to up to 3% in classic systems and reduced sulphur content to as low as 5–8% for ductile iron and lower formaldehyde release, improving workplace conditions.

For further details contact DZanetech for Johannesburg on 082 809 7380 (Paul Malone) or Cape Town on 083 454 5465 (Johan Jooste) or for National 066 010 0999 (Zaid Syed) or Technical Support on 083 274 1657 (Koketso Mamogale) or visit www.dzanetech.co.za ■

# Endeco Omega Sinto provides
## mixing technology for all foundries

The main function of any continuous mixer is to mix sand with a resin and either a catalyst or a hardener (depending on the process used), as well as sometimes 2 or 3 additional liquids or dry powders. This task must be completed within 3 to 5 seconds and must be carried out with almost zero wastage and full control of the additives.

The continuous mixer must produce a consistently homogeneous mix, have the ability to produce small batches or long continuous runs of mixed sand at the touch of a switch, all mixed sand must be of good quality, chemical additions must be at the absolute economical minimum, the mixer must be easy to maintain and of course user friendly.

When a mixer does not perform to the required levels of quality, then typical indicators in the mould are ‘spotting’, ‘striation’ and ‘marble effect’ which will ultimately lead to casting defects if not resolved immediately.

The main variables of a continuous mixer that need to be controlled are sand flow, chemical addition and mixing efficiency. Of course, with the latest Spartan mixers we have all of these bases covered, but if further ‘fine tuning’ or improvements to an old mixer are required then Endeco Omega Sinto Foundry Machinery Ltd offers the ‘add-on’ technology to easily monitor and control these three variables.

**Sand flow**

Each type of sand addition entering the mixer should be monitored and regulated, such as – new silica sand, reclaimed silica sand and or speciality sand (Chromite, zircon and olivine) additions. These can be regulated either by a precision pneumatic sand selection gates or an electrically actuated gate with infinite aperture control known as a ‘Smart Gate’.

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# Why Extending Your Brand Online Matters

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Online research is a key part of the industrial buying cycle, particularly during the consideration and selection stages. castings sa online is where buyers search, research and learn about new product technology and new process innovations. Aligning your message with the areas where prospects are likely to look for technical solutions is the essence of contextual advertising and brand development.

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