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VOLUME 23.1
March 2024

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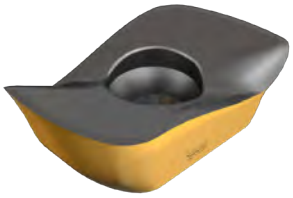
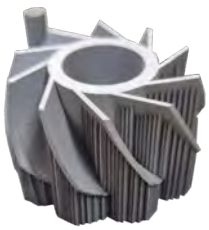




The power of the independent press still holds sway

I recently published an article about the semi-automatic monorail system at Atlantis Foundries that eliminates the use of forklifts, reduces the risk of spillage, as well as ensuring a much safer work environment in the molten metal department. Besides being published in the December 2023 issue of Castings SA it was also posted on the magazine's websites and on LinkedIn.

The article drew attention from far and wide and at one stage I thought it was going to surpass the record of 4 900 views but it still gained a respectable 3 800 views. The previous article – published in Metalworking News at the beginning of January 2023 – was on an installation of a high-speed 5-axis DMG MORI DMU 340 P machining center at Titanus Slew Rings.

The response to these two articles says something very powerful. Readers want to continue to read about positive stories that are informing them and are newsworthy, rather than being bombarded by contrived communication and mis-information sent by commercial operations. No government, politician, company or person should influence the content of editorial. Media independence is the absence of external control and influence on an institution or individual working in the media. It is a measure of its capacity to make decisions and act according to its logic that distinguishes independent media.

The fundamental right to seek and disseminate information through an independent press is under attack, and part of the assault has come from an unexpected source. Elected leaders in many democracies, who should be press freedom's staunchest defenders, have made explicit attempts to silence critical media voices and strengthen outlets that serve up favourable coverage.

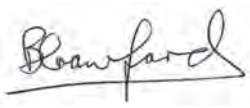
A free and independent press is the core institution connecting the public to the information they need to advocate for themselves, make informed decisions, and hold those in charge and governmental officials accountable. The media should always do more to equip readers to think for themselves.

While the threats to global media freedom are real and concerning in their own right, their impact on the state of democracy is what makes them truly dangerous. However, journalism is in crisis in a period where it has become far too easy for someone with no training, no experience and absolutely no knowledge on the subject matter, to gain entry into the profession. The tools on hand that are readily available have made life easier for everyone but they have also increased the undesirable aspects of life.

The media system should be diverse and pluralistic, including different media types, operating under varied systems of regulation, designed to foster free competition for audiences and attention, and have a strong accountability of media owners and journalists to citizens and public opinion.

Journalistic professionalism is an important component of a healthy media system, and the internalisation of respect for the public interest and operation of a 'reputational economy' within the profession provide important safeguards against excesses, and an incentive for innovation. Systems that strengthen occupational self-regulation within the press are valuable.

Experience has shown, however, that press freedom can rebound from even lengthy stints of repression when given the opportunity. The basic desire for democratic liberties, including access to honest and fact-based journalism, can never be extinguished.



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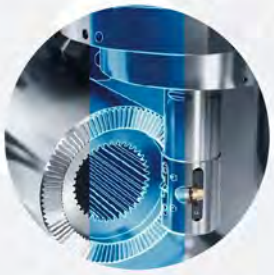

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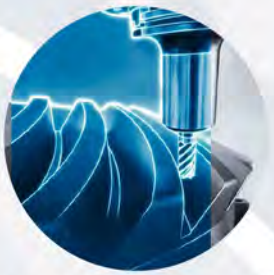

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Navigating South Africa's transition from the NQF to OQSF framework – why meeting the 2024 June 30 deadline matters

South Africa is at a crossroads of a significant educational and vocational transition as it shifts from the National Qualifications Framework (NQF) to the Occupational Qualifications Sub Framework (OQSF) managed by the Quality Council for trades and Occupations (QCTO). The CEO of the QCTO, Mr. Vijayen Naidoo, has declared that the transition is imminent and that existing qualifications will not be re-registered. Long anticipated but now undeniable, this shift carries substantial implications for various industries, employers, and training providers now referred to as Skills Development Providers.

Once readily available under the NQF, qualifications soon slated for discontinuation in the OQSF framework will present a challenge for companies accustomed to providing specific training programmes. The repercussions extend beyond individual learning journeys and extend to the business world, impacting B-BBEE scorecards. This makes it vital for organisations to reassess their training portfolios to ensure alignment with the new OQSF framework, or to seek suitable alternatives for discontinued qualifications, skills programmes, or short courses. Here, training partners will have a critical role to play in facilitating this transition.

Impending deadlines and consequences of qualification displacement

One of the most critical challenges in this shift is the misalignment between existing NQF qualifications and the available programmes in the OQSF. Several vital qualifications, such as generic management levels four and five and process manufacturing level four, lack equivalents in the QCTO. This creates a dilemma for organisations that had planned to enrol learners in these programmes, as the deadline for new enrolments is set for 30 June in 2024. The implications of missing this deadline are profound, and learnerships and qualifications that were once standard may no longer fit within the QCTO implementation strategy. This has a cascading impact on workforce planning, learner progression, and an organisation's skills development scorecard. Failure to adapt to the new landscape in time could result in penalties, negatively impacting a company's overall scorecard and its ability to achieve its skills development goals.

The importance of initiative-taking strategies and contingency planning

The looming deadline is no longer a technicality or a possibility; it is a call to action. Organisations must concede that the threat of the transition has become a reality, which means that ignoring it is no longer an option. Even as the question arises as to whether the government will extend the deadline, re-register a few qualifications, or allow for continued use of existing learnerships, the ensuing uncertainty can only highlight the need for an initiative-taking approach. In the face of such uncertainty, having a Plan B is non-negotiable. Organisations must explore alternative pathways within the QCTO, even if they deviate from their traditional areas of focus. For instance, if a preferred qualification has no QCTO equivalent, considering alternative programmes within the available options becomes the only choice. It may be an office management qualification for manufacturing employees, however, in the absence of suitable alternatives to the generic management level four and five or the process manufacturing qualification, this may be the only viable lifeline to ensuring continued skills development.

Seizing opportunities and mitigating risks

The teach-out provision, allowing learners to complete their learnerships until 30 June in 2027, is a lifeline for those who enrol before the deadline. However, the key is getting learners on board by 30 June 2024. The potential tax benefits associated with learnerships remain uncertain and may be subject to changes that organisations will need to track closely. In responding to the transition, training providers must play a decisive role, actively engaging with clients, identifying gaps in qualification alignment, and presenting viable options. Communication is key, and training providers should serve as guides through the transition, ensuring that clients are aware of the risks and opportunities presented by the QCTO.

Toward a robust workforce and economic growth

While the transition may impact every sector, the degree of impact varies. It is essential for organisations across industries to recognise that this is not likely to be a seamless process. Delays, uncertainties, and changes in decision-making will be part of the transition.

Managing the risks of this shift is now crucial for all involved. The QCTO plays a vital role in ensuring a skilled workforce, driving economic growth for South Africa's national development. Its efforts to standardise, develop, quality assure, and promote lifelong employability are essential for building a resilient and adaptable workforce that can navigate the challenges and opportunities of the fourth industrial revolution and beyond.

The unavoidable shift to transformation

The transition from NQF to OQSF in South Africa is a reality that cannot be ignored, and the 30 June 2024 deadline marks a point of no return in this journey. Organisations must act now, either by enrolling learners in existing programmes or by exploring alternative pathways within the QCTO. The time for complacency is over; the time for strategic action is now. ■

This is the viewpoint of Roland Innes, Group Chief Executive Officer at DYNA Training in South Africa

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cover story

In focus with Victor Taichung
South Africa: Talking to Dudley

For flexible automated production, Victor CNC can integrate the EWR-03 articulated robot system that can tackle parts weighing 3 kilograms of dimensions up to 120mm diameter. Part loading/unloading time can be just seven seconds

"For a strong, reliable machining solution you won't go far wrong with a Victor Taichung machine. With millions invested in Taiwan in a new Smart Factory, which ensures efficient product development and volume manufacture, it's easy to see why we see plenty of these robust and reliable machine tools in action all over South Africa and the world. There is a bright future for Victor Taichung CNCs with new models being launched regularly. Now, at the end of March 2024 they are releasing XX machines that will make machine shops take notice once again of the Victor Taichung products," explained Dudley Meredith who has been with the company in South Africa since March 2002 and is the Managing Director.

"We are the sole agent for Victor Taichung Machinery, the number one machine tool builder in Taiwan, and have been since 1986. The company was established by my father Alan Meredith and the late Mario Ostacchini. In those days the name of the company was Victor Machine Tools, which later became Victor Fortune South Africa and now Victor Taichung South Africa. They had the vision and were among the pioneers in importing CNC machine tools from Taiwan and we have sold well over 1 000 machines and 250 plastic injection moulding machines to companies in South Africa. Their recognition in Taiwan is acknowledged by the number of awards that they received from Victor Taichung in Taiwan."

For parts beyond 3 kilograms that require automation, Victor CNC can integrate a gantry-type robot system that can efficiently feed two turning centers to improve productivity rates whilst minimising floor space requirements. Part changeover time is less than 15 seconds, which includes door open/close cycle

"Victor Taichung South Africa supplies new generation CNC machine tools including horizontal turning lathes, vertical turning lathes, horizontal machining centres, vertical machining centres, 5-axis machining centres, alloy wheel machining centres and plastic injection moulding machines across the general engineering, automotive and plastics manufacturing industries in South Africa and sub-Saharan Africa."

"Victor Taichung

The popular Vcenter-P106 includes rapid feeds of 48/48/32m/min, 12 000rpm, spindle output of 18.5kW, BBT 40 / 30 tools, roller guideways, bottom guarding flush and screw chip remover

A single Victor Vturn-NP16 turning center with a robot system and pallet changer

Machinery, based in Taichung, Taiwan is an unusual company because it is one of only two companies in Taiwan to have its own foundry. Unlike many Taiwanese companies that just assemble machines, Victor Taichung builds its CNC and injection-moulding machines from the ground up, using its own castings and spindles. The company also uses the Japanese concept of multi-tasking machines, which do both milling and turning at the same time, to manufacture its own products. The company was established as Victor Taichung Machinery Works Company in 1954."

"The company also carries a wide range of spare parts in stock and the company's service engineers are experts in their field and have all received in-house training at the OEM factory in Taiwan."

Victor Taichung Machinery is now part of the umati community

"In January 2024 Victor Taichung Machinery announced that they are now part of the umati community. umati (universal machine technology interface) is a community of the machine building industries and their customers for the promotion and adoption of open, standardised interfaces based on OPC UA. The aim of umati is to reduce communication costs between equipment manufacturers and users, and expedite the development and installation of IoT (Internet of Things) for manufacturing equipment through the umati interface standard."

What advantages does umati offer

"By having a common communication foundation, various equipment in different industries are allowed to connect to each other on the same platform, making data transmission between machine tools, product management systems simple and fast. umati standardises the information of IoT interfaces, expediting the integration process of smart factories. This facilitates the accelerated development of various smart applications."

"In the future, both machinery manufacturers and manufacturing operators can enhance equipment value or optimise production processes through value-added applications on this platform."

"The joint connectivity initiative is by the VDW (German Machine Tool Builders' Association) and VDMA (German Mechanical Engineering Industry Association). Over 30 specialist groupings in more than 17 associations are working on technology-specific interfaces, the "Companion Specifications". This high level of collaboration forms the basis of true, open interoperability between machines and software systems, from the shop floor to the cloud. Only the VDMA has the means to unite the necessary integrative forces from the wide range of production domains."

"umati celebrated its first major appearance at EMO

The robot gripper system

Deploying robots for machine tending often improves throughput and operational safety while maximising overall equipment effectiveness

Hannover in 2019 with a live demonstration. The global network of partners has now grown to over 320 members and counting. These partners include OEM manufacturers in additive manufacturing machinery, geometrical measuring systems, industrial joining technologies, machine tools, plastic and rubber machinery, machine vision equipment, robotics, surface technology equipment and woodworking machinery."

The Victor Taichung Vcenter-P106 with a rotary table

Tending operations

"The automation market is growing rapidly, with affordable, space-saving robots and pre-engineered robotic work cells available for shops with tighter floor space limits and broader needs. From robot frames to racking systems, grippers, software and more, new automation technologies optimise workflow and deliver high consistency, efficiency and quality."

"Today's highly repeatable and flexible robots help to orient, produce and transport parts for both low-volume, high-mix and low-mix, high-volume shops. Tending, warehouse and secondary operations all see improvement from the implementation of these robots, reducing costs and improving profits per square foot."

"Deploying robots for machine tending often improves throughput and operational safety while maximising overall equipment effectiveness. Today's robots also boast smaller space requirements, with compact and lightweight six-axis robots that can be mounted close to workpieces and machines in existing lines and cells. These types of robots are well-suited for extracting machined parts out of chucks and for loading mills. Robots with heavy-duty drive systems and higher vibration ratings extend this functionality to large parts."

"On the cover we feature our robust Vturn-NP16 turning center, which boasts a compact footprint of just 1 488mm in length by 1 956mm wide, and has a height of 1 775mm, so even the most compact machine shop can now benefit from the productivity, rigidity, precision and longevity of a Victor CNC machine tool. Heavy stock removal and highly productive machining of difficult-to-process materials are the machine's forte."

"Of one-piece slantbed design, it has a chip disposal system at the rear of the machine to minimise the footprint. The compact turning center has Z-axis travel of 250mm, a 570mm diameter swing-over-bed and a 260mm maximum turning diameter. Spindle power is 11kW, speed 6 000rpm, and there's a 12-live-position station servo-driven tool turret, plus an option of a 12-position, C-axis BMT-45 milling turret for single-hit machining of complex components. Driven tool power is 2.2kW."

"As standard, the Vturn-NP16 is supplied with a three-step warning light, coolant flush on the Z-axis cover, toolholders, fully enclosed guarding and a hydraulic 6-inch chuck with soft jaws and a Fanuc 0i-TF CNC control system having Manual Guide I System that offers ease of programming."

"The Vturn-NP16 turning center is a machine said to be easily mastered by subcontractors that are entry-level CNC users, whilst more experienced machinists can take full advantage of the capability and rigidity characteristics of the machine."

"For flexible automated production, Victor CNC can integrate the EWR-03 articulated robot system that can tackle parts weighing 3 kilograms of dimensions up to 120mm diameter. Part loading/unloading time can be just seven seconds."

"For parts beyond 3 kilograms that require automation, Victor CNC can integrate a gantry-type robot system that can efficiently feed two turning centers to improve productivity rates whilst minimising floor space requirements. Part changeover time is less than 15 seconds, which includes door open/close cycle."

The cover image features Victor Taichung's robust Vturn-NP16 turning center, which boasts a compact footprint of just 1 488mm in length by 1 956mm wide, and has a height of 1 775mm, Z-axis travel of 250mm, a 570mm diameter swing-over-bed and a 260mm maximum turning diameter

About Victor Taichung Machinery

Victor Taichung Machinery, dedicated to technological innovation and high-quality products, continues to develop the next generation of CNC machine tools. In response to the trends of Industry 4.0 and the sustainable development of businesses, Victor Taichung Machinery has invested NT$3.5 billion to acquire land and build a facility in the Taichung City Precision Machinery Innovation Technology Park. The facility covers nearly 9 400m², including the headquarters building and smart factory, with a total construction area of 17 300m².

Witin the facility, four Industry V4.0 intelligent automated machining production lines, eight smart assembly lines, elevated automatic warehousing, and AGV unmanned transport vehicles have been implemented. The integration of IoT with ERP, APS, MES, and other systems is utilised, and a situation room has been established to efficiently convey information. This enables real-time monitoring of the factory's production progress, providing feedback to the coordination centre. Supervisors can utilise management based on data, shifting from traditional experiential decision-making to data-assisted decision-making, thereby improving their adaptability and reducing the risk of erroneous decision-making by each management team.

For further details contact Victor Taichung South Africa on TEL: 011 392 3800 or visit www.victor.co.za ■

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Technipunch looks after its engine room

TP Products manufactures a vast array of products for the outdoor life, including braai products, such as built-in braais, and accessories

TP Products manufactures combustion ovens

The 2020 global pandemic was by far one of the biggest challenges that most businesses had to endure. Its long-term impact on the economy has yet to be revealed and unfortunately, some businesses have collapsed due to the unexpected pressures they experienced. Starting a business during the pandemic may have seemed impossible. Nevertheless, many professionals who had been furloughed or laid off, decided to forge their own path and launch a business. These newly minted entrepreneurs quickly discovered that, despite the national and global circumstances, there were plenty of pandemic-friendly business ideas that could be successfully executed.

A surge of creativity, innovation and adaptability by many businesses in a variety of sectors grew amongst the catastrophe and devastation that the global economy faced. Food outlets diversified, digital art erupted and offices became virtual and streamlined. It didn't take long to identify those who weren't going to let Covid bring them down!

Covid pushed the fast forward button on digital access, it provided companies with the perfect opportunity to innovate, it highlighted the importance of training and upskilling, it's seen a rise in productivity levels and it encouraged a stronger sense of community. The pandemic changed the course of daily life and we witnessed people and businesses embrace the unexpected in creative ways. It also changed human behaviour, while we all lived in an uncertain time.

For those not involved in all the aspects of being directly involved with the pandemic remote working tools such as Internet, connectivity, working apps and software were high on the list of must haves. Of course, only for those of us that could afford them.

With many not wanting to visit public spaces and restrictions, as was the case in South Africa, being put in place by governments, delivery service businesses enjoyed strong growth. Some of the negatives included the prices of food and packaging increasing and shortages becoming a real scare. Faced with the uncertainty, many people around the world began to stockpile food and other products. The routine grocery and food shopping runs changed dramatically.

"The pandemic reshaped the way we buy, prepare and consume food. With plenty of time on their hands people looked for new, creative methods and ways when making their

Mobile braais that are easily folded into reduced storage space are popular

In 2023 Technipunch CC added a further two fibre lasers to the floor with the latest purchase only being installed late last year. The DNE is a 6kW laser and has a bed size of 4m by 2m

Technipunch has invested in two hand-held laser welding systems from Hugong HGLW and supplied by TRM Supplies

Technipunch have now purchased a Hugong 3kW hand-held fibre laser welding, cutting and cleaning machine that has a 300mm cleaning width from TRM Supplies

food-related decisions and South Africans were not short of declaring themselves as culinary maestros," said Technipunch CC's owner Johan Steyn.

Three years after establishing Technipunch CC in 2007, a company which focuses on supplying precision sheet metal components to a vast variety of markets, including the aviation, shopfitting, security, electronics and wine industry, Steyn started Technipunch Products. Today the company is better known as TP Products and it produces a vast array of products that are distributed to retail companies locally and internationally and via website orders.

"Our passion in the beginning was to manufacture products and accessories for what probably every South African has a passion for. Because of the extensive amount of sunshine we have and our love for the outdoor life, what better way is there to enjoy this lifestyle than by having a braai with family and friends. It does not take a national holiday for South Africans to be encouraged to light a fire and cook some food, generally meat, and have a braai or a barbeque (BBQ) as it is referred to in the rest of the world."

"We started off with a range of products that just filled a 2-page catalogue. The demand for our fire and braai-related products just grew every year and we soon became one of the leaders manufacturing stainless steel braai products in South Africa. But as our dreams grew bigger our catalogue and range of products also grew."

"We now offer gas-braais, pizza ovens, braai accessories, built in braai's, combustion ovens and fireplaces, flue pipes and cowls, mobile braai's, other camping and outdoor products, as well as post boxes and street and home numbers and letters."

"Our latest catalogue, which is a few years old and needs to be redesigned and updated, is 44 pages. That gives you an idea of the number of products we now market."

"I mentioned earlier how the pandemic reshaped our lives in many aspects and I was particularly referring to the food and lifestyle industry as all TP Products are influenced directly by the trends and economy in this segment. In a funny way the pandemic helped us to grow our business because of the demand for our products. Coupled with the phenomenal growth in online purchasing and, while the restrictions were in place, this was the only way to order products. This trend has certainly continued post the pandemic."

"We can't say that we are grateful for the pandemic. We will however express our gratitude in how we were supported by our customers. The pandemic has reminded us that first and foremost that time spent with our loved ones should not be taken for granted. The pandemic has highlighted the importance of prioritising our overall health and wellness, not just for ourselves, but for everyone around us."

"The pandemic also saw the birth of a new breed of cooks and culinary experts. Braaiing is a lifestyle. It provides relaxation, the smell of the meat cooking, the sociability of friends and family, and the flames of a real fire, all contribute.

In the press brake department Technipunch have installed two Bystronic machines. One is a 250 ton by 4m and the other is a 150 ton by 3m

Technipunch's mix of materials processed is 50/50 between stainless steel and mild steel. However, the majority of TP Products' products are manufactured in stainless steel

"After initially purchasing our first fibre laser – an Ermaksan Fibermark – in 2015, which is still running, we only purchased our second one in 2019. The Salvagnini is a 6kW fibre laser and we added entry level automation to it."

Technipunch also has two DNE hand-held fibre laser welders

It is where we can prepare an entire meal and come together. Patio areas, balconies and entertainment areas form part of the house, and this has created the need for well-designed and modern braai products and accessories."

"And every new cook and culinary expert wants the best equipment and accessories! Since the pandemic began, we have introduced 50 new products and variants of existing products."

Growth at Technipunch CC

"The original company - Technipunch CC - is the main supplier of product to TP Products and because of TP Products' growth, Technipunch CC has accordingly grown. All of the braai and lifestyle products are made of high-grade stainless steel (304 and 316) and entry level stainless steel (430). Where there is a call, we will duplicate products and manufacture them in mild steel. But by far the majority are manufactured in stainless steel because of the aesthetics and longevity of the material."

"There is a bit of a mis-conception in the world about stainless steel. 304 and 316 stainless steel is suitable to be used in coastal areas and 430 stainless steel is entry level stainless steel and not suitable for coastal areas."

"Stainless steel is not a maintenance free steel and can bend, discolour, rust when direct heat has been promoted. We have tried and tested our products and we only manufacture them in the recommended material."

"We have also been very busy with introducing new equipment and also added 800m² to our production department."

"After initially purchasing our first fibre laser – an Ermaksan Fibermark – in 2015, which is still running, we only purchased our second one in 2019. The Salvagnini is a 6kW fibre laser and we added entry level automation to it."

"In 2023 we added a further two fibre lasers to the floor with the latest purchase only being installed late last year. The DNE is a 6kW laser and has a bed size of 4m by 2m. This has taken our laser numbers to three."

"Investment did not stop there though. With all the new products there were capacity requirements that we had to take care of and also new processes."

"In the press brake department we have installed two Bystronic machines. One is a 250 ton by 4m and the other is a 150 ton by 3m."

"Another investment is in a CoastOne C15, which is a smaller press brake with a 1.5m width and a 44 ton force."

Hand-held fibre lasers

"We decided to invest in two hand-held laser welding systems from Hugong HGLW and supplied by TRM Supplies because of the potential it offers in the environment that we operate in. Manual fibre laser welding will never replace the traditional MIG and TIG welding processes but for the size and thickness of sheet that we use it gives a company like ours an opportunity to do finishing fabricating a lot quicker. Once we have cut, punched or bent sheet for our products we fibre laser weld using the two Hugong machines and the additional two DNE machines that we purchased. They are quick and easy to use, faster than the traditional welding processes and the finish is better in most cases."

Hugong fibre laser cleaning

"As has been the case with fibre laser welding machines now being readily accepted and purchased for the many benefits that they offer, I foresee a rapid growth in fibre laser cleaning machines. They are used to clean a variety of materials including metals and ceramics. They use a highly focused beam of light to remove contaminants such as oil, dust, rust, paint, and electrolyte. Because they are precise, efficient, and eco-friendly, they are commonly used in the automotive, aerospace, and medical industries."

"Fibre laser cleaners are becoming increasingly popular to clean metal surfaces due to their many advantages over traditional cleaning methods like sandblasting and chemical cleaning. Handheld laser cleaning machines are designed to be portable, which is a massive benefit."

"We have purchased a Hugong 3kW machine that has a 300mm cleaning width from TRM Supplies that will be arriving soon."

"We have always invested in technology that we can afford and will continue to do so going forward. We believe if you look after your engine room you will have a positive outcome."

"Technipunch's mix of materials processed is 50/50 between stainless steel and mild steel. The main focus of the company is to supply precision sheet metal components to a vast variety of markets, including the aviation, shopfitting, security, electronics and wine industry."

"TP Products is a big 'client' but so are our other clients who provide us with respectable numbers that we do not neglect them."

For further details contact Technipunch on TEL: 021 905 0894 or visit www.technipunch.co.za or www.tpproducts.co.za ■

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Trax Engineering gets going as a fabricator

Trax Engineering was incorporated in 2012 and operated on a limited basis, until recently. English born owner Tom Webb has been living in South Africa for 12 years, having previously worked in various positions in industry in Abu Dhabi and the UK.

"Most of my career has been doing something in the engineering field and that has not been sitting behind a desk. From maintenance to manufacturing I have got some experience. Good or bad it has generally given me a head start and investing in my first fibre laser was not as daunting as I thought it would be," explained Webb.

A fibre laser was Trax Engineering's first major equipment investment. They purchased a JFY 3kW with a 3m by 1.5m bed from Puma Machine Tools that was installed in August 2023

"In business, success is often the product of a company's vision - the aspirations for the future and the plans for creating opportunities and managing growth. Differentiation from the competition is an important factor in uncovering and realising those opportunities."

"This typically means doing things better, more efficiently, and more economically than anyone else. Continually challenging the way things have been done in the past and viewing them from a new perspective ultimately leads to innovation and a strong competitive edge."

"Trax Engineering was a two-man operation but when the opportunity arose we recognised it and got busy implementing the requirements."

"A friend is very involved in the lithium-ion battery and solar industry. With the current (excuse the choice of word) energy situation in South Africa there continues to be a scramble to find an energy storage system that suites residential and business situations or on a bigger scale a manufacturing environment that keeps machines going."

"As we all know lithium-ion batteries and clean energy are not just about EVs. There are many other applications and more and more are arising."

"A great example of this is lithium-ion batteries used in forklifts. Lithium-ion forklift batteries are more energy-efficient and charge faster than lead-acid batteries, saving you time and money. Your lithium-ion battery will typically last two to four times longer than a lead-acid battery. This helps you keep up with those long workdays."

"This friend acquired a contract to supply the lithium-ion batteries and counterweights for OEM forklift manufacturers. He manufactures the lithium-ion batteries but he had nobody manufacturing the counterweights required after removing the lead acid battery and replacing it with a much lighter lithium battery so he turned to me."

The JFY fibre laser is powered by a Trumpf TruFiber Cut 3000 source

"Forklifts are essential in the manufacturing, construction and warehousing industries as they help lift, move and transport heavy materials and equipment with ease. A forklift's performance and safety depend on its various parts and components, one of which is the counterweight which is not only the heavy mass attached to the back of a forklift but also weight built into the forklift by means of heavier than required frame and very heavy batteries which then counter balances the weight of the load being lifted and so prevents the forklift from tipping over. Counterweights are typically made of steel, iron, or concrete and the battery alone can weigh anywhere between 240kg to 2500kg."

"The advanced knowledge and technical details behind counterweights in the industry are fascinating and essential for understanding their role in performance. From balancing efficiency to safety features and energy savings."

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The company manufactures storage tanks for counterweights used on OEM forklifts

Counterweights are typically made of steel, iron, or concrete and the battery alone can weigh anywhere between 240kg to 2500kg

"You could say the same about fibre lasers – an essential tool used in the cutting of sheet used for the tank to house the counterweights. A fibre laser was our first major equipment investment and our JFY 3kW with a 3m by 1.5m bed was installed by the guys from Puma Machine Tools in August 2023. We had only been in the 900m² facility in Killarney Gardens, Cape Town a few months."

"We also purchased a press brake, guillotine and a MIG welding machine. The manufacture of the tanks does not require high-end technical requirements but as they are being fitted to premium OEM forklifts, they need to be more than presentable."

"Once we knew how to operate the JFY laser we started production. Initially we were fabricating about 30 tanks a month but as our processes have improved, we are now up to between 80 and 100 tanks a month and we want to increase that number."

"The fibre laser is allowing companies to do a lot of things that they couldn't do before if they had a CO2 laser. We intend to exploit that opportunity and besides mild steel we have now started to cut aluminium for a client."

The storage tanks do require welding

"Even though we are only using 25% capacity of the machine we are still expecting the machine to pay itself off in three-and-a-half years. So, if we can start to fill up that capacity, we could look at other services."

"We have recently started to do some work for a manufacturer of cattle enclosures so we are diversifying."

"Fabricators are constantly searching for ways to manufacture things faster, more economically, and with even higher quality. Properly integrating a new technology requires a disciplined analysis to assess its effect on the existing processes and the business as a whole. Developing and executing a strategy for implementing new technologies propels a metal fabricator forward and separates it from the competition. Such a strategy provides hidden benefits and opportunities."

For further details contact Trax Engineering on 073 129 9687. ■

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ITAC investigation into the alleged dumping of flat-rolled products

Trade agency the International Trade Administration Commission of South Africa (ITAC) has, following an investigation into alleged dumping of steel products from the People's Republic of China, determined that dumping of products originating in or imported from China is taking place.

The South African Coil Coaters Association (SACCA or the Applicant), an industry body of the Southern African Customs Union (SACU) industry, lodged an application for an anti-dumping investigation on flat-rolled products of iron or non-alloy steel, of a width of 600mm or more, otherwise plated or coated with zinc, of a thickness of less than 0.45mm, classifiable under tariff subheading HS 7210.49.10, originating in or imported from the People's Republic of China (PRC).

SACCA members were, at the time of the submission of the application, ArcelorMittal South Africa Limited (AMSA), Safal Steel (Pty) Ltd (Safal), and Duferco Steel Processing (Duferco). Together they constituted 100% of SACU domestic production of the subject product. AMSA is the major producer of the subject product and provided material injury information.

ITAC was provided with written and oral information by the applicant and interested parties, together with the verified producer/exporter's information, and responses thereto.

Questionnaire responses were received from two producers/exporters in the PRC. Joint comments were received from three companies in the SACU that are not importing the subject product. The two exporters/producers are Shandong Tongsheng Composite Material Co., Ltd., (Tongsheng); and Shandong Guanxian Rongda Composite Material Co., Ltd. (Rongda).

Comments were received from the following interested parties: The Applicant, South African Iron and Steel Institute (SAISI), National Employers' Association of South Africa (NEASA), Safal, Duferco, Industrial Development Corporation (IDC), SS Profiling (Pty) Ltd, Steelworld Roofing Systems (Pty) Ltd and Inter Steel (Pty) Ltd.

The Commission considered all the relevant information available at its disposal, in particular, that related to dumping, material injury and causality. The Commission made a final determination that:

- dumping of the subject product originating in or imported from the PRC is taking place;
- the SACU industry is experiencing material injury and;
- there is a causal link between the alleged dumped imports and the material injury experienced by the SACU industry.

The finding of dumping for each exporter/producer was based on the producer's own information, and the finding of dumping for all other producers/exporters that did not cooperate was based on the best information available, being Tongsheng's domestic sales information and import statistics from SARS.

The Commission made a final determination to recommend to the Minister of Trade, Industry and Competition that definitive anti-dumping duties be imposed against imports of the subject product originating in or imported from the PRC.

Please click on the link to access the full Report 720: http://www.itac.org.za/upload/document_files/20240219115800_Report-No.-720-1.pdf ■

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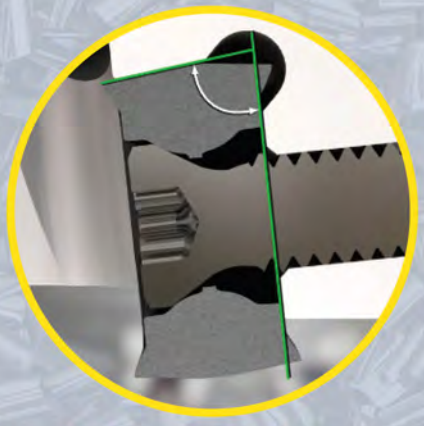

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Coleus Packaging in a new PMC 500 crown manufacturing machine

Coleus Packaging, the metal crown manufacturer in South Africa, is on track to benefit from its deal with Greek company Astir Vitogiannis through the investment in a new PMC 500 crown manufacturing machine.

The new PMC 500 crown manufacturing machine

"Previously, we were majority owned by SAB but in mid-2022 Astir Vitogiannis acquired 75% shareholding in Coleus, and left the remaining 25% with Nokusa Packaging, our BEE partner. We are ready to do business with everyone," says Ian Victor, the Managing Director of Coleus Packaging.

While SAB is no longer a majority shareholder, Coleus will still be supplying the brewer with metal crowns, as well as other customers in the brewing and beverage market.

The Astir Vitogiannis deal also represents a huge vote of confidence in South Africa and is expected to create approximately 40 jobs throughout the company in the coming years – from blue-collar to administration.

"The heavy investment in our company means we are on track to become more globally competitive and it also provides the opportunity to diversify and move into other metal closures," says Victor.

Coleus is the largest supplier of metal crown closures for the brewing and beverage industries in Southern Africa, and the company plans to extend beyond its current footprint in the Southern African Development Community (SADC) region into the rest of Africa.

The current big change in the factory is the investment in the form of the PMC 500, a press and lining machine manufactured by Italian original equipment manufacturer (OEM) SACMI. The machine takes printed and decorated tin-free metal sheets and cuts and moulds them into shells. The machinery is expected to provide growth opportunities and improve plant efficiencies, too.

"This investment proves that Astir Vitogiannis is serious about growing its market share in Southern Africa and through the continuous investments expected over the next few years it will ensure we become a regional and globally competitive organisation," says Victor.

The company invested about R40 million on acquiring and installing the new machine and the company's manufacturing capacity will increase by about 20%. Further, the investment is also expected to contribute to reducing costs, as jobs will run at an increased speed, while maintaining high-quality metal crowns.

The increased speed in product output, in turn, leads to fewer customer complaints and lower prices for brewery and beverage industry customers, which will enable Coleus to gain more customers and increase its market share.

The PMC500 will ensure the company's yearly output increases from six billion units to between seven billion and eight billion units, with 5 000 metal crowns produced a minute

The PMC500 will ensure the company's yearly output increases from six billion units to between seven billion and eight billion units, with 5 000 metal crowns produced a minute. ■

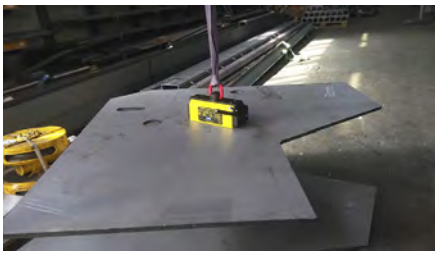
Duncan Macdonald appointed

South Africa agent for Assfalg industrial lifting magnets and surface finishing technology equipment

Duncan Macdonald Company Ltd, an importer of engineering tools and accessories for the metalworking industry, as well as a local manufacturer of Tapmatic cutting fluids and coolants, has added German manufacturer Assfalg's products to the list of international companies and products that they market in South Africa.

Assfalg Gmbh, founded in 1932 and based in Schwäbisch Gmünd, is a 4th generation manufacturer of magnetic clamping and lifting tools and equipment in surface finishing technology. Nationally and internationally they supply the metalworking industry and offer solutions and tools for stationary and mobile material handling for the metalworking engineering industry. The company offers both standard products and special solutions tailored to the customer's needs. Assfalg has also manufactured individual machines for a long time in deburring and chamfering technology.

"Assfalg is a hidden champion with many years of experience and research in the fields they operate in, namely material handling, clamping, hoisting and gripping with magnets and surface processing and finishing of materials. They have a penetration in many different industries and situations but typically you will find them in a mechanical engineering company processing sheet, plate and castings, tool manufacturing, plant engineering, steel construction, shipbuilding, transport company or materials store situation, whether it be for raw material, semi-finished and finished products," explained Keith Opperman, Managing Director of Duncan Macdonald Company Ltd.



"Industrial lifting magnets are critical to material handling in scrap processing facilities, and they sometimes are misunderstood. It is imperative that operators understand that the lifting magnet's role is critical to the success and profitability of their businesses."

"If a magnet is used per the manufacturer's specifications and recommended best practices are followed, it can lead to increased production, a lower occurrence of unscheduled downtime, lower overall maintenance costs and greater service life, not only for the magnet but also for related equipment."

"The deburring, grinding, chamfering and vibratory equipment they manufacture is perfect for metal heads that require precision finishes on their components."

Duncan Macdonald & Co

Besides manufacturing and distributing Tapmatic cutting fluids Duncan Macdonald & Co also distributes products such as machine lubricants and coolants, tapping attachments, taps and dies, drive and live centres, grippers, carbide cutters, deburring tools, snaplocks, measuring equipment, multi spindles and end mills.

The company also markets the Grippex automatic bar puller for CNC lathes, which is a cheaper alternative to more expensive bar feeders. Besides Tapmatic and Grippex the company also represents well-known names such as Reime, Henniger, Hasberg, OMG and Diatest.

For further details contact Duncan Macdonald & Co on TEL: 011 444 4345 or visit www.macduck.co.za ■

Machine Tools Africa 2024
for everything that twists, turns, rotates, cuts, forms, bends or shapes

South Africa's biggest machine tools exhibition is taking place from 21 to 24 May 2024 at the Johannesburg Expo Centre in Nasrec and will be showcasing cutting-edge developments across the machine tool and related industries and the very latest global machine tool technology. Machine Tools Africa 2024 will also highlight the importance of local suppliers and their international manufacturing partners.

The exhibition is seen as an important and relevant platform where buyers and sellers can meet face-to-face in a relaxed informal environment. 87 per cent of visitors attending the previous show went there in search of new products and solutions, and to learn about the latest technologies and trends.

At this year's show, visitors can expect to see a wide range of products. From machinery and tooling, to control systems, robotics, design, accessories, and everything that twists, turns, rotates, cuts, forms, bends or shapes. Senior purchasing decisionmakers will have the opportunity to find what they need to take their manufacturing processes to the next level.

Machine tool industry outlook

Speaking at the recent Machine Tool Merchants Association AGM, the MTMA Chairperson Joanne Canossa described the past year as a high-speed rollercoaster for the industry. It is recognised that Machine Tools is a key driver in various sectors such as manufacturing, fabrication, engineering, and construction, and plays a part in the country's economic growth. MTMA members have made significant strides focussing on being industry leaders in supplying quality machines and technology to the local market, but last year wasn't without its challenges.

Canossa explained that, whereas the industry had enjoyed a growth of 20.7% during 2023 up until Q3 compared to the previous year, there was a weakening demand for machinery and equipment during the latter part of the year due, in part, to reduced manufacturing production in South Africa. The decline being largely a consequence of the country suffering the worst load shedding on record during September.

"We are faced with local as well as global challenges and, as key players in the industry, we need to understand the magnitude of this impact and how we can mitigate any risks for the future," advises Canossa.

Machine Tools Africa exhibition and its support to industry

Canossa believes Machine Tools Africa will be a great step towards the recovery and upgrading of local manufacturing businesses in South Africa, with advanced technology, software, automation, and industry 5.0 making more of an appearance at the show.

"Industry players have an opportunity to highlight technological advancements and also how technological infrastructure for human-machine collaboration can streamline processes and improve high level decision making," says Canossa. "It will be very exciting to see how our members as well as other companies utilise this platform to target and entice the manufacturing sector."

Education and skills development remain central to South Africa's steel industry. Training and development of competent skilled staff has become a concern to the growth of the sector. World Skills South Africa will be participating at Machine Tools Africa to highlight their work in this area and to promote the much lacking vocational training in our country.

Visitors will also have the opportunity to listen to industry experts speaking at the free-to-attend seminars, sharing their knowledge and experience across a wide range of important and current industry topics.

Collaborative partnership

Machine Tools Africa is an event owned by the Machine Tool Merchants' Association of South Africa (MTMA) in partnership with Specialised Exhibitions, organisers of the event.

"We are delighted to again be in partnership with the Machine Tool Merchants Association for this year's edition of Machine Tools Africa," says Charlene Hefer, Portfolio Director at Specialised Exhibitions. "The collaboration is significant as our combined expertise and industry insights will bring immense value to our exhibitors and attendees alike."

Specialised Exhibitions is a division of Montgomery Group. For more information, visit the Machine Tools Africa website www.machinetoolsafrica.co.za or contact Dee Miloa at dee.miloa@montgomerygroup.com ■

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KYB Academy opens new technical training facility in Potchefstroom for artisan careers and skills in the engineering, mining and manufacturing space

TH Machine Tools supplies metal shaping and forming equipment.

KYB Academy has taken new steps in 2024 to further succeed in technical artisan training by launching its technical training facility in Potchefstroom. TH Machine Tools has supplied conventional lathes and mills

Kitso Ya Boleng (KYB) means "quality knowledge" in the language of Setswana and the founders of KYB Academy take the meaning of them literally in their quest to make a change in the quality of South African education offered in the North West Province.

Established in 2016 by a small group of people KYB Academy comprises of a technical college, a bridging programme, a graduate programme and a teacher's training programme, that is headed up by CEO Tiaan Jooste.

The three programmes offered by KYB Academy are KYB TEPP (Tertiary Education Preparation Programme), KYB TECH (Technical Artisan Programme) and KYB GRAD (Graduate Support Services Programme).

The academy's vision is to break the cycle of benefit dependency and increase workplace efficiency by empowering students with quality education and training. Its mission revolves around professional growth, positive learning experiences, and preparing students for a myriad of career opportunities.

The academy's key objectives include providing high-quality education, fostering innovation and research, promoting inclusivity, engaging with the community, integrating technology, and focusing on health and wellness.

Committed to preparing students for in-demand technical careers, KYB Tech aligns its courses with the National Scarce Skills List, ensuring a dynamic, research-driven learning environment. Structurally, KYB Tech is directed by management and supported by a team of senior training officers and specialised facilitators, ensuring a high standard of training and student support.

KYB Tech's programme offerings are diverse, accommodating 360 students annually with growth potential. The programmes include automotive motor mechanic, boilermaker, diesel mechanic, electrician, fitter and turner, mechanic, millwright, transportation electrician, and welder. These programmes are designed to equip students with both theoretical knowledge and practical skills, preparing them for successful careers in the artisan trades. Additional programmes like the technical preparation bridging course, CNC operator and basic DIV modules further enhance the students' skill sets.

Embedded in KYB Tech's ethos are values such as respect, attitude, pride, health, honesty, love, gratitude, empathy, kindness, and growth. These values contribute to the holistic development of students, fostering a well-

The forming side of metalworking is covered with a CNC plasma cutter, a guillotine, a press brake and a plate rolling machine, all supplied by TH Machine Tools

KYB Academy has also purchased a CNC lathe from TH Machine Tools

rounded educational experience. The fee structure of KYB Tech is comprehensive, catering to a wide range of financial capabilities, and the academy offers extensive student support, including mentoring, career preparation, psychosocial support, and progress monitoring.

New technical training facility

The KYB Academy has taken new steps in 2024 to further succeed in technical artisan training by launching its technical training facility in Potchefstroom.

This state-of-the-art training facility, located on the corner of R53 (Parys Road) and Modderdam Road, comprises nine accredited programmes for automotive motor mechanics, boilermakers, millwrights, diesel mechanics, electricians, fitters and turners, mechanical fitters, transportation electricians, and welders.

One of the main suppliers of the equipment was TH Machine Tools. Included in the equipment supplied was a CNC lathe, conventional lathes and mills, a CNC plasma cutter, a guillotine, a press brake, a plate rolling machine, some grinders and drilling machines and a bandsaw.

KYB Academy hosted an open day from 2 to 3 February with various stakeholders and prospective students participating in the interactive two days.

Current students and assessors showcased various fields to prospective students and provided course information during a practical tour of the new training facility. KYB Tech is a registered private TVET College and QCTO skills development provider with dedicated and qualified staff who are experts in their fields.

According to Tiaan Jooste, chief operating officer at Kitso Ya Boleng, the main goal of the technical training facility is to equip students with a quality education that empowers them with knowledge and practical skills for the workplace.

"10 months of training is done on-site, where they utilise theoretical and practical components. Work-integrated learning then follows. The focus is to get students up to the standards of the industry. We want companies to know that when a job applicant has qualified via KYB, they are the number one choice," elaborated Jooste.

For further details contact KYB Academy on TEL: 018 011 9581 or visit www.kybacademy.co.za ■

Students can learn their trade by operating the grinders and drilling machines that have been installed by TH Machine Tools

This state-of-the-art training facility, located on the corner of R53 (Parys Road) and Modderdam Road, comprises nine accredited programmes for automotive motor mechanics, boilermakers, millwrights, diesel mechanics, electricians, fitters and turners, mechanical fitters, transportation electricians, and welders

Glencore encouraged by collaboration between miners and car manufacturers

At this year's Mining Indaba, Marie-Chantal Kaninda, President of Glencore in the Democratic Republic of the Congo (DRC), participated in a forum on 6 February discussing the shape of a successful business relationship between car manufacturers and mining companies. As the growth of the electric vehicle (EV) market globally has driven demand for minerals produced in Africa, including cobalt, supply chain transparency and security have become crucial issues. Across its operations, Glencore is supplying battery minerals to a range of major car manufacturers to support their EV ambitions.

In the DRC, Glencore produces copper and cobalt, two strategic resources important for the energy transition, through its two operations, Kamoto Copper Company and Mutanda Mining. Cobalt, in particular, is used in current battery technologies, including EVs, making the car industry one of the main consumers of the commodity. According to the Cobalt Institute, in 2022, the DRC produced 73% of the world's mined cobalt.

"Commodity companies and vehicle manufacturers need to work together to support the energy transition, including addressing challenges affecting the supply chain. For such a relationship to be productive, we believe transparency is key. We are committed to sourcing commodities in a manner that respects the rights of our workforce, communities, those involved in our supply chains and stakeholders affected by our business," said Marie-Chantal Kaninda.

"The DRC has historically been seen as a risk in this regard and we recognise cobalt from artisanal and small-scale mining (ASM) operations is a reality in the global supply chain. While we do not use ASM material in our DRC operations, we support the efforts by responsible sourcing initiatives and international organisations to improve practices and address the risks of human rights violations."

For Glencore, responsible sourcing, or supply chain responsibility, is the commitment to take into account social, ethical and environmental considerations when managing relationships with suppliers and customers, as well as to conduct due diligence on their supply chains and mitigation of human rights risks. It also includes encouraging site visits by supply chain representatives, and active participation as members in industry forums such as the Fair Cobalt Alliance (FCA) and the Global Battery Alliance (GBA).

Kaninda added: "We welcome opportunities like this to engage with car manufacturers that go beyond risk management and look at ways we can work together to realise development opportunities for mining communities and surrounding ecosystems." ■

Naamsa welcomes government's strategy to support the transition to electric vehicles

The Automotive Business Council has welcomed the announcement made by the Minister of Finance, Enoch Godongwana during his Annual Budget Speech 2024 to support the transition to electric vehicles through a strategic and investment driven plan. "Recognising the global shift towards sustainable mobility solutions, we welcome government's strategy to promote the production of EVs in South Africa," said Mikel Mabasa, Naamsa CEO.

"A notable component of the Minister's announcement is the introduction of an investment allowance for new EV investments, set to commence in March 2026. This allowance enables businesses and investors involved in EV production to claim 150% of qualifying investment spending in the first year. This financial incentive is a crucial step in attracting investments, fostering innovation, and driving the growth of the EV sector within South Africa," Mabasa said. "We welcome government's decision to reallocate funds to specifically support the transition towards our broader evolution towards new energy vehicles because this demonstrates a commitment to provide the necessary fiscal support for the development and adoption of EVs, aligning with global efforts to reduce carbon emissions and promote sustainability," Mabasa said.

The investment allowance for EVs is highlighted as a ▸

complementary initiative to the existing Automotive Production Development Programme [APDP]. While this synergy underscores the government's holistic approach to supporting the automotive industry, the composition of APDP post the investment phase remains a critical lever in ensuring the transitioning from traditional internal combustion engines to a dual platform that includes electric vehicles by 2035.

Industry support and critical considerations

While Naamsa welcomes today's progressive steps in the right direction, Mabasa said the industry will continue to engage with Government to carefully manage some of the challenges associated with the implementation of the APDP, especially concerning vehicles with limited local content due to the predominant location of battery production in Japan, South Korea, and China. In the short term, the existence of low local content necessitates Government's consideration to support other key technologies such as traditional hybrids and plug-in hybrids. "We hope to compare notes around the adoption of an APDP rate specifically designed to cover instances of low local content and the exploration of effective strategies to address the adoption of locally produced EVs. The aim is to ensure that the advantages of the programme keeps the local industry globally competitive," Mabasa said.

Naamsa also said that the allocated R964 million should be viewed in the context of the average annual investments by OEMs, which currently stands at approximately R5 billion. While government's commitment is evident and welcomed, it is important to recognise the scale of investments required by industry. This funding should be seen as a significant initial step, with further collaborations and investments anticipated in the coming years. It is also important to note that the 2026 implementation rollout date for the investment allowance does not cover the pre-investment cycles before some of the production starts. Naamsa will engage Government to address any potential gaps in the timeline, ensuring that the incentive framework aligns with the industry's pre-production requirements. ■

Port inefficiency threatens to overtake load shedding as single biggest threat to national wellbeing

"Another year, another blast of hot air about the state of the nation," said John Lawson, CEO of the Cape Chamber of Commerce & Industry, in response to the latest SONA speech by President Cyril Ramphosa.

"But when the sound bites are all cleared away the Province still sits with the same enormous headache smack in the middle of the regional economy: Transnet."

"Inefficiency at the country's ports threatens to overtake load shedding as the single biggest threat to national wellbeing, that is if it hasn't already done so. While businesses and wealthier households can invest in alternative power, there is no circumventing the country's ongoing logistics crisis. In the case of the Western Cape, our economy is hostage to the nuts and bolts of gantry cranes and the staff that keep them going."

"Port stakeholders, the Cape Chamber included, can be forgiven for feeling frustrated by the number of detailed power point presentations offered up by way of port corrective action, with the latest blueprint delivered earlier this month at yet another port stakeholder meeting. There is no shortage of promises, amidst an apparent shortage of just about everything else. Plans speak of new purchases and operational improvements – exactly what stakeholders hope to see in reality, rather than in policy frameworks."

"There are also assurances, from the Presidency down to TNPA, of public-private partnership to address the most pressing challenges off the day. And yes, private concessions are forthcoming, each one hailed as proof of government's commitment to economic development."

"Yet underlying all of the verbiage is the same unanswered question, more troubling the longer it remains. Why is government holding on to the vital Cape Town container terminal? The steady decline of this most essential facility, the heartbeat of the local economy, is there for all to see. Even as government professes transparency and efficiency, it clings to the asset most in need of repair. The challenge at the port is not complexity or weather or equipment; it is merely the fact that, compared to the private sector, government is terrible at running a business."

"Moving containers on and off ships happens speedily all over the world, often in circumstances a lot less resourced than Cape Town. It is not rocket science. Private sector companies produce vehicles consisting of 25 000 components; local firms build satellites that orbit the earth. Why not let the free market work out the best way to load a ship?"

"The continued failure to fix the container terminal doesn't make sense. Or does it? Is there a logic to government's dogged resistance to private sector partners inside the port's key engine room?"

"The longer the port fails to deliver the more the numbers add up to dereliction of duty at a time when government preaches transparency but fails to put it into practice." ■

Volkswagen builds 1.5-millionth export vehicle

During the night shift on Monday 19 February, the production team of Volkswagen Group Africa celebrated a milestone when the 1.5-millionth vehicle built for export in Kariega rolled off the line.

The milestone vehicle, a Polo GTI destined for the United Kingdom, also marked the 21 165th vehicle built for export this year alone. The Kariega plant built 101 557 Polos for export last year. The plant's record for export units in one year was in 2019, when the team built 108 422 vehicles for export markets.

Volkswagen Group Africa has been building vehicles for export since 1992, including models such as the Volkswagen ▶

Jetta and Golf. Currently the Kariega plant is the sole manufacturer of the Volkswagen Polo, exporting this vehicle to 38 markets worldwide. The plant has been building the current Polo since January 2018 and began production of the facelifted Polo in August 2021; it also produces the popular Polo Vivo for the South African market.

"Celebrating another production milestone this early in the year sets the tone for a successful 2024," said Ulrich Schwabe, Volkswagen Group Africa Production Director. "Volkswagen Group Africa remains a strong player in the export space and I am proud of the team behind milestones such as these. As the home of Polo we intend to continue building and delivering our high-quality vehicles to customers around the world – and hopefully achieve many more milestones along the way."

On the road to being carbon neutral

Aligning with the priorities of the Volkswagen brand worldwide, Volkswagen Group South Africa (VWSA) has set its sights on an ambitious goal - for its Kariega plant to become a carbon neutral production plant by 2030.

VWSA is already well on their way to achieving this, putting environmental sustainability first through a range of projects being implemented at its Kariega plant, as well as its sites in Sandton and Centurion.

Under the umbrella of their Zero Impact Factory programme, VWSA has placed its focus on biodiversity, clean energy, efficient resource management and waste reduction, to name a few. ■

Denel concluding Hoefyster development but fewer vehicles to be manufactured

Denel is busy concluding development of the Badger infantry fighting vehicle (IFV) under Project Hoefyster, while revised production costs will see fewer vehicles manufactured for the SA Army according to a Defenceweb article.

Armscor this week briefed Parliament's Portfolio Committee on Defence and Military Veterans (PCDMV) on the status of Hoefyster and other matters, noting that the project had stalled since 2019, mainly due to deviations from contracted specifications and financial constraints within Denel.

Project status was "interrogated" by the State-owned defence and security acquisition company last year, with Armscor presenting a proposed way forward to an SA Army Project Control Board (PCB). To unlock development (Phase 1 of the project), the PCB accepted deviations from the original specification as well as a reduction in the number of IFVs to be built. Production quantities are now for sufficient for a single battalion (88 vehicles) and not the three originally planned.

"Phase 1 contract has been amended, and Denel is currently busy executing the outstanding development actions," Armscor reported.

Phase 2, for industrialisation and production, requires a "complete re-costing" due to the long delays experienced by the project. Armscor said it continues to engage with Denel on the proposed Phase 2 contract amendment and associated cost, and "expects that all issues for clarification and anomalies in the proposal will be resolved by the end of February 2024."

Once the Denel proposal for the revised Phase 2 has been finalised, Armscor will formally submit the proposal to the SA Army for a final decision.

Last year, Armscor said Denel expected to establish a product baseline for the five main Badger variants by the end of 2025. Under the revised Phase 1 schedule, product baseline for the Section variant is expected in April 2024; the Fire Support variant in July 2024; the Command variant in December 2024; the Missile variant in March 2025; and the Mortar variant in December 2025. Product baseline was originally scheduled for late 2017.

Project Hoefyster phase one – for the design and development of five main variants – came into effect in June 2007 with delivery expected in May 2012. This was to be followed by phase two – industrialisation and production of 238 Badgers – with a completion date of November 2023.

As a possible alternative to the capability that is to be provided by Project Hoefyster, Armscor is in parallel executing a study into the possibility of performing a life extension of the Ratel infantry fighting vehicle. ■

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Mintek adds a laser powder bed fusion 3D printer to array of cutting-edge technology

The new AMAZEMET rePowder ultrasonic atomisation and alloy development machine that Mintek has purchased. Multitrade3D Systems supplied and installed the machine

The acquisition of the AMAZEMET rePowder ultrasonic atomisation and alloy development machine by Mintek, South Africa's national mineral research council, marked a technological breakthrough for the mineral processing and manufacturing industry. Mintek is proud to announce the purchase of a GE Additive Concept Laser Mlab Cusing R laser powder bed fusion 3D printer. Multitrade3D Systems supplied and installed the machine.

With the introduction of the state-of-the-art rePowder ultrasonic atomiser machine, Mintek has positioned itself as a unique player in the industry. This advanced technology enables Mintek to efficiently process a diverse range of materials into metal powder. This development is particularly significant as it addresses the country's reliance on imported metal powder, establishing Mintek as a leader in this aspect of the industry in South Africa. It complements the atomisation capabilities at Mintek.

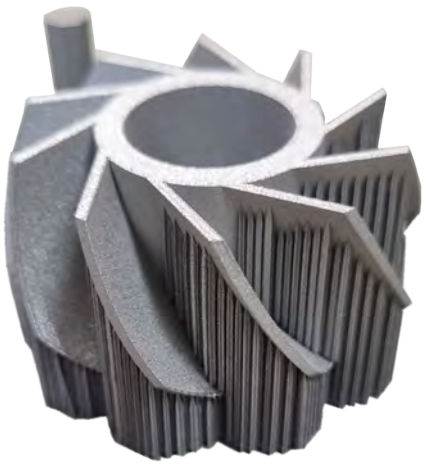
The 3D printer acquisition in Mintek's arsenal completes the value chain. From the metal powder produced by the rePowder ultrasonic atomisation and alloy development machine, Mintek is now geared to manufacture metal components and prototypes across a spectrum of industries. From crafting components for the medical, dental, aerospace, and automotive sectors to contributing to tooling, jewellery, energy generation, petrochemical, rail, and maritime applications.

Commenting on the acquisition, CEO of Mintek, Dr Molefi Motuku shared, "Mintek's new acquisition displays our dedication to having globally competitive infrastructure. This ensures that we remain relevant and attractive to partners in industry. The acquisition showcases Mintek's emphasis on scientific excellence and technological advancements, further reinforcing our reputation as a world-class solutions provider in mineral technology," Motuku added.

A significant advantage of this technology is the continuous expansion in the range of metals and alloys that can be produced, it will allow Mintek to produce parts with varying mechanical properties. Speaking about the new acquisition, Chief Engineer in Physical Metallurgy at Mintek, Dr Hein Moller expressed confidence in the new acquisition stating that: "We are excited about the new 3D printer, getting the AMAZEMET rePowder ultrasonic atomiser system meant that we can now produce metal powder for 3D printing, purchasing the 3D printer in combination with our atomisers gives Mintek a significant advantage and highlights our commitment to excellence. The custom parts and prototypes that will be produced by Mintek's metal 3D printer will solve a diverse range of urgent and cost-sensitive needs."

This new acquisition demonstrates Mintek's focused approach emphasising its scientific excellence and technological breakthroughs. "Mintek has a vital role in strengthening South Africa's international reputation in science and innovation. In order to achieve this goal, it is important for Mintek to remain abreast of the latest equipment and technology, which it is actively pursuing through its current efforts," concludes Motuku.

For further details contact Mintek on TEL: 011 709 4275 or visit www.mintek.co.za or Multitrade3D Systems on TEL: 011 453 8034 or visit www.multitrade3d.com ■



A stainless steel impeller printed by Dr Hein Moller for the Site Acceptance Test (SAT)

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Max turning Ø:	450 mm	256 mm
Spindle through hole:	81 mm	64.5 mm
Travels X/Z:	250/790 mm	198/550 mm
Rapid traverse rate X, Z:	30/30 (m/min)	30/30 (m/min)
Turret stations:	12	12
Spindle speed:	3,000	4,000
Spindle motor:	29.5HP (22 kW)	30.3HP (22.6 kW)

TM6i | TM8i, TM8Mi, TMX8i, TMX8MYi, TMX8MYSi
TM10i, TM10Mi, TMX10i, TMX10MYi, TMX10MYSi | TM12i, TM12Mi

SYIL

	L2 2-Axis	L3 Live Tool
Max turning length:	300 mm	500 mm
Max turning Ø:	380 mm	380 mm
Spindle through hole:	66 mm	63 mm
Travels X/Z:	190/360 mm	190+10mm/550 mm
Rapid traverse rate X, Z:	30/30 (m/min)	30/30 (m/min)
Turret stations:	8	12
Spindle speed:	4,000	4,000
		Options: Y-axis, Sub Spindle

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South African platinum industry could shed up to 7 000 jobs to cut costs

South African PGM miners, home to around 70% of global mined platinum output, are discussing the need to restructure unprofitable production, the council said at the recent Investing in African Mining Indaba conference in Cape Town, Reuters reported. The Minerals Council SA (MCSA) said that restructuring of South Africa's platinum group metals (PGM) industry in response to rising costs and falling prices could result in between 4 000 and 7 000 job cuts.

Pilansberg Platinum Mine

The Minerals Council said the sector, largely dependent on automakers' use of PGMs to curb exhaust emissions from engines, faces 'a great deal of uncertainty' as the world pivots towards electric vehicles. Top global PGM producer South Africa has some of the world's oldest and deepest platinum mines, which are expensive to operate, especially when metal prices are low.

The prices of palladium and platinum fell by 40% and 15% last year, respectively, mainly because of weak demand in China.

Electricity and labour costs account for most of PGM miners' total costs, the Minerals Council said in a statement.

"In light of this, various prominent PGM miners are restructuring their operations potentially impacting between 4 000 to 7 000 jobs," it added.

Anglo American's CEO Duncan Wanblad told delegates at the Indaba that margins for mining companies facing declining ore grades and sharply increased input costs evaporate quickly.

"What matters is the industry's and government's ability to navigate these challenges to ensure that the industry does survive and prosper - yes with smaller direct workforces - and this is a reality that the industry is contending with right now," he said in a speech at the Cape Town conference.

Anglo's South African PGM unit Anglo American Platinum (Amplats), which employs over 20 000 workers in South Africa, is reviewing costs. Anglo American as a whole aims to cut capital expenditure by $1.8 billion by 2026, after reporting lower profits and returns for the first half of the financial year.

Sibanye Stillwater, South Africa's biggest mining sector employer, has also said its planned restructuring could lead to the closure of four loss-making PGM shafts and the loss of 4 095 jobs.

Impala Platinum said it was offering voluntary job cuts to workers at its South African operations. ■

3C Metal Belmet South Africa wins order to fabricate main frame structural steelwork for De Beers Marine's generation crawlers

3C Metal Belmet South Africa has been commissioned by De Beers Marine to fabricate the main frame structural steelwork for two next-generation crawlers for Debmarine Namibia's newest diamond recovery vessel, the MV Benguela Gem.

The scope of work includes the steelwork fabrication of the crawler's track and main frames, which will be delivered to the De Beers Marine Mining Systems Workshop, where the full final assembly of the crawlers will be done by De Beers Marine.

The work involves about 200 tons of fabrication, intricate structural assemblies and mechanical components, shop detailing, heat treatment, machining and assembly at the Cinco workshop in Cape Town Harbour, South Africa.

For the fabrication phase, the team is using Easy-Laser's advanced measurement and alignment technology in conjunction with line boring machinery to obtain tolerances of less than 0.05mm over a length of 5 metres.

The team is assisting De Beers Marine in developing machining and measurement techniques for complex ▸

machining requirements.

The work requires machining of 34 complex assemblies, ranging from half a ton to 58 tons and assembly before delivery. The team will conduct a trial fit of the crawler main frames and track frames, which involves three machined assemblies collectively weighing more than 100 tons.

3C Metal Belmet says it is very pleased to be once again carrying out important work for the MV Benguela Gem, having previously delivered major scopes for the construction of the vessel, such as the general treatment plant facility and crawlers.

The MV Benguela Gem was launched in March 2022 and is operated by Debmarine Namibia, a joint venture between De Beers Group and the government of the Republic of Namibia. The MV Benguela Gem produces around 1.4 million carats of marine diamonds annually, bringing in a revenue of more than $669.5 million every year.

3C Metal Belmet South Africa has been commissioned by De Beers Marine to fabricate the main frame structural steelwork for two next-generation crawlers for Debmarine Namibia's newest diamond recovery vessel, the MV Benguela Gem. The work involves about 200 tons of fabrication, intricate structural assemblies and mechanical components, shop detailing, heat treatment, machining and assembly. The work requires machining of 34 complex assemblies, ranging from half a ton to 58 tons and assembly before delivery. The team will conduct a trial fit of the crawler main frames and track frames, which involves three machined assemblies collectively weighing more than 100 tons

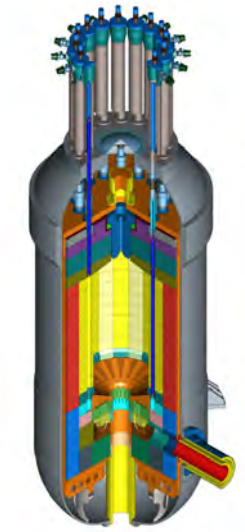
3C Metal Belmet is a multinational company focused on delivering turnkey engineering, procurement, construction and installation services to heavy industries, including the oil and gas, petrochemical, renewable energy, power generation, marine and mining industries. It specialises in structural steel and piping fabrication, with a core speciality of high-pressure (HP) piping processes and techniques.

For further details contact 3C Metal Belmet South Africa on TEL: 021 949 6346 or visit https://www.3cmetal.com/3c-metal-group/3c-metal-belmet-south-africa/ ■

South Africa could be a nuclear reactor exporting country

At the recent Mining Indaba held in Cape Town Dr Kelvin Kemm, Chairman of Stratek Global, stated that South Africa can be a nuclear reactor exporting country. He said that South Africa was the first country in the world to start developing a commercial Small Modular Reactor (SMR). South Africa is now a world leader in SMR development and is in a position to build the prototype immediately. This is an entirely private venture.

"The South African reactor, the HTMR-100, has been designed to be ideal for deployment in remote areas. The Reactor does not need a large body of water for cooling purposes since it is cooled using helium gas. This was a very intentional South African design decision to enable extreme versatility, particularly with African countries in mind. Such reactors are affordable and can be owned by governments, provinces, municipalities and private companies, such as mining companies."



A drawing of the locally developed HTMR-100

Dr Kemm said that over the past year, much interest has been shown in the local reactor internationally. He revealed that Stratek Global is in advanced talks with more than one foreign funder with a view to raising R10 billion privately. Foundation agreements have already been signed with more than one company.

Dr Kemm said now is the time for both private enterprise and government to exhibit the courage of real leadership and to support the venture. He pointed out that far too many business and government leaders make public statements about advancing the electricity supply of the country, but then just sit and wait for somebody else to actually make a meaningful move.

An artist's impression of the HTMR-100 reactor that has been designed to be ideal for deployment in remote areas

Dr Kemm revealed that a dozen African countries have already formally notified the International Atomic Energy Agency (IAEA) of their intention to follow a nuclear future. Dr Kemm said that any African country can afford an SMR and can operate one without any problem. It is a myth that nuclear is only destined for large wealthy countries.

Dr Kemm also pointed out that foreign countries were poaching South African nuclear professionals at an alarming rate.

"For example, in the UAE, 160 South Africans are currently working on the new Barakah nuclear plant there, and in the US, whole teams of nuclear engineers are South African. If South African leaders do not exhibit some leadership now then we risk losing more of our people and losing a fantastic opportunity to become exporters of nuclear reactors," said Kemm.

Kemm emphasised that South Africa exporting the locally developed HTMR-100 does not mean that we would also not build large nuclear reactors in collaboration with foreign suppliers. An SMR produces 35 megawatts of electricity in comparison to about 1 400 megawatts as produced by a large reactor, such as those at Koeberg.

For more information contact Dr Kelvin Kemm of Stratek Global on +27 82 376 5551 or email kelvin.kemm@stratekglobal.com or visit www.stratekglobal.com ■

Major blow for one of South Africa's biggest employers

The latest data from the Minerals Council South Africa shows that the mining sector's contribution to GDP crashed 12% in 2023 due to the electricity and logistics crises that have hit mining companies hard.

Despite this, the council said that the mining sector is still pulling its weight and fulfilling its end of the "social bargain" by contributing to job creation and higher tax revenues.

Broadly, a "social bargain" is an acknowledgement that mining companies benefit from the country's natural resources and, in return, have a responsibility to contribute to the development of the communities in which they operate. This includes providing jobs.

According to the council's Facts & Figures 2023 booklet, South Africa's mining sector saw an increase in jobs and delivered a higher contribution of taxes for the fiscus in 2023.

Data from the report shows that the sector added more than 7 500 jobs in 2023, employing more than 477 000 people in total.

The industry also contributed R135.3 billion to the country's fiscus, with wages increasing to R186.5 billion, which the council said "supported livelihoods in a weak domestic economy characterised by high unemployment."

"It is gratifying that the mining sector again delivered a crucial contribution to the South African economy despite the ▸

significant constraints caused by unprecedented electricity load curtailment, debilitating rail and port failures and pervasive criminal activities during the year," said Mzila Mthenjane, the CEO of the Minerals Council.

The mining sector in South Africa faced a tumultuous 2023, with the council saying that its expectation is that mineral sales will post its first calendar year decline since 2015 and the largest annual fall since the global financial crisis in 2009.

In 2023, the South African mining sector saw:

- Mineral sales falling by more than 13% in the first ten months of 2023
- The direct contribution of mining to South Africa's gross domestic product (GDP) fell by 12% to R425.6 billion, and its percentage contribution to GDP dropped to 6.2% from 7.3%
- Mineral exports fell by more than 11% to R781.6 billion
- PGM sales saw a 33.3% annual decline to R199 billion
- Total estimated coal sales declined 22% to R192.2 billion

Mthenjane said that "electricity load-curtailment that was a particular constraint on deep-level mining in the precious metals industry, debilitating rail and port failures that adversely impacted the bulk commodities sub-sector, pervasive criminal activity, the devastating loss of life late in the year and. the commodity price cycle turned against PGM and coal miners," were some of the biggest contributors to the sector's woes.

As a result, towards the end of 2023 and the beginning of 2024, many mining companies announced restructuring processes.

"Fast-tracking structural reforms in the energy and logistics sectors, agreeing inflation- and productivity-related wage increases, implementing reasonable electricity tariff hikes, and improving municipal service delivery are crucial to the competitiveness of the industry," says Hugo Pienaar, chief economist at the Minerals Council.

The council said it remains "cautiously optimistic" for 2024, hoping for "less intense and frequent load shedding, progress on the mining logistical front, an improved mine safety performance, and a downward trend in criminality around mine sites." ■

Leading Edge fabricating

When you choose to put the words leading edge into your company name you immediately put yourself under pressure just by the connotation. Beyond the buzz words Leading Edge Engineering has carved themselves a niche in the wine, fish and poultry processing, brickyards/ crushers, building, packaging, effluent management, and bakery industries with their innovative thinking and service orientated manufacturing.

"If you don't give the clients the service they expect they soon find somebody else to work with, no matter how niche you think your services or products are. Especially in the competitive industries that we work in," said Johan Cilliers, one of two partners in the business.

"The company was registered in 2006 but we only started trading in 2008, just before the recession. It was either sink or swim. Fortunately, we took the latter option."

Cilliers and partner Gaffie le Roux both have mechanical engineering backgrounds, attaining their qualifications from Stellenbosch University and Cape Technikon respectively.

"We had both gained some industry experience before we formed our business partnership just over 15 years ago. At that stage of our lives we weren't working machines on the shop floor but, with our mechanical orientation we were not scared to get our hands dirty. This still holds true today as sitting behind a computer is not appealing," continued Cilliers.

"Like many companies we started off small and have grown to now employing 40 staff. We are both from the Stellenbosch / Strand area so I suppose it was inevitable that we would get involved in the wine industry in some form. We haven't quite reached the stage of owning our own wine farm but we are very grateful for what the wine industry has given us."

"The vineyard cycle is split into different stages throughout the year, each critical to the success of the grape growing cycle. The stages are concluded with the annual grape harvest, at which time vines enter the last stage: Winter dormancy. How the vines are cared for during the winter period is crucial for the success of the next year's vintage," explained Cilliers.

"But we are not interested in the actual growing of the vines unless of course there is mechanical equipment involved."

"Wineries rely on a variety of equipment in their daily operations - equipment that needs to run smoothly for the business to continue to run smoothly. Regular, preventive maintenance is an important (but often overlooked) part of

Conveyor systems are one of Leading Edge Engineering's specialities. This one is used for off-loading fish from the boat

Leading Edge Engineering have also manufactured a diving bell used for shark viewing for a client in Gansbaai. The bell was used in a TV programme done by the Discovery Channel

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"We decided to invest in a hand-held laser welding system from Hugong HGLW and supplied by TRM Supplies because of the potential it offers to the job shop environment that we operate in. Manual fibre laser welding will never replace the traditional MIG and TIG welding processes. But it gives a company like ours an opportunity to offer an extra finishing fabricating service. Once we have cut, punched or bent sheet for a client we can now offer a welding service. It is quick and easy to use, faster than the traditional welding processes and the finish is better."

Leading Edge Engineering have also invested in a JFY EFC 2kW fibre laser that has a bed size of 2m by 1.5m. The high-performance mid-price laser machine is equipped with TruFiber Cut and a Precitec cutting head. The machine is ideal for Leading Edge Engineering as they are only cutting material gauges of 1.5mm, 2mm and 2.5mm. The machine was supplied by Puma Machine Tools

Before delivering and assembling at a client the equipment manufactured by Leading Edge Engineering is tested in-house

owning equipment. From irrigation systems to tractors, a systematic approach to maintenance should be developed, including tasks to be performed on a daily, weekly, monthly and yearly basis. Neglecting required maintenance results in equipment breakdowns and production stoppages. On the other hand, preventative maintenance will control costs, manage assets as your business scales, improve safety and compliance, and optimise resource allocation — all while driving long-term success and contributing to the bottom line."

"Equipment breakdowns will (inevitably) occur, often causing damage to the machine and loss of production. Regular preventative maintenance lets you proactively identify and address potential equipment failures before they occur. Properly maintained equipment will have a longer lifespan, and money will be saved in replacement equipment costs each year. Regular maintenance ensures equipment operates at optimal levels, which leads to reduced energy consumption and lower operating costs. It also prevents production stoppages, which can result in decreased quality and lost revenues. Proactive scheduling of maintenance means work can be streamlined. Idle time is reduced and more tasks can be completed in less time, saving money on labour costs. The end result is higher customer satisfaction, excellent product quality and costs kept in check. Performing preventative maintenance does cost money in labour and parts. However, it's far less costly than the alternative."

"Maintenance projects and reconditioning of plant

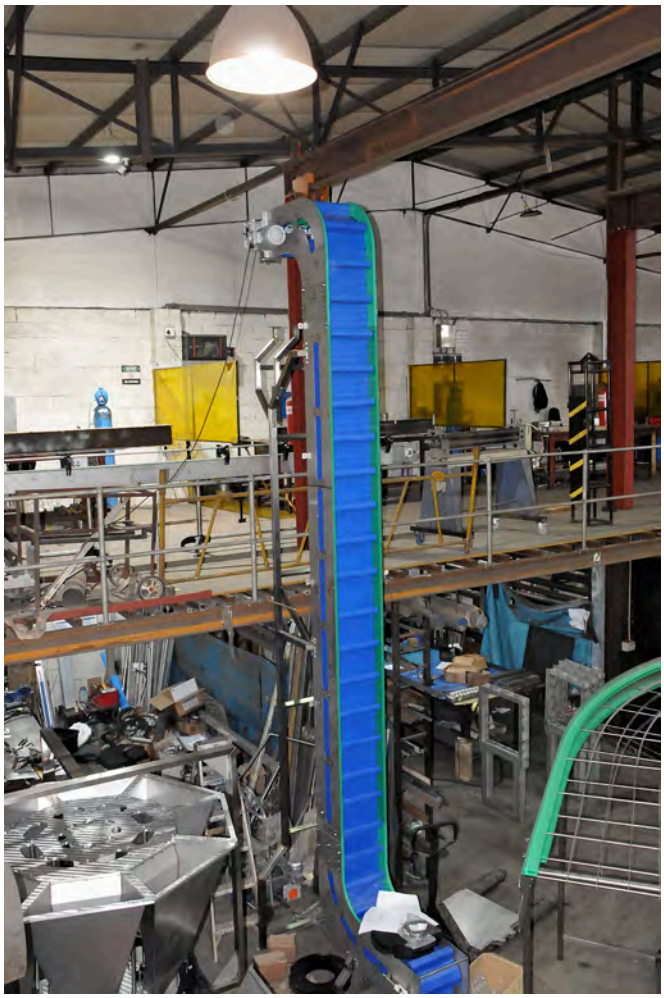
Leading Edge Engineering will cut, bend, weld, fabricate and assemble components for clients

The company has recently purchased a JFY TPR 8225/3100 CNC press brake which has a mouth of 3 100mm and a press force of 225 tons. This machine was supplied by Puma Machine Tools

equipment for the wine industry make up a decent portion of our daily manufacturing and fabricating requirements. But we are not limited to the wine industry nor are we limited to maintenance type work."

"Custom manufacturing forms a big part of our mechanical engineering solutions. For example, from inception of the company we have been designing, manufacturing and installing conveyor systems of different sizes and lengths. Automation comes in many different forms and material handling equipment forms an intricate part of a production line."

"Anyone in manufacturing moving product or components from point A to point B, choosing a conveyor involves working with a dichotomy: Customisation versus flexibility. On the one hand, no one conveyor is suitable for all applications. Part size, lubricant, temperature, automation, and material handling, to name a few, must all be considered. On the other hand, you need flexibility. You might not know what you'll be producing in six months let alone in six years. This creates a conundrum: How do you choose a conveyor that's suited for the current application yet flexible enough to account for unknown jobs over the horizon? The truth is it involves



Leading Edge Engineering has carved themselves a niche in the wine, fish and poultry processing, brickyards/crushers, building, packaging, effluent management, and bakery industries with their innovative thinking and service orientated manufacturing of material handling systems

A conveyor system being manufactured

balancing myriad factors."

"It is a lot simpler these days to make the correct decision, because of the tools and information you have at your disposal, but it is still a case of one size does not fit all. As with any capital investment, material handling configuration depends on the application, and with conveyors, there are no shortages of alternatives. They could be either belt, modular, screw or roller conveyers. In essence each conveyor we supply is custom manufactured."

"But we are not limited to conveyors. Maintenance at the wine, fish and poultry plants involves many different machines and wear parts. Hoppers, screw conveyors, off-loading bins, piping, shuts, strip drains, pots and grease traps, tippers and trolleys, receiving hoppers, vibration tables and sorting tables are just a few that we have designed and manufactured."

"An interesting product that we designed and manufactured for the wine industry is a stem slicer. Once the grapes have been removed the farmer then has to dispose of the stems. In its vegetative state they were taking up too much space, especially as the stems still contain water. What our machine does is it cuts the stems into smaller sizes and then crushes it, releasing all the fluids. Both space and time saving can be achieved because dumping only needs to take place twice a day instead of six times a day."

"Another machine we make for the wine industry is an automated punch down of the grapes into an open tank. I don't have to explain what that does."

Components for various products

"We have also manufactured a diving bell used for shark viewing for a client in Gansbaai. The bell was used in a TV programme done by the Discovery Channel."

"As much as we like to be involved in custom design and manufacture you also have to diversify. We have done this by getting involved in project management work that includes structural steel, catwalks and

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The company will custom manufacture catwalks, platforms, staircases and balustrades in stainless steel and mild steel

Leading Edge Engineering specialises in the engineering, manufacturing and fabricating of all types of steel products and structures and also does project management

platforms, staircases and balustrades."

"Currently we are involved with a Stellenbosch company that operates in the cycling industry. They are building a new office space and warehousing building near the Blaauwklippen area. Once the civils have been done we will do all the structural work."

"Our initial focus was mainly on stainless steel equipment, but the steep increase in Nickel prices led to our clients opting more and more for mild steel products. Currently we are roughly on a 50/50 split. However, stainless steel shows great benefits in winemaking, including ease of maintenance, longevity and temperature control, all of which make it a popular choice for modern winemakers. Used to transfer liquids around the winery, tubes are essential in winemaking."

Facilities

"We can cut, bend and roll up to 3m wide by 8mm thick. In addition, we have fibre laser cutting, plate punching, drilling, pipe rolling and spray-painting facilities. We also offer MIG, TIG and arc welding services for a material mix of stainless steel, mild steel and aluminium. Stainless steel makes up 60% of the mix."

Our draughting office will assist you with any product design and CAD drawings. In addition to working with our own

Another product being assembled

Various components that have been manufactured to replace wear parts

waterjet facilities we also liaise closely with machine shops in the area. The low volume of outsourcing allows us to negotiate excellent prices and better lead times."

"In 2012 we invested in a CNC waterjet with a bed size of 4m by 2m, greatly increasing our capabilities in fabricating equipment and components, therefore greatly reducing lead times."

"Previously we had been using a plasma cutting machine but with no support from the supplier in Johannesburg we got rid of it. They failed dismally on their service level."

"We have now invested in a JFY EFC 2kW fibre laser that has a bed size of 2m by 1.5m. The high-performance mid-price laser machine is equipped with TruFiber Cut and a Precitec cutting head. The machine is ideal for us as we are only cutting material gauges of 1.5mm, 2mm and 2.5mm. The machine was supplied by Puma Machine Tools."

"As you know if you are cutting sheet you are bound to have to do some bending. In this department we have invested in a JFY TPR 8225/3100 CNC press brake which has a mouth of 3 100mm and a press force of 225 tons. This machine was also supplied by Puma Machine Tools."

Hugong hand-held fibre laser welder

"We have been fascinated with the interest in hand-held fibre laser welders but at the end of the day it makes sense."

"We decided to invest in a hand-held laser welding system from Hugong HGLW and supplied by TRM Supplies because of the potential it offers to the job shop environment that we operate in. Manual fibre laser welding will never replace the traditional MIG and TIG welding processes. But it gives a company like ours an opportunity to offer an extra finishing fabricating service. Once we have cut, punched or bent sheet for a client we can now offer a welding service. It is quick and easy to use, faster than the traditional welding processes and the finish is better."

Manage your assets as your business grows

As your business grows and the amount of equipment necessary for operations expands, the importance of preventative maintenance becomes greater. Equipment performance can be maximised through performing scheduled maintenance such as regular inspections, lubrication, cleaning and component replacements. Equipment that operates at peak performance experiences less wear and tear, thus maintenance will expand the lifespan of the assets. Premature replacement of equipment can be avoided and funds saved can be allocated toward further expanding production capabilities.

"Leading Edge specialises in the engineering, manufacturing and fabricating of all types of steel products and structures. In addition, we also offer neat, quick and accurate waterjet cutting of any material in any thickness."

"Our USP is that we provide all our customers with quick, accurate and cost-effective solutions to all their profile cutting, machine design and project management requirements. We also have a design department that has six employees."

"A big bonus is that we operate in a business area that is conducive to doing good business."

For further details contact Leading Edge Engineering on TEL: 021 887 5172 or visit www.le70.co.za ■

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without additional machine setup

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The 9 kW variant introduces AMADA's Auto Collimation system, to provide unrivalled beam spot control - this allows very high speed piercing, fast cutting rates and vastly improved bevel angles on thicker materials – 1 second pierce on 25mm mild steel.

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LCG 3015 AJ
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Unwilling to settle for anything less than the optimal fiber laser source, Amada became the first manufacturer to produce its own fiber laser - teaming with JDSU to develop the AJ fiber engine. Unlike other fiber lasers on the market, Amada's AJ series of fiber lasers and punch/fiber laser combination machines are engineered as fully integrated systems. This comprehensive design approach optimises the inherent benefits of fiber laser technology to ensure maximum productivity and accuracy.

Despite the crowded field of fabrication equipment manufacturers, it's really quite simple. Only one company name is synonymous with leadership.

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LEDA Group – Internationally recognised leaders in precision engineering services for the dairy industry

Lesley and David Bashkier

Have you ever wondered how your butter or cheese ends up on your plate? It's often said that when you love what you do, you never truly work a day in your life. For Larry, John, and Paul Bashkier, the three brothers who run the LEDA Group based in Killarney Gardens, Cape Town, this sentiment rings particularly true. Beyond being a family endeavour, their passion for their work and the innovative solutions they devise to tackle challenges across various industries is unmistakable. This enthusiasm permeates the shop floor, where each employee shares the same dedication. One such employee has been with them for an impressive 32 years.

The LEDA Group provides specialised services to the food packaging and processing industry including the repairing, servicing, maintenance, modification and overhauling of the various machines that produce the packaging for products such as butter and cream cheese

The company was founded 37 years ago in 1986 by their parents, David, and Lesley Bashkier, but officially began operating as LEDA Engineering Services in 1988 – LEDA being an acronym for Lesley and David.

David initially worked for a large German engineering company in Cape Town, primarily focused on tobacco and food processing machinery. In addition to the tobacco industry, the ▶

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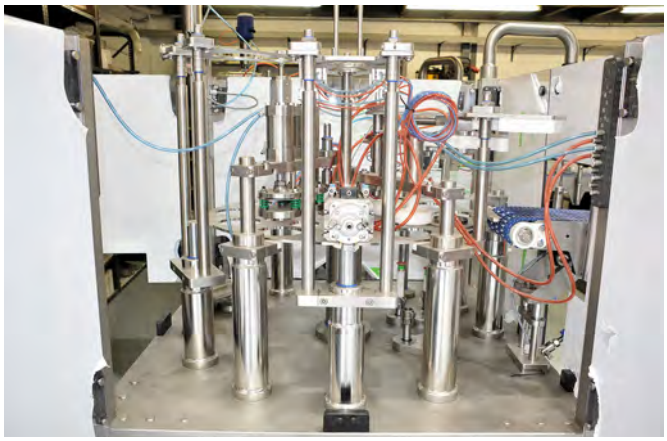


Packaging machinery is complex work and therefore a broad understanding of all the engineering involved is essential

The LEDA Group don't just rebuild packaging machinery but also fully restore and rebuild various lathes, mills and other machines

company represented various agencies for dairy equipment, including packaging machinery for margarine and butter.

Starting as an electronic support technician, David later transitioned into the mechanical aspects of the business. He began at the grassroots level, working on the bench with fitting and turning tasks. Over time, he mastered the operation of various engineering machinery, honing skills in turning, milling, gear cutting, and grinding, while also gaining extensive knowledge of the machinery the company supplied. Eventually, ascending to a management position as factory manager.

After 22 years with the company, David decided to venture out on his own. He initiated the business from home, utilising the family's double garage as a workshop space. With the purchase of a small lathe and milling machine, he laid the foundation for what would become LEDA Group. The humble double garage expanded into multiple spaces, eventually evolving into several factories in Killarney Gardens. Remarkably, the original lathe and milling machine that were used to start the business still stand on the LEDA shop floor, actively contributing to daily operations.

A precision machined component

The pivotal moment for David and Lesley came with their first significant project: The rebuilding of a butter packaging machine. This endeavour marked the beginning of their entrepreneurial journey together. Despite Lesley's passing a few years ago, David, who will celebrate his 90th birthday later this year, still visits the factory occasionally to offer guidance and observe operations.

David instilled invaluable knowledge, discipline, and passion for engineering in his sons from a young age. Larry recalls evenings when the house lights flickered and surged from the various machines in the garage drawing power as David would work late into the night completing an urgent job

Components are not always small and intricate with large production runs, one-offs and machine specific components are also a feature. The LEDA Group uses their EDM machine where necessary

One of the CNCs on the shop floor is a Doosan (now DN Solutions) Lynx 2100LSY CNC horizontal turning center, supplied by Puma Machine Tools

The LEDA Group make use of two Fanuc Robodrills on the shop floor

Another of the CNCs on the floor is a DMG MORI Ecoline CTX 310 lathe

for a customer.

Growing up, the brothers displayed a natural affinity for mechanical devices, often tinkering with motorbikes and enhancing stock parts for optimal performance in their free time after school. Thus, it was inevitable that they would follow paths into design, engineering, and manufacturing.

John explains, "Essentially, our business is divided into three main facets: Assessment and design, component manufacturing, and fitting and assembly." These three divisions must work collectively to make any of LEDA's projects a success.

Components and billet in various stages of production

"Over the years we have earned ourselves a name for our high-quality machine rebuilding services, catering to various sectors within the food and pharmaceutical industries," adds John. "We have a strong design team backed by a top-class machine shop capable of reverse engineering high-end components and developing custom machines entirely in-house."

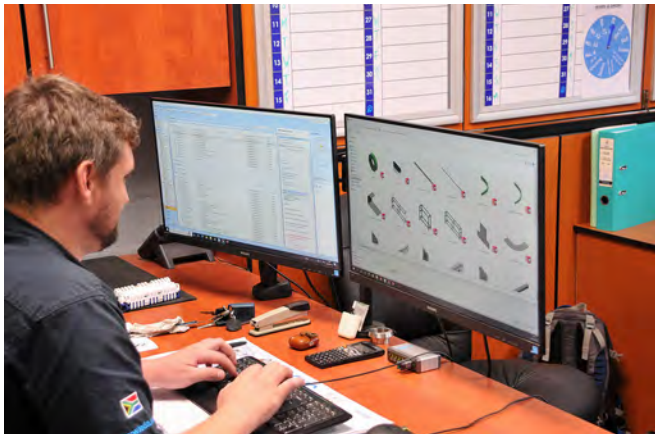
The company also manufactures their own range of ice cream packaging machines - currently there are a number of these up and running in various parts of Europe. Although these machines were specifically designed for the European market there has been significant interest from local ice cream producers and hopefully soon there will be several running here in South Africa.

"Lately however we are getting more involved in larger turnkey process lines for the bigger dairy processing plants in the country. In some instances, we will design the whole line, procure the necessary equipment overseas, rebuild existing and bought in machinery where necessary and install and commission the full plant ready for production including all pipework, CIP and automation."

"Notable such projects include a two-ton-per-hour mozzarella cheese dicing line, cheddar block forming lines,

Gear cutting is something the LEDA Group has been doing for many years

Some larger components machined by the LEDA Group



LEDA ustilises a strong in-house design team and design work is carried out using SolidWorks

The original lathe and milling machine that were used to start the business still stand on the LEDA shop floor, actively contributing to daily operations

butter packaging lines and cream cheese lines. We're also capable of integrating packaging lines, refurbishing, and reconfiguring packaging machinery to accommodate various client specifications. Additionally, we work closely with our customers to cater for packaging design changes that evolve over time, this invariably results in different tub formats and packaging sizes."

John notes the importance of honesty and integrity when dealing with their customers. "These relationships have been built over many decades. The same goes for our overseas customers and suppliers in Europe," LEDA is well established in these markets. "When you say you are going to do something, you do it," it's all about doing honourable business.

LEDA also exports new and refurbished machinery and components to Europe for these clients. Often LEDA will be able to procure second-hand equipment from various suppliers and agencies across Europe and import this equipment for stripping, cleaning, repairing, and rebuilding, before selling it on to either the local market or back overseas.

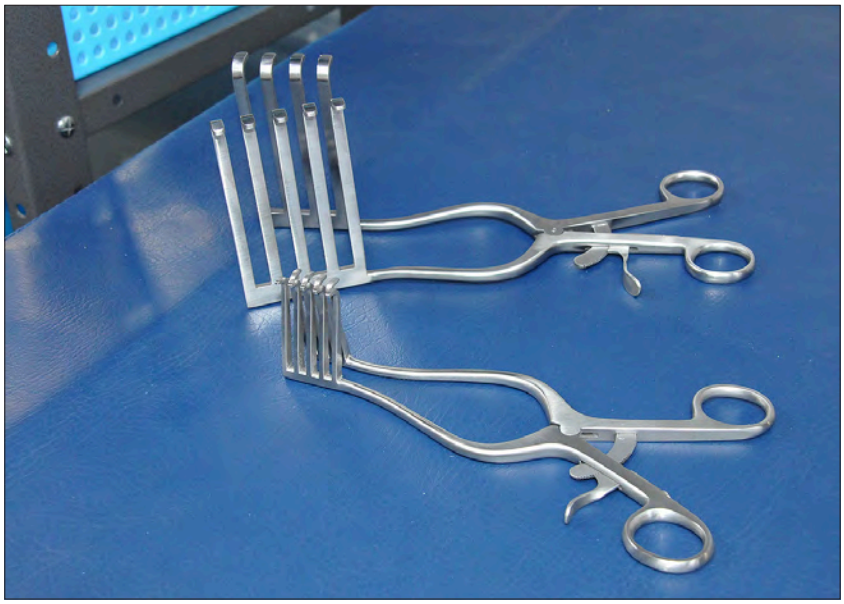
Three brothers, one common background

Of the brothers' backgrounds, Larry, the oldest of the brothers, initially pursued a career in IT before joining LEDA full-time some 25 years ago. While still taking care of the IT side of the business he is now more involved in design and technical aspects, having spent many years programming and running the various CNC machines on the shop floor. Today Larry is involved with the technical management of the machine shop and machine design.

"John, Paul and I share a common background steeped in the business. While I transitioned from IT to a more hands-on role in design and technical management, I leveraged my programming and machining expertise. Our involvement in the business traces back to our formative years, accompanying our father on service visits to factories, instilling in us a deep understanding of the trade," says Larry.

"We were all actually always involved with the business from a young age – I can remember John and myself going to site with my father to help servicing machines when I was 16-years-old." John, with a strong mechanical engineering background, has been integral to the business since its inception. With extensive experience spanning both the engineering and dairy industries he brings a wealth of knowledge and expertise to the table. Having spent many years honing his skills in these fields, John possesses a deep understanding of the intricacies of machinery and manufacturing processes. While the dynamics have shifted over time, so too has John's role within it. While he continues to draw upon his engineering expertise, his focus has shifted towards managing the overall operations of the company. This includes overseeing day-to-day activities, planning, coordinating with clients and suppliers, and ensuring that projects are completed on time and within budget.

John's hands-on experience, coupled with his technical acumen, has been instrumental in the success and growth of LEDA over the years. His leadership and dedication serve as a driving force behind the



The medical equipment manufacturing side of the business specialises in the repair of various types of medical instruments as well as the manufacturing of numerous instruments and machine components that can be found in the medical and pharmaceutical industry. Doctors and surgeons will bring in their apparatus for tasks such as resharpening and even redesign according to a specific operation they may want to perform

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Paul, John and Larry Bashkier

With many years of experience in the food packaging machine industry, the LEDA Group reverse engineer and manufacture components that can outlast OEM parts

company's continued growth and success.

The youngest of the brothers, Paul runs the medical equipment side of the business but is equally at home attending to the electrical and mechanical design of the various machines LEDA produces.

The medical equipment manufacturing side of the business specialises in the repair of various types of medical instruments as well as the manufacturing of numerous instruments and machine components that can be found in the medical and pharmaceutical industry, examples of which include machines for powdered medication sachets and pill bottles. Further to this, doctors and surgeons will bring in their apparatus for tasks such as resharpening and even redesign according to a specific operation they may want to perform.

Specialised machine shop

In the LEDA machine shop, precision is paramount. "While we maintain some older manual turning and milling machinery on the shop floor, the bulk of our manufacturing operations are carried out on CNC machines. These CNC machines are the backbone of our production process, enabling us to achieve high levels of accuracy, efficiency, and consistency in the manufacturing of components and parts."

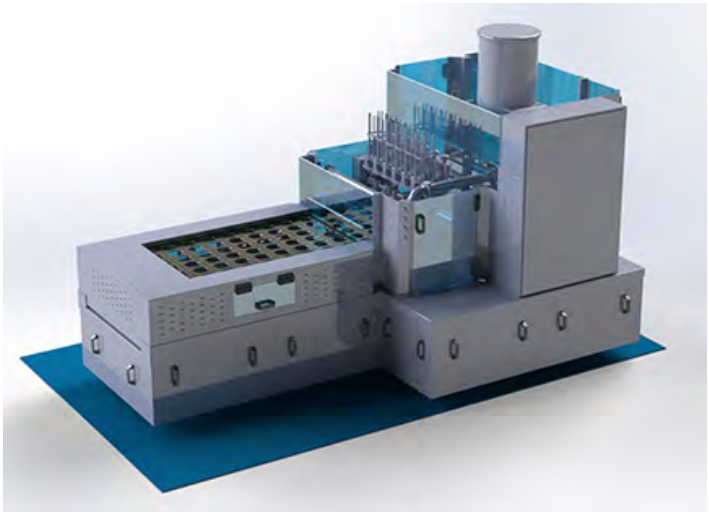
"We utilise Mastercam for programming CNC machining operations, harnessing its advanced features and capabilities to optimise toolpaths and maximise machining efficiency while our design work is carried out using SolidWorks, allowing seamless integration with manufacturing processes."

"To analyse the composition of materials used in our manufacturing processes, we rely on a handheld Bruker XRF analyser, enabling us to perform rapid and accurate material analysis in-house. This capability ensures that we maintain strict control over material quality and consistency throughout the production process, safeguarding the integrity of our finished products."

LEDA staff: The heartbeat of the company

"At LEDA, we recognise that our most valuable asset is our dedicated and skilled staff. They are the driving force behind our success, embodying our commitment to excellence in every aspect of our operations. Our team members are more than just employees; they are the heartbeat of our company, bringing passion, expertise, and a relentless commitment to quality to everything they do."

"From our seasoned engineers and technicians to our meticulous machinists and administrative staff, each member of the LEDA team plays a vital role in delivering innovative solutions and exceptional service to our clients. Their unwavering dedication to excellence ensures that we consistently meet and exceed the expectations of our customers, maintaining our reputation as industry leaders in precision engineering



An example of a packaging machine. "In some instances, we will design the whole line, procure the necessary equipment overseas, rebuild existing and bought in machinery where necessary and install and commission the full plant ready for production including all pipework, CIP and automation."

The LEDA Group have specialised shop floor facilities where the packaging machines can be serviced, refurbished, stripped, cleaned and rebuilt to client specifications

services."

Despite the changing dynamics over the years, Larry, John and Paul remain deeply committed to upholding the values of quality, integrity, and customer satisfaction that have been the hallmark of LEDA's reputation.

Today, the small business David and Lesley started all those years ago has flourished. Currently LEDA is intensively using about 2 000m2 of space and employs 50 individuals.

For further details contact LEDA Group on TEL: +27 21 557-6774 or visit www.leda.co.za ■

LEDA rely on a handheld Bruker XRF analyser that enables them to perform rapid and accurate material analysis in-house

Helical Motion: Iscar

The introduction of the Iscar Helimill in the 1990s marked a significant milestone in milling tools. It revolutionised the design of milling tools with indexable inserts, establishing a new approach that would shape the industry for years to come. This breakthrough was achieved using a parallelogram-shaped carbide insert, featuring a helical cutting edge formed by the intersection of the insert's helical side and shaped top surfaces (Fig.1).

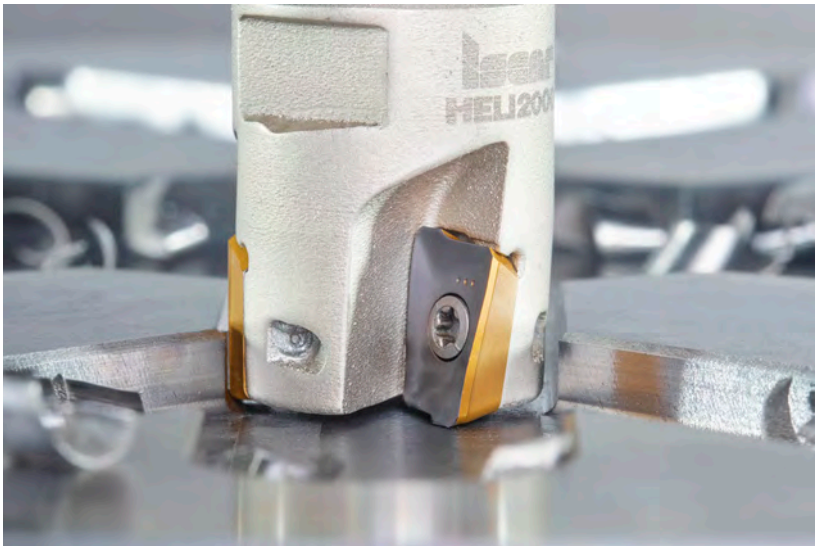


Fig. 1
A typical Helimill insert: a helical cutting edge is formed by the intersection between the helical side and the shaped top surfaces of the insert

The Helimill concept offers several advantages

Firstly, the consistency of the rake and relief angles along the insert's cutting edge, when mounted on a tool, reduces cutting force variations, and ensures a smooth cutting action. Secondly, the uniformity of the insert's cutting wedge enhances its strength. Lastly, the helical cutting edge's proximity to the imaginary cylinder generated by a rotating tool improves accuracy compared to the straight edge found in previous generation milling inserts. These advancements have elevated milling performance to new heights.

Over the years, continuous improvement has led to significant changes in the classical Helimill inserts. The helix of the cutting edge has become more aggressive, and the top surface topology has become more intricate. Combined with advanced carbide grades, these new designs have ushered in a new level of performance. However, the parallelogram insert shape limits the number of indexable cutting edges to two.

To maximise the efficiency of cemented carbides, a new round of insert development was initiated. The successful adaptation of the helical cutting edge to triangular inserts addressed this limitation. The triangular insert concept not only provides three cutting edges but also offers additional benefits. When compared to other shapes with equal cutting-edge length, the triangular shape provides a wider central area. This allows for an increase in the central bore size, enabling the use of a clamping screw with a larger thread. As a result, the insert securing is strengthened, contributing to the overall durability of the milling tool assembly. Additionally, the triangular shape enhances the ramping-down cutting capability.

Overall, the introduction of the Iscar Helimill and its subsequent advancements have revolutionised the milling tool industry. The use of helical cutting edges and triangular inserts has significantly improved performance, accuracy, and durability, pushing milling capabilities to new levels.

A proximate successor to the Helimill is the Heli-3-Mill, a family of milling tools introduced by Iscar in the last decade, featuring triangular indexable inserts (Fig.2).

The advantages of the "helical triangle" highlight why this family has gained popularity in the market. However, it is important to note that this does not mean the triangle shape will completely replace the traditional parallelogram contour with helical cutting edges soon. The parallelogram shape still possesses its own competitive edge.

Paradoxically, the narrow width of the parallelogram-shaped insert, which is considered a drawback when compared to the triangular shape, also offers certain advantages. Firstly, a narrower insert allows for an indexable design suitable

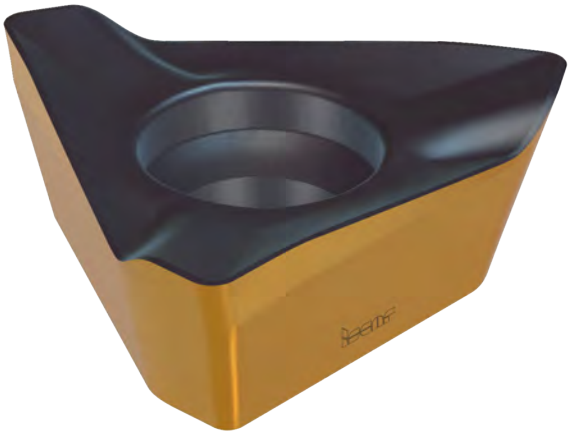


Fig. 2
A Heli-3-Mill face milling tool with triangular inserts. The insert provides 3 indexable helical cutting edges

for smaller tool diameters. Secondly, this insert geometry reduces the depth of the chip gullet, strengthening the cross-section of the tool body. This feature is particularly important for extended flute cutter designs where higher strength and rigidity of the body are crucial.

The parallelogram insert structure also permits increased corner radii. Additionally, the classical shape is well-suited for high feed milling (HFM) inserts, which can be mounted in existing pockets, effectively transforming a 90-degree tool into an efficient HFM cutter. Moreover, the "helical parallelogram" has a smaller overall length compared to the "helical triangle" for the same cutting length. Therefore, it would be premature and incorrect to dismiss classical parallelogram inserts.

As a result, the development of 90-degree indexable milling cutters harmoniously combines both approaches, utilising both triangular and parallelogram-shaped inserts. While the triangular insert concept dominates modern designs, the parallelogram insert principle remains relevant. The Helimill platform continues to be updated with new advantageous products. Iscar's recently developed products related to milling cutters with parallelogram-shaped inserts demonstrate that the traditional design approach remains effective and capable of meeting the demands of modern manufacturing. Milling high-temperature superalloys and titanium (ISO S group of applications), as well as difficult-to-cut austenitic and duplex stainless steel (ISO M group), present challenges. Effective coolant supply, particularly pinpointed high-pressure cooling (HPC), can significantly reduce heat load on the cutting edge, enhancing lubrication and chip removal.

This, in turn, leads to higher cutting data and enables larger radial engagements, resulting in a higher metal removal rate (MRR). Moreover, HPC facilitates the production of tighter and curled chips, allowing for tool designs with smaller chip gullets and higher tooth density. Taking these factors into consideration, Iscar has expanded its Heli2000 family (the latest version of the Helimill) by introducing new tools that incorporate the high-pressure cooling (HPC) option within the tool body. The design of these tools has been optimised using computational fluid dynamics (CFD). They are available in both integral-body configuration and as relatively small-sized exchangeable heads with indexable inserts, which are compatible with Iscar's modular systems Multi-Master and Flexfit (Fig.3).

Fig. 3
An exchangeable milling head carrying rectangular-shaped inserts with HPC option. Decreasing chip gullet enables increasing tooth density

Heli2000 integrates the Helimill and Heliplus families, combining their latest developments into a single portfolio. This includes the introduction of two new highly efficient carbide grades: IC5600, designed for machining steel (ISO P group), and IC716, specifically tailored for cutting titanium. Additionally, the insert range has been expanded with new cutting geometries. This includes inserts with a high positive chipformer for milling titanium, chip-splitting cutting edges for productive roughing, and other designs. Furthermore, the range now includes inserts with reinforced cutting edges for high feed milling of hard materials up to HRC 60 hardness (ISO H group, Fig.4).

These new products are also part of Iscar's Helialu family, which consists of milling tools with parallelogram-shaped inserts for machining aluminium alloys (ISO N group). The expansion of this family includes indexable endmill heads with threaded adaptations for both Multi-Master and Flexfit systems, providing the option for high-pressure cooling (HPC). The screw-in design configuration of the heads significantly enhances the customisation capabilities of Helialu tools, allowing for a wide range of Multi-Master and Flexfit shanks, adaptors, extensions, and reducers to be utilised. Therefore, the development of the "helical parallelogram" has not ceased, and the traditional Helimill continues to gain momentum. This development follows a gradual upward helix, revisiting past turns but at a more advanced stage, much like in dialectics.

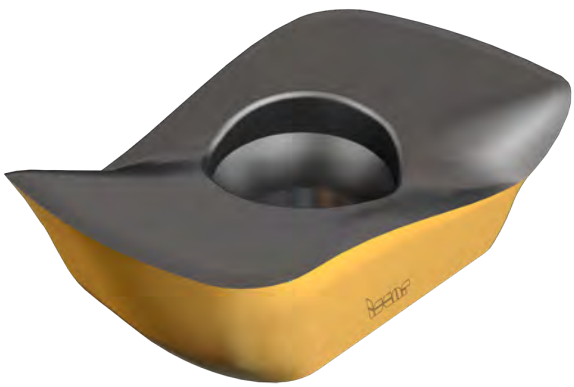


Fig. 4
An insert for high-feed milling is mounted in the existing pocket of a milling tool

For further details contact Iscar South Africa on TEL: 011 997 2700 or visit www.iscar.com ■

German machine tool industry expecting a decline in production in 2024

In 2024, the German machine tool industry is expecting production to decline by almost 3 per cent to EUR 14.8 billion in nominal terms. “A nominal record volume of 17 billion euros was posted in 2018/2019, and five years later, there is still no sign of this figure being matched,” said Franz-Xaver Bernhard, Chairman of the VDW (German Machine Tool Builders’ Association), at the association’s annual press conference held in Frankfurt am Main, Germany at the end of January 2024.

There has been a clear slowdown in orders since the beginning of last year, which is now having an increasing impact on sales and production. The considerable order backlog, representing around eleven months’ work, had helped. However, nearly all supply bottlenecks have since been resolved, allowing the backlog to be worked through more quickly. Accordingly, orders on hand are less and less able to compensate for the lack of new orders. Overall, orders fell by 10 per cent in nominal terms in 2023. The decline was partly offset by several months of stronger project business. Domestic demand fell by 14 per cent, almost twice as much as foreign demand.

The global economy is unlikely to provide much impetus in 2024. The growth rates of both gross domestic product and investment are once again down on the previous year’s levels. The international purchasing managers’ index also highlights the weakness of the global economy in all key markets, particularly in the eurozone and Germany.

“In fact, we are currently seeing two divergent developments,” reported Bernhard. Growth sectors such as electric vehicles, wind power, medical technology, aerospace and defence boosted the project business in particular, while the standard machine business performed more weakly. Small and medium-sized customers such as job shop businesses are uncertain about the future and are reluctant to invest. Machine purchases are also more difficult to finance due to higher interest rates. Companies that prepared for the transformation process at an early stage are therefore better able to weather the weak demand.

2023 ended with a good result overall

Last year, production is estimated to have risen by just under 8 per cent in nominal terms, to EUR 15.2 billion. In real terms, this represents an increase of 2 per cent due to inflation, which remained at a high average level over the year. Exports grew by 9 per cent. The export ratio reached almost 70 per cent. Exports were boosted by double-digit growth in America. Asia and Europe, on the other hand, only recorded single-digit increases. The US in particular saw extremely dynamic growth, driven above all by investment in climate protection and renewable energy. China, by contrast, experienced weak growth due to falling consumer demand and the ongoing difficulties in the real estate sector. India, on the other hand, enjoyed sharp upward growth.

At 5 per cent, domestic sales did not increase quite as much. This is attributable in part to the weaker demand from domestic customers. Averaging out at 89.6 per cent over the last year, companies had good capacity utilisation and also took on more staff again. Around 66 600 women and men were employed in the sector at the end of 2023, 2.4 per cent more than at the end of 2022.

Bureaucracy disproportionately impacting SMEs

A further cause of great concern to the industry – in addition to the general economic development – is the regulatory zeal of the German government and the EU administration. Bernhard cited the Supply Chain Duty of Care Act and the European Union’s Corporate Sustainable Reporting Directive (CSRD) as “particularly egregious examples of bureaucratic monsters”.

“They are an additional burden on business and pose a disproportionate challenge to small and medium-sized companies in already difficult times. They fail to achieve their goals and the resulting costs are far too high,” was his verdict. ■

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Mazak commences in-house production of 'Mineral Cast' machine tool bases

Yamazaki Mazak initiates in-house production of 'Mineral Cast' to mitigate parts procurement risk by utilizing machine tool bases instead of castings, offering the advantage of significantly lower carbon dioxide (CO2) emissions during the manufacturing process.

Yamazaki Mazak has initiated efforts to internally manufacture a composite material known as 'Mineral Cast'. The material, a combination of ore and epoxy resin, will be utilised in structures such as machine tool bases, replacing traditional castings. The company aims to complete technological development for mass production by fiscal year 2023 and commence mass production in fiscal year 2024, concurrently introducing new models featuring mineral cast.

The photo shows mineral casting used in the Syncrex Swiss-type CNC automatic lathe manufactured in the United States

The risk associated with producing cast parts has escalated due to a labour shortage in the foundry industry, prompting Mazak to actively seek alternative solutions for replacement parts.

In Japan, it remains uncommon for a machine tool manufacturer to undertake in-house production of mineral cast. With industry leader Yamazaki Mazak spearheading this initiative and promoting widespread adoption, the integration of mineral cast within the machine tool industry is anticipated to accelerate.

Mineral cast boasts high vibration damping performance and excellent thermal stability, rendering it suitable for constructing machine tool structures. However, in Japan, the number of manufacturers is limited, and the procurement cost, including transportation expenses, exceeds that of castings, hindering widespread usage. Currently, the company incorporates mineral cast from external suppliers into some models.

Recognising these challenges, the company sought technical collaboration with a mineral cast manufacturer in the United States. After several years of experimental research, it explored the feasibility of in-house production and expanded adoption.

Mineral cast offers the advantage of significantly lower carbon dioxide (CO2) emissions during the manufacturing process compared to casting. Moreover, it can reduce lead time. The company reports an 80% reduction in CO2 emissions and a 60% reduction in lead time. As the transition from castings to mineral casting progresses, we anticipate a reduction in CO2 emissions during machine tool production and shorter delivery times.

For further details contact Hi-Tech Machine Tools on TEL: 011 608 0088 or visit www.hitech.co.za ■

Steel industry giants lead 'green steel' shift towards sustainable manufacturing

Major steel companies are currently introducing 'green steel' materials. Even though each company has secured several contracts, challenges remain, including dissemination in the public sector and the establishment of global rules.

'Green Steel' is recognised for emitting less carbon dioxide (CO2) during production. Following Kobe Steel, which pioneered this system, JFE Steel announced its first order in June 2023, and Nippon Steel followed suit in September 2023.

Certified by a third-party organisation using the 'mass balance method,' which allocates each company's actual CO2 emission reduction to specific products, green steel products maintain the same functions and quality as conventional materials but are priced higher due to the added 'environmental value.'

Kobe Steel has secured contracts for automobiles and redevelopment plans. Nippon Steel has received orders ranging from candy cans to heat exchangers, and JFE has received orders for thick plates used in office buildings. ▸

Nippon Steel and JFE have also committed to using electrical steel sheets for overseas transformers.

JFE's project involving thick steel plates for shipbuilding is particularly noteworthy. In addition to delivery, they have developed a model in which the increase in steel costs is shared as 'environment value' with eight domestic shipping companies that utilise the steel.

Some manufacturers use Nippon Steel's green steel materials to manufacture boxes for sweets, etc.
Picture courtesy of Soba Can Seiki

According to JFE, 'There is no example in the world of a social distribution model where the burden is shared broadly throughout the supply chain.' The company itself participates in the burden as a shipper of steel materials, making it a convincing framework.

Green steel is still in its infancy, and major steel companies are striving to gain public understanding and government support. In October 2023, the Japan Iron and Steel Federation formulated detailed guidelines for green steel materials. The amount of greenhouse gas (GHG) reduction available to customers who purchase the same steel material with a certificate showing its reduction performance differs from the carbon footprint (total emissions from manufacturing to disposal), and it has been stipulated that certificates alone without products will not be distributed.

The definition of the steel material and ensuring transparency are also under discussion at the World Steel Association, which aims for standardisation, stating, "We want to lead international efforts based on detailed guidelines."

"Conversely, a growing voice in the domestic industry, led by steel, suggests the need for an incentive system to expand the market for green products."

Miners and steel giants working towards revamping the dirty steel industry

Steelmaking is responsible for nearly three times the emissions of aviation. Companies are trying to transform the industry.

With Rio Tinto, BHP and BlueScope Steel announcing they are now working together on making Pilbara iron ore suitable for direct reduced iron (DRI) processes that don't use coal, it is becoming even clearer that carbon capture utilisation and storage (CCUS) will not play a meaningful role in steel decarbonisation. BHP and Rio now also have even less reason not to set measurable Scope 3 emissions targets.

The steel technology transition away from coal is accelerating with global steelmakers increasingly turning to scrap steel recycling and DRI as alternatives to blast furnaces.

The steel company SSAB plans to bring a bigger volume of green steel to the market by 2026. ArcelorMittal, a global steel giant, also has green steel projects in development, including a steel mill in Portugal that aims to have a zero-emissions production process in place by 2025. But it will be difficult for the entire industry to transform.

China, which produces the majority of the world's steel, isn't moving as quickly to transition to hydrogen as Europe. ■

Italian machine tool market looks toward 2024

In the fourth quarter of 2023 orders of machine tools went down 31.1%.

In the fourth quarter 2023, the index of machine tool orders compiled by the Economic Studies Department & Business Culture Centre of UCIMU-SISTEMI PER PRODURRE showed a 31.1% fall compared to the period October-December 2022. The absolute value of the index stood at 92.1 (base year 2015=100).

The negative performance was due to the reduced order intake in the domestic market, whereas foreign sales showed resilience.

In particular, the orders collected abroad dropped by 2.9% compared to the same period of the previous year. The absolute value of the index was 100.9.

On the domestic front, orders marked a 69.1% downturn, compared to the fourth quarter of 2022, for an absolute value of 79.4.

On annual basis, the index marked a 24.7% decrease compared to the 2022 average (absolute index 90.5). Domestic index -48.4% (absolute index 74.6); foreign index -11.3% (absolute index 102.8).

Barbara Colombo, president of UCIMU-SISTEMI PER PRODURRE, pointed out: "The data processed by the Economic Studies Department & Business Culture Centre of UCIMU confirm our expectations: 2023 marked an evident reduction in the orders received by Italian manufacturers in the domestic market, which is counterbalanced by a general stability in the foreign markets. Overall, despite the negative sign, our companies are working intensively, thanks to the queue of orders that still have to be processed."

"With specific reference to the domestic market, the decline in the collection of new orders is not unexpected and corresponds to a general downturn in demand after the boom experienced in the last period. On the other hand, if we focus on the last quarter, the fall is also and mainly affected by the waiting effect for the new incentive measures that were expected and still are expected for 2024."

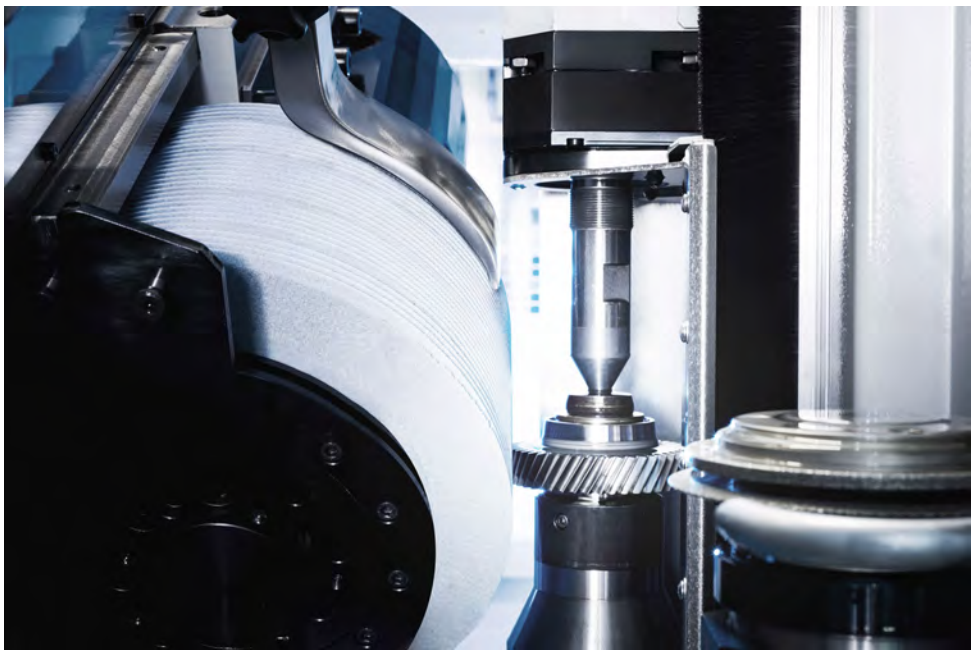
For further details visit www.ucimu.it ■

GrindingHub 2024 exhibition expands

GrindingHub exhibitors demonstrate: Human-robot collaboration could soon be setting the pace in factories. Gradual shift to automated grinding.

GrindingHub 2024 is set to open its doors for the second time to grinding experts from all over the world from 14 to 17 May 2024. Over 460 exhibitors from 31 countries will be presenting their latest grinding technology solutions in Stuttgart – now in four exhibition halls for the first time.

Incorporating manual grinding, polishing or brushing processes into automated production might sound good on paper, but it is very difficult to achieve in practice. More and more machine manufacturers are responding to this challenge by offering grinding technology combined with flexible automation systems. Unlike many OEMs, however, SME users are likely to prefer an incremental approach involving moderate individual investments. Existing machines and retrofits can play a special role here.



Exhibitors at GrindingHub, the industry meeting point for grinding technology in Stuttgart, will provide an insight into their solutions and research projects before the trade fair begins.

One thing is clear: Automation is certainly enjoying a boom. According to the VDW (German Machine Tool Builders' Association), the pressure to raise productivity and the shortage of skilled workers are making it more important than ever to invest in production technology, regardless of the short-term economic prospects. Grinding is no exception here – on the contrary: faster production speeds, more exacting tolerances, reproducible quality and potential savings represent attractive propositions, also for companies that are still offering manual processing.

Concentrated expertise and comprehensive support

Trade fairs such as GrindingHub 2024 show how manufacturers of grinding, honing, lapping and polishing machines are adapting to the demands. The solutions on display include machine tools with dedicated robots for loading and discharging workpieces, or additional robot cells for the automatic execution of testing, cleaning, deburring, laser marking and storage processes. Aimed at driving forward the automation of grinding processes, strategic partnerships are often forged between machine and robot suppliers, for example. Such partnerships bring together expertise from the areas of stationary machines and flexible automation (robotics).

"We are particularly pleased to be presenting even more aspects of the grinding process chain than in the first event. More exhibitors, greater internationality, more product diversity. There is clear growth in all key areas compared to the premiere in 2022," says Martin Göbel, Head of Trade Fairs at the VDW.

A total of 461 exhibitors had registered by February 23 – 85 more companies than in 2022. The number of companies and the amount of exhibition space they have booked have made it necessary to open a fourth hall.

However, visitors can look forward not only to increased numbers but also to greater diversity in terms of international involvement. The exhibitors will be coming from a total of 31 countries – eight more than last time. The top five, headed by Germany (210 companies), also includes Switzerland (62), China (43), Italy (37) and Japan (15). Accordingly, the VDW is expecting an increase in the number of visitors from Asia now that the coronavirus-related restrictions have been lifted there.

The exhibitors are spread across 40 sectors, from grinding, polishing and honing equipment through to cylindrical and non-cylindrical grinding machines, cooling and lubrication. In the grinding, polishing and honing products segment, the organisers have registered almost 120 per cent growth. The top 5 sectors include cylindrical and non-cylindrical grinding machines, grinding machines for the cutting and machining of tools, machines for lapping, polishing and honing as well as surface grinding machines.

For further details visit www.grindinghub.de ■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Japan Machine Tool Builders' Association reports rise in sales

The Japan Machine Tool Builders' Association (JMBTA) has reported that in November, the total value of machine tool orders in November was 115.90 billion yen.

This was an increase of 3.4% compared to October 2023 and marked the first month of month-on-month increase in two months. However, this figure represented a decrease of 13.6% compared to the same month of the previous year and marked the 11th consecutive month of year-on-year decline.

Total orders fell below 120 billion yen for two consecutive months, however exceeded 100 billion yen for the 34th consecutive month. Orders received in November were supported by foreign orders, but no major changes have been observed in the order situation.

Domestic orders fell by 2.8% from October, amounting to 32.70 billion yen. This marked the second consecutive month-on-month decline. Furthermore, this figure was a decrease of 28.4% from the same month of the previous year and marked the 15th consecutive month of year-on-year decline.

Looking at major industries, orders compared to October fell by 9.7% in industrial machinery, rose by 2.5% in motor vehicles, fell by 13.5% in electrical and precision machinery, and rose by 73.6% in aircraft, shipbuilding and transport equipment.

Foreign orders rose by 6.1% over October to 83.20 billion yen, marked the first month of month-on-month growth in two 11th consecutive month of year-on-year decline.

By region, orders from Asia rose by 10.3% over October to 33.69 billion yen. This was a decrease of 19.2% from the same month of the previous year. Orders from Europe rose by 10.8% over October to 20.18 billion yen. This was a decrease of 4.8% from the same month of the previous year.

Orders from North America fell by 3.1% from October, amounting to 26.70 billion yen. This figure was an increase of 9.7% over the same month of the previous year.

Orders in 2024 are anticipated to reach 1.5 trillion yen, marking the first increase in two years, with a modest 0.9% rise from 2023.

The JMTBA disclosed that machine tool orders in 2024 are projected to total 1.5 trillion yen, reflecting a 0.9% increase from 2023, with the preliminary figure standing at 1.49 trillion yen (U$10 000 million).

In 2023, Japan machine tool orders experienced a 15.5% decline compared to the previous year, marking the first decrease in three years. Domestic demand for semiconductor manufacturing equipment and automobiles did not recover as expected, and external demand was affected by a significant slowdown in China, where the economy was in a slump.

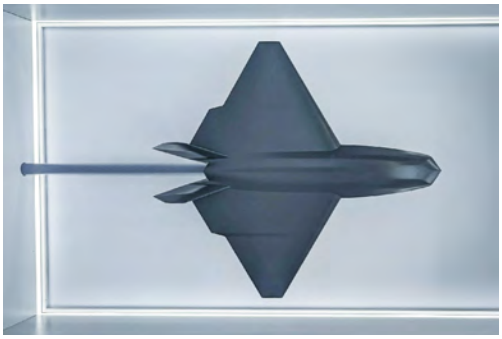
Domestic demand in Japan dropped by 21.0% to 476 401 million yen, declining for the first time in three years and falling below the 500 billion yen mark for the first time in the same period. Meanwhile, external demand decreased by 12.7% to 1 009 603 billion yen. Although experiencing a negative trend for the first time in three years, this figure remained higher than the 736 712 billion yen recorded before the coronavirus pandemic 2019.

Reflecting on the situation, an executive at a machine tool manufacturer remarked, "We were expecting a recovery, particularly in the semiconductor sector, to begin in 2023, but the situation has regressed further than expected."

For further details visit the JMTBA website at www.jmtba.or.jp ■

BAE Systems shows off mystery drone at defence show

In a teaser of things to come, BAE Systems has displayed a model of its future drone at the World Defence Show in Riyadh. Steeped in more mystery than a Raymond Chandler novel, it gives us a hint of what future military drones might look like.



International defence shows can often be more like bird watching events than showcases for the latest military hardware. Defence contractors don't just like to show off their wares for sale, they also like to give a glimpse of what might be on the way. Oftentimes, these will be in the form of models or concept images on display without any explanation of what they are.

Though this can be a bit frustrating for the curious, it does provide something of an air of adventure to the proceedings.

In the case of the latest BAE Systems display, we get a model, but no specifications. Not even a name. However, there are all sorts of clues that give us some idea about this aircraft. The drone has a cropped diamond delta wing, which suggests that it can perform at transonic or supersonic speeds and has a small radar cross section. It's jet powered, has a V-tail for less drag, an angular hull, shrouded jet exhausts, and a dark coating, suggesting that stealth plays a large part in its details. ■

Umati reveals new members

In January 2024 umati announced that they had approved a number of new members. umati (universal machine technology interface) is a community of the machine building industries and their customers for the promotion and adoption of open, standardised interfaces based on OPC UA. The aim of umati is to reduce communication costs between equipment manufacturers and users, and expedite the development and installation of IoT (Internet of Things) for manufacturing equipment through the umati interface standard.

What advantages does umati offer

By having a common communication foundation, various equipment in different industries are allowed to connect to each other on the same platform, making data transmission between machine tools, product management systems simple and fast. umati standardises the information of IoT interfaces, expediting the integration process of smart factories. This facilitates the accelerated development of various smart applications.

In the future, both machinery manufacturers and manufacturing operators can enhance equipment value or optimise production processes through value-added applications on this platform.

New members

umati celebrated its first major appearance at EMO Hannover in 2019 with a live demonstration. The global network of partners has now grown to over 320 members and counting. These partners include OEM manufacturers in additive manufacturing machinery, geometrical measuring systems, industrial joining technologies, machine tools, plastic and rubber machinery, machine vision equipment, robotics, surface technology equipment and woodworking machinery.

The new members include Victor Taichung Machinery, Movacolor modular dosing systems, Takisawa Taiwan, Campro, Keyarrow, Excetek Technologies, Leantec Intelligence, Leadwell, Syntec Technology, Feeler, Falcon/Chevallier, Chiah Chyun, Goodway, Senai, Evon and Mettler Toledo.

For further details visit www.umati.org ■

Trumpf and The Exploration Company cooperate with 3D printing

The Exploration Company wants to offer commercial space missions in the future. Trumpf is contributing production technology as well as manufacturing and application expertise to the cooperation.

The German technology company Trumpf and the European space-travel start-up The Exploration Company are cooperating on the construction of core components for spacecraft for missions in the earth's orbit and to the moon. As early as spring 2024, the Exploration Company will use 3D printers from the laser specialist to print core components of the Huracán and Mistral engines for the Nyx Earth and Nyx Moon spacecraft in Planegg near Munich, Germany. The aim is to make the Huracán engine reusable and refuelable in orbit with bio-methane and oxygen.

"Our aim is to offer space missions more cost-effectively than was previously possible. Our spacecraft can benefit from Trumpf's manufacturing and application expertise. Trumpf has decades of experience in the production of high-precision components," said Hélène Huby, CEO of The Exploration Company.

The start-up plans to send a space capsule to orbit the earth for several months in an initial mission in 2026. Starting in 2028, further missions are planned to go to the moon. The spacecraft will initially carry freight, but in the long term, people will also fly on board.

The start-up has so far raised 65 million euros from private and public investors. The European company employs a total of around 120 people at its sites in Planegg near Munich and Bordeaux. Commercial space travel is considered a growth industry. Experts predicted that the global market for the production of aircraft and spacecraft would grow to 740 billion euros in 2023.

Metal 3D printing enables space companies to manufacture key components on an industrial scale

"With our 3D printing technology, we are driving the commercialisation of the space-travel industry. If you want to be successful in the space-travel industry today, you have to use additive manufacturing," said Tobias Brune, who is responsible for the additive manufacturing business at Trumpf.

"Designers use additive manufacturing to combine entire assemblies into a single component. This saves weight and reduces complexity. Every gram saved reduces fuel costs. What's more, the less complex components reduce the cost of safety tests before the rocket launch and increase the probability of a successful mission in space."

"With the help of 3D printers, The Exploration Company saves valuable raw materials. The systems only use the material that will ultimately fly into space. In the past, aerospace companies produced components using conventional manufacturing methods such as stamping, forging and casting. Much of the material ended up as waste."

For more information contact Retecon on TEL: 011 976 8600 or visit www.retecon.co.za ■

Machine tool manufacturer
Heller celebrates 130th anniversary

Heller's production floor in 1967

130 years ago Hermann Heller opened a trading and manufacturing company for patented products and watchmaking tools in Nürtingen. With the business selling tools of all kinds, the engineer laid the foundations for the long-term success of the company, which entered the mechanical engineering sector in 1898 with the production of cold circular saws for metal cutting and the manufacture of blade skiving and thread cutting machines.

In 1900, Hermann Heller's brother Ernst, a trained tradesman, joined the company, marking the birth of 'Gebr. Heller Werkzeug- und Maschinenfabrik' in Nürtingen.

Hubert and Berndt Heller as managing directors of the machine factory

In the 1960s, Hubert and Berndt Heller took over the management of the machine factory and developed the company into an internationally successful group of companies with numerous locations in all major markets, including the production plants in England (Redditch) and Brazil (Sorocaba), which will be celebrating their 50th anniversaries this year.

However, not all was plain sailing for Heller. "The era of the economic miracle was over and we now had to assert ourselves in the field of tension between economic fluctuations and tougher competition," recalls Berndt Heller, Hellers's long-standing CEO and former chairman of the Supervisory Board, at the beginning of his management career in the family business.

The brothers' instinct for innovation was the key to success in difficult times and times of crisis. With the development of modular machining centers and Flexible System Transferlines (FST) in the 1990s, they led the company out of one of the most serious crises in its history, putting it back on track.

"We achieved this with the help of our employees, who have always given their best – even in what have sometimes been difficult circumstances. They deserve my utmost respect and have played an important role in the company's 130-year history," Heller continued.

For more information contact Retecon on TEL: 011 976 8600 or visit www.retecon.co.za

Heller in Nurtingen

To this day, the Heller family has maintained the spirit of a family-run business with a strong sense of tradition. Since 2016, all shares in the Group have been wholly owned by the family. Berndt Heller's children, Nicole Pfleiderer and Marc Heller, are shareholders in the company.

The Group is currently managed by Dr Thorsten Schmidt (CEO), Andreas Müßigmann (CFO), Dieter Drechsler (COO) and Peter Weber (CSO). ■

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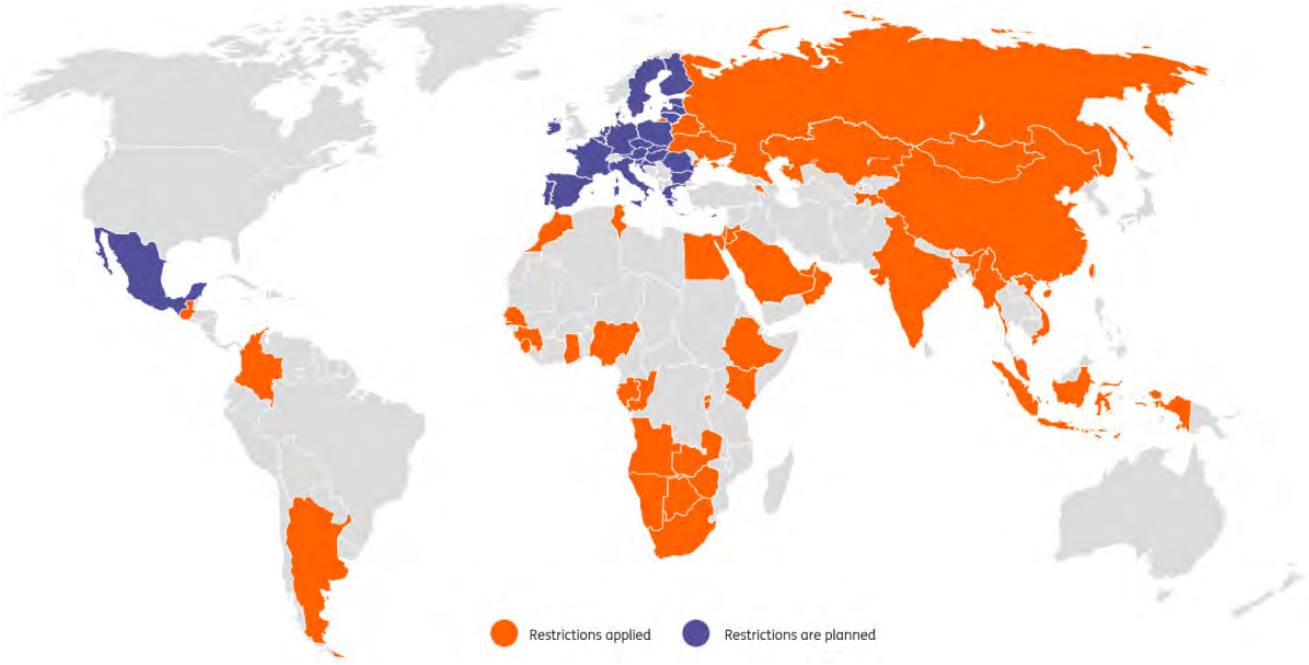
Ferrous scrap is emerging as a key strategic raw material

Decarbonisation efforts are now being ramped up across the globe, and as countries begin to implement new export restrictions to meet their key net zero goals, ferrous scrap is rapidly becoming a highly sought-after commodity.

Global economists and strategists ING have produced a really interesting report on this subject. Here are some basics. To read the full report visit the link given below.

Steel scrap is key in establishing a circular economy

Global ferrous scrap consumption in steel production is set to rise as efforts to reduce the industry's environmental footprint are ramped up alongside an expected increase in the share of Electric Arc Furnace (EAF) in the global steelmaking process.



The map gives you an indication of which countries have restrictions on ferrous scrap exports

The steel sector accounts for at least 7% of global greenhouse gas emissions. With global steel demand set to increase to around 2.6 billion tons by 2050, the transition to a low-carbon economy requires a change in how steel is produced. Part of steel's decarbonisation path is through the increased use of scrap. Today, around 30% of steel is produced through recycling scrap – and this share is forecast to rise to 50% by 2050.

Steel is predominantly made via two main processes: the blast furnace-basic oxygen furnace (BF-BOF) process, which uses coke to produce iron from ore, and the Electric Arc Furnace process (EAF). These two methods are often referred to as the 'primary' and 'secondary' processes that melt down scrap and recycled steel. The BF-BOF process is the most common steelmaking process and the most emissions-intensive, with 90% of production relying on coal. Emissions from scrap-based EAFs are mostly indirect. Those emissions are not produced by the steel plant but by the electricity generators that supply electricity to the furnaces. If the electricity used in this process is produced via renewable energy, this production route can have very low CO2 emissions. When using grey electricity as energy input, scrap-EAF steelmaking emits 0.67 tons of CO2 per tonne of crude steel cast, vs 2.32 tons in the case of BF-BOF steelmaking. Carbon intensity is far lower when using green electricity.

Scrap not only plays a key role in reducing industry emissions but also in reducing resource consumption. Every tonne of scrap used for steel production avoids the emission of 1.5 tons of CO2 and the consumption of 1.4 tons of iron ore, 740kg of coal and 120kg of limestone, according to calculations from Worldsteel.

The steel sector also has alternatives to BF-BOF and EAF plants. These include Direct Reduced Iron (DRI) plants which use natural gas, and eventually (once available) green hydrogen made from renewable energy instead of coking coal to reduce the iron ore. For now, however, steel-making scrap-based EAF has the lowest carbon footprint across steel making technologies – at least until DRI technology advances to using hydrogen.

Restrictions in the scrap trade increase amid decarbonisation drive

The growing number of trade restrictions on scrap is a good indicator of its increasing value in the global decarbonisation drive. More countries are imposing export bans to protect this raw material as EAF production is slowly becoming the leading technology in steel production.

To read the full article visit: https://think.ing.com/articles/why-is-ferrous-scrap-a-strategic-raw-material/ ■

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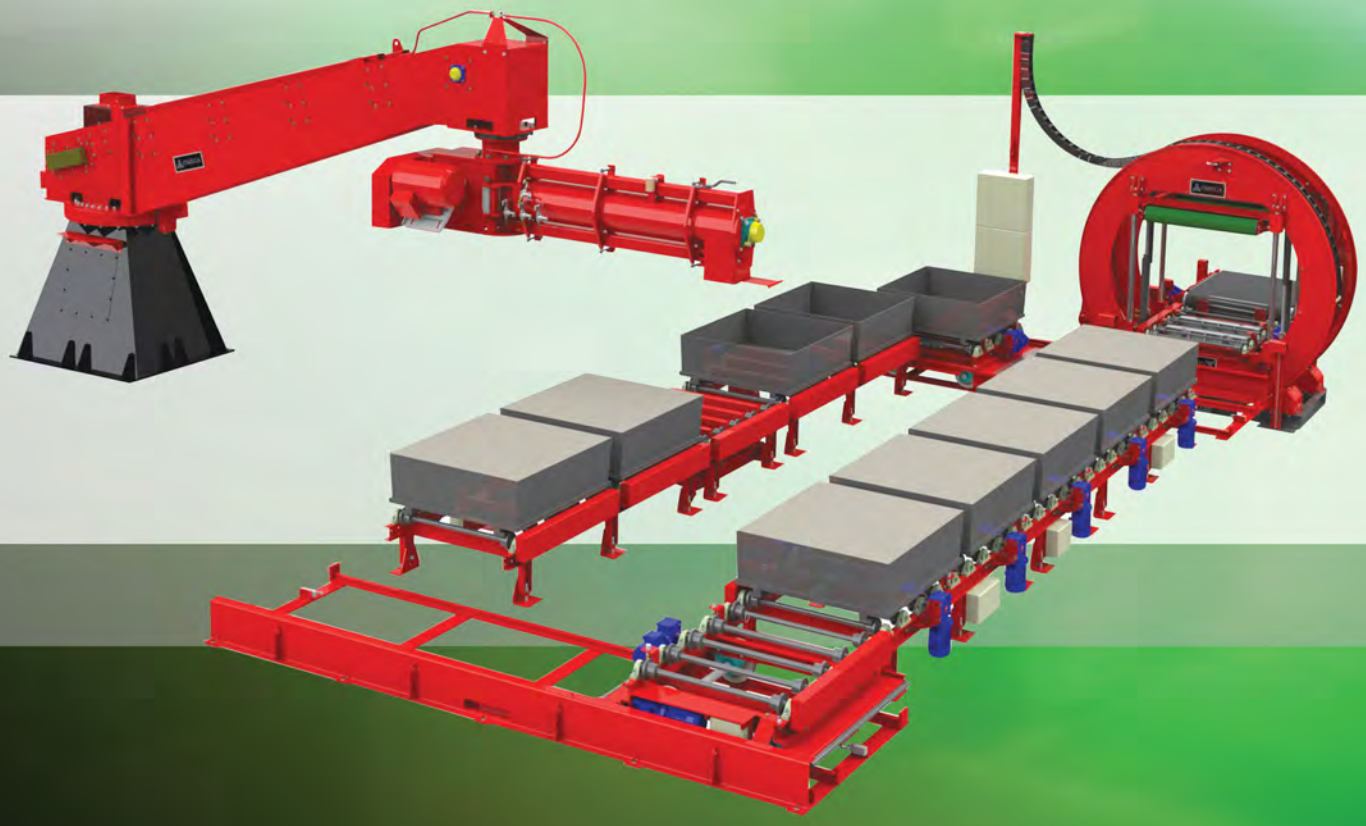

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DMG MORI Open House 2024 in Pfronten focused on process integration, automation, digital transformation (DX) and green transformation (GX)

DMG MORI's Open House, that is held annually in Pfronten, Germany, was this year dedicated to the latest technologies for future-oriented production. The Open House, held for the 29th time, demonstrated solutions in the field of machine tool construction, with more than 45 high-tech machines and over 15 automation and technological solutions on display presenting the latest and most modern developments for sustainable process optimisation.

Highlights of the exhibition included the world premiere of DMF 400|11 as an example of process integration and the PH Cell 500 as an innovation in the field of modular pallet handling. Another highlight is CELOS X. The holistic digital and data-based ecosystem creates additional potential in the optimisation of manufacturing processes. The Lasertec Showroom completed the technological range of services with efficient products for additive manufacturing, while the Academy Area offered insights into DMG MORI's extensive training and further education programme.

MX – Machining Transformation: Sustainable process optimisation for future-proof manufacturing

"The Home of Innovation is based on the four pillars of Process Integration, Automation, Digital Transformation (DX) and Green Transformation (GX)," said Irene Bader, a Member of the Board of DMG MORI Company Limited.

"These pillars form the foundation for Machining Transformation (MX), with which we support our customers on their way to future-oriented production. The overarching goal is to make manufacturing processes more efficient and sustainable, to ensure customers remain globally competitive and successful in the long term."

"Process integration reduces cycle times and set-ups by combining more and more technologies in one workspace. In Pfronten, DMG MORI demonstrated how turning, milling, grinding and gear cutting can be carried out in a single set-up, as well as in-process measuring for consistent quality control. Productivity-enhancing and flexible automation solutions, both for series production and machining of small batch sizes, were on display as well."

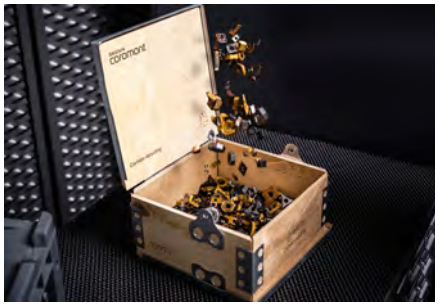
"DMG MORI also demonstrated solutions for Digital Transformation (DX). They provide additional support for process optimisation – from order planning and programming to quality control and documentation. Against the backdrop of resource scarcity and climate protection targets, these three pillars contribute to the fourth, Green Transformation (GX)."

"Energy-saving measures of more than 30 per cent, the retrofitting of automation solutions and machine overhauls create new potential for increasing productivity while conserving resources."

For more information contact Retecon on TEL: 011 976 8600 or visit www.retecon.co.za ■

Sandvik Coromant's net-zero target

Through Sandvik Group, science-based backing forms the next leap for metal-cutting expert's climate goals.



Through the wider Sandvik Group, metal-cutting expert Sandvik Coromant has committed to near-term, companywide emission reductions in line with climate science with the Science Based Target initiative (SBTi). Aligned with the goals of the Paris Agreement and the United Nations Sustainable Development Goals (SDG), Sandvik Coromant's own sustainable business targets have been set in line with the SBTi's criteria as part of the organization's commitment to reducing its greenhouse gas emissions and practicing responsible manufacturing.

Alongside the wider Sandvik group, Sandvik Coromant first committed to set targets in line with the SBTi's criteria in December 2021, beginning a rigorous validation process during which the SBTi worked with the team to help update its targets. Now, following validation from the SBTi, Sandvik Coromant is working toward several revised sustainability goals.

The organisation is committed to reaching net-zero. When considering net-zero, greenhouse gas emissions are split into three scopes. Sandvik Coromant plans to reach net-zero for scopes one and two – which include emissions produced directly within Sandvik Coromant's operations and those produced indirectly through heating and power – by 2035. It aims to reach net-zero for scope three emissions – those that result from activity that takes place beyond facility walls, such as the production of raw material and emissions generated through the supplier network – by 2050.

Sandvik Coromant is also working to become more than 90% circular by 2030, with its buy-back scheme for recycling used carbide tools forming an important part of its circularity strategy. The company's third sustainable business goal relates directly to people, with a pledge for women to make up a third of Sandvik Coromant's management team by 2030.

"Committing to science-based targets is a crucial part of our sustainability strategy," said Patrik Eurenius, head of sustainability and EHS at Sandvik Coromant. "Recognition of the SBTi initiative has grown exponentially in recent years. When we first signed up, around 3 000 other businesses did so at the same time. Now, that figure is almost double. As more businesses wake up to the reality our planet faces and act to make a difference, validation from the SBTi will become even more vital."

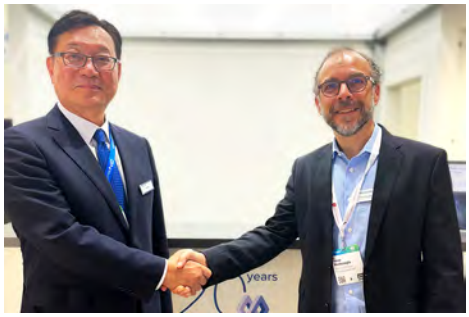
For further details contact Sandvik Coromant on TEL: 010 500 2295 or visit www.sandvik.coromant.com ■

ModuleWorks partners with DN Solutions to develop machine tool software

ModuleWorks has announced a partnership with DN Solutions to focus on the joint development of machine tools software and the creation of integrated solutions to drive the digital transformation of the manufacturing industry.

DN Solutions uses ModuleWorks' software development resources to advance its intelligent, automated machining cycles and user-assisted solutions within its range of machining applications.

This partnership is said to represent a commitment from both companies to drive digitalisation in the manufacturing industry.



Wonjong Kim, CEO of DN Solutions (left) and Yavuz Murtezaoglu, founder and managing director of ModuleWorks (right)

Yavuz Murtezaoglu, founder and managing director of ModuleWorks, says, "Manufacturers are calling for easy-to-learn and easy-to-use solutions that minimise training costs and increase productivity. This means greater digitalisation with highly automated solutions that assist operators as much as possible. We realised the industry can get there faster by pooling its expertise and resources. Our Strategic Partner Programme is designed to give solution providers like DN Solutions the software development resources they need to empower their digitalisation strategies. We are excited to welcome DN Solutions as our strategic partner and look forward to advancing digitalisation in manufacturing."

Wonjong Kim, CEO of DN Solutions, says, "This strategic collaboration is aligned to propel the digitalisation of our manufacturing processes. It marks a pivotal step towards transforming our machines beyond mere production tools, evolving them into intelligent, connected units that redefine the very essence of how we approach production."

For more information contact Puma Machine Tools on TEL: 011 976 8600 or visit www.pumamachinetools.co.za ■

Taiwan tightens export controls after report of Russian arms use

The Ministry of Economic Affairs (MOEA) said yesterday that it has tightened controls on machine tool exports to prevent their use by Russia in its war against Ukraine, after the Washington Post reported a few Taiwanese companies had sold US$20 million of equipment which ended up in the hands of Russian arms makers.

The ministry's response came after the Washington Post reported on Thursday that since January last year, Russian company I Machine Technology has imported over US$20 million of sophisticated equipment called CNC machine tools. The tools are made in Taiwan, including by a similarly named Taiwanese trading company called I Machine Tools Corp.

The computer-controlled machines are used for complex and precise manufacturing that is critical to many industries, including weapons production, the Post reported.

The ministry said the measures it has adopted to prevent similar reoccurrences included placing I Machine Technology, which is accused of re-directing Taiwanese-made precision equipment to Russian arms makers, on a blacklist last month.

The list has so far banned 1 900 entities from receiving such products from manufacturers, the ministry said.

According to the ministry, it has also requested Taiwanese manufacturers exporting to countries such as Turkey and the United Arab Emirates, which are considered to have a high risk of reshipping the products, to agree not to redirect shipments to Russia and Belarus.

In addition, the penalty for first-time violations of exporting to Russia has been increased by over 15 times to NT$1 million (US$32 055), the ministry said.

The Post said those shipments imported by I Machine Technology probably violated prohibitions Taiwan and the West imposed in January last year on the sale of technology to Russia, in response to the Ukraine war.

Both I Machine Technology and the Taiwan-based I Machine Tools have denied such accusations, stressing that the shipments involved only spare parts that were not subject to export controls, the report said.

According to the Post, the MOEA had declined to comment on whether the Taiwanese companies identified in its report had violated the export controls, but said in a statement that the Taiwanese government is planning to bar local companies from selling their goods to I Machine Technology out of concern they could be used for weapons production. ■

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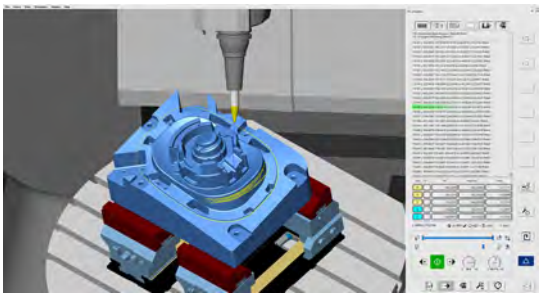
OPEN MIND to show hyperMILL Version 2024 at MACH 2024



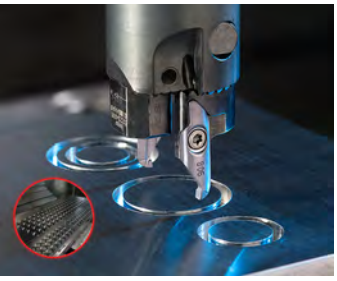
At MACH 2024 exhibition in the UK, OPEN MIND will highlight its pioneering technologies for digital process chains whilst showcasing its innovative advancements for connected manufacturing, automation, turning, Hummingbird MES and solutions for additive manufacturing.

One of the latest innovations that is gaining huge traction in the industry is the new Hummingbird Manufacturing Execution Systems (MES). The agile MES solution that enables users to improve and streamline the planning, control, automation and optimisation of processes across manufacturing operations. Too often, the right information, data and materials are not in the right place at the right time. Hummingbird eases entry into the digitalised world of manufacturing for customers with a tailored solution that allows users to choose the modules they require to gain complete control of their processes - and then expand the system step by step as needed.

The OPEN MIND team will also present the latest hyperMILL Turning Solutions that include technologies for turning, turn/mill and mill/turn machines – making the suite ideal for all corresponding machine configurations. In Version 2024, hyperMILL Turning developments will include CAD for CAM functions for rotary contours, finishing paths for grooving, a 'remove rings' function, a 2D stretch command and a new tool turret support that via hyperMILL Virtual Machining can create a detailed map of all tools in a turret to create a seamless NC code simulation. The new enhancements will simplify the creation of chamfers, contours, radii and undercuts, create uniform allowances for finishing when grooving, reliably remove ring chips from components, quickly and easily adapt parametric 2D contours and much more. Furthermore, Heidenhain CNC systems as well as Siemens controls are now supported with the latest mill/turn modules whilst the 'Connected Machining' interface also supports FANUC control systems. These updates identify the exponential development rate and the associated compatibility of hyperMILL's Turning Suite with an ever-increasing range of machine tool types.

Bidirectional communication with machine tool controls is particularly important in networking with other systems along the process chain. At MACH, there will be demonstrations of hyperMILL Virtual Machining that closes the gap between the CAM system and the physical machine environment. If the CAM software can work with a digital twin of the physical machining process, then this opens up new options for generating, optimising and simulating the NC code safely. hyperMILL Best Fit is an impressive example of this. It is a new type of component alignment system for the subsequent processing of cast, welded or additively manufactured components. This sees the NC program adapt to what is physically happening in the workspace, rather than the clamping being adapted to the NC programme, which has been standard practice until now.

For further details contact Hi-Tech Machine Tools on TEL: 011 608 0088 or visit www.hitech.co.za ■



Iscar introduces new trepanning cartridges carrying MINCUT inserts mounted on ITSBORE boring head

Iscar has introduced trepanning cartridges carrying MINCUT MIFR 8 and MIFR 10 inserts, designed for mounting on standard ITSBORE boring heads. They can be used with a single or double-cartridge configuration as a half or full effective option.

The MINCUT MIFR 8 inserts have a 5mm to 2.2mm grooving width range and 8mm to 21mm diameter range, while the MINCUT MIFR 10 inserts have a 2mm to 3mm grooving width range and 19mm to 34mm diameter range.

Applications include drilling up to 5mm thick plates, O-ring seal grooves, and face grooving on milling machines.

The MINCUT line represents the largest variety of small diameter holders and inserts. The MINCUT 8, 10 and 15 insert line can cover minimum diameters from 8 mm up to 60 mm and, in some cases, with no diameter limit. Iscar has recently introduced a new family of MINCUT inserts for external face grooving and turning next to long shafts.

MINCUT is a family of internal face grooving and face turning tools for machining small diameters.

For further details contact Iscar South Africa on TEL: 011 997 2700 or visit www.iscar.com ■

Kennametal's HARVI I TE 4-flute solid-carbide endmill

A 4-fluted end mill for high-performance roughing and finishing with only one tool.

Kennametal's HARVI line of high-performance solid endmills incudes the HARVI I TE 4-flute solid-carbide endmill. With a radical design, the HARVI I TE delivers outstanding performance in a broad range of materials, including steel, stainless steel, high-temperature alloys and cast iron. And thanks to significantly reduced cutting forces, this tool can be used on any machining center or mill/turn center in the shop.

Kennametal engineers designed the HARVI I TE to address four key problems that plague more than 90% of all milling applications: chip evacuation, tool deflection, corner stability and breakage due to radial cutting forces. The result is a tool that's durable and versatile enough to tackle the lion's share of milling applications.

Consider chip evacuation. The HARVI I TE has an innovative flute design that helps curl and break chips into manageable pieces, while a series of chip gashes within the flute lift those chips up and away from the workpiece. Both serve to promote coolant flow, eliminate chip re-cutting, and improve tool life. A twisted end face and unique gashing further promote chip evacuation but are also responsible for the HARVI I TE's enhanced ramping and plunging capabilities.

Tool deflection is reduced thanks to the tool's parabolic core, as well as an eccentric, faceted relief along the entire flute length that significantly lowers cutting friction. This relief also increases edge strength, making the tool a versatile solution. Together with a variable-helix angle and asymmetric flutes it dampens vibration before it can negatively affect machining operations.

The HARVI I TE improves process stability, surface quality and chip evacuation. Most importantly, it maintains these benefits even at increased feeds, speeds, and depths of cut – delivering maximum metal removal, tool life and productivity.

For more information contact Kennametal South Africa on TEL: 011 748 9300 or visit www.kennametal.com ■

DMG MORI's new PH Cell 500, a modular system for handling machine pallets

Storage and handling system for automated prismatic machining.

New from machine tool company DMG Mori is the PH Cell 500, a modular system for handling machine pallets carrying one or more fixtured components into and out of the working area of various models in the manufacturer's monoBLOCK machining centre range.

With the PH Cell 500, DMG MORI is expanding its series of modular pallet handling systems with a compact model for transfer weights of up to 500kg. It is compatible with the DMU 65 and DMU 75 monoBLOCK 2nd Generation as well as the DMU 65 H monoBLOCK. Depending on the configuration of the rack modules, the PH Cell 500 offers space for up to 32 pallets. The maximum workpiece dimensions are 500mm x 500mm x 750mm. The transfer weight is 500kg. Like the other models in the series, the PH Cell 500 is ergonomic and easy to operate thanks to the Pallet Master software.

The modular PH Cell 500 offers space for up to 32 pallets, each measuring 400mm x 400mm. The rotating set-up station and touchscreen control ensure a high level of ergonomics and simple operation

The new pallet automation enables highly flexible automated production of small batch sizes and individual parts. The reason for this is the modularity of the system, which enables customised configuration. In practice, the PH Cell 500 can increase spindle hours by up to 300 per cent and reduce unit costs by 50 per cent.

The PH Cell 500 is supplied with one storage module as standard. Equipped with three shelves, it offers space for twelve 400mm x 400mm or nine 500mm x 500mm pallets. The version with four shelves has space for 16 of the smaller or twelve of the larger pallets. A combination of different pallet sizes is also possible. The PH Cell can be retrofitted if the machine is equipped with automation preparation. The same applies to the extension of the pallet handling system with a second rack module. DMG MORI thus guarantees a needs-based configuration that meets the production requirements at any time – even retrospectively.

For more information contact Retecon on TEL: 011 976 8600 or visit www.retecon.co.za ■

Mazak solves FSW challenges with FSW-460V

As a rapidly growing technology with a critical role to play in the exponentially expanding Electric Vehicle (EV), semi-conductor and heat transfer sectors, Yamazaki Mazak has developed a new Friction Stir Welding (FSW) machine that overcomes all the common challenges manufacturers encounter when adopting the technology.

The FSW-460V has been 'purpose built' to overcome the key challenges faced by manufacturers adopting FSW technology to join materials. Some of the main barriers to adoption of the FSW method include process reliability and repeatability, factors often compromised by machine rigidity and stability. By definition, FSW is a technique that requires significant thrust force, which places considerable stress upon the machine tool. To deliver this process stability for end users, Mazak has created a heavy-duty and highly-rigid machine construction. Upon this robust construction are enhanced linear guideways and powerful high-output servo motors.

This provides a foundation for the FSW-460V spindle to reliably and consistently generate a maximum thrust force of 14kN with a spindle speed of up to 10 000rpm for high-speed welding. With an X, Y and Z axis feed rate of 8m/min and a rapid rate of 42m/min, tool shank rigidity during high-speed welding is assured by the BIG-PLUS (BBT-40) face and taper dual contact spindle taper system that is supplied to tools via a 15-position tool storage system.

For manufacturers in volume production environments, the process stability of existing FSW technology can be compromised by in-cycle part deformation and movement. To counteract this common issue, the Mazak FSW-460V incorporates a sizeable 900mm by 460mm table that can accommodate loads up to 500kg. Upon the sturdy table and working in complete harmony with the welding cycle is a fully automated CNC-controlled part clamping facility that retracts and engages the workpiece clamps in synergy with the movement of the high-speed welding spindle. This ensures the highest clamping forces are retained throughout the FSW process – eliminating part deformation and movement of the components by maintaining the maximum number of fixture contact points during operation.

Furthermore, the automated clamping technology incorporated into the FSW-460V expedites the component changeover process, enabling manufacturers to achieve significantly higher production rates. As with any production environment, ease of use and operator friendliness are critical aspects of any production equipment. Here, the Mazak FSW-460V provides operators with an easy-to-access and spacious work envelope that also gives the machine a generous X, Y and Z-axis stroke of 560mm by 460mm by 510mm that can accommodate anything from small parts to relatively large assemblies.

For further details contact Hi-Tech Machine Tools on TEL: 011 608 0088 or visit www.hitech.co.za ■

TaeguTec's premium high-feed milling line, WIN-4-FEED has been expanded

TaeguTec's premium high-feed milling brand, WIN-4-FEED, has been leading the market since its launch with excellent machining performance and improved tool life. In response to its popularity, TaeguTec is now expanding the WIN-4-FEED product line, positioning it as a powerful next-generation high-feed milling solution that covers the existing BLMP 06 machining range.

The new MM and ML chip formers on the inserts' sharp cutting edges minimise cutting loads and heat generation, thereby providing excellent tool life in difficult-to-cut materials such as stainless steel, titanium, and super alloys. Furthermore, TaeguTec offers a wide range of options for the best tool selection taking into account all machining environments by providing holders in odd diameters and different lengths.

Building on the success of the CHASE-4-FEED series, in 2023 TaeguTec unveiled the powerful premium high-feed milling solution WIN-4-FEED that includes BLMV inserts and dedicated cutters.

The BLMV line's V-shaped contact face, which prevents insert rotation during ramping and plunging operations, contributes to its steady machining performance and increased productivity. These features not only ensure a high ramping angle but also enable deeper step-down machining, boost productivity, and provide a range of machining entry operations.

The insert comes in an M type chip former and has a 6mm I.C. size. There are two different types of cutters: Ø32-63mm face cutters and Ø16-40mm end mills.

For more information contact TaeguTec SA on TEL: 011 362 1500 or visit www.taegutec.com ■

AMADA has released its next-generation large press brakes in the HRB Series

Support for long workpieces and materials from thin sheet metal to thick sheet metal.

AMADA has launched its HRB series of next-generation large press brakes. These machines expand the range of possible processing by enabling the bending and deep bending of thick sheet metal and large items.

The new HRB series products expand the large-scale machine range to seven models, with new support for long and med-to-thick material from 350 tons/3 metres to 600 tons/7 metres. In addition to now being able to support the steel material processing that supports social infrastructure and the workplaces that process thick sheet metal, consideration is also given to the environment with a unique hybrid drive system using an AC servo motor and two-way piston pump.

The machines are equipped with the AMNC 3i NC control. The AMNC 3i NC unit can be operated simply via the large touch screen, so it is easy to see all the required information at a single look. Easy operation, reduced setup time, new features to support the component quality and management activities have all been incorporated.

The AMNC 3i control is optimally matched to the AMADA VPSS 3i Software Suite.

The LITE mode, which makes it easy to create a machining programme, enables easy bending regardless of skill, age, gender and nationality.

In addition, by adopting the optional angle sensor “Bi-LII” for thick sheet metal and “heavy work sensor butting” for the back gauge, it is possible to reduce bending accuracy failures and realise stable machining.

The sheet metal processing industry is currently experiencing a severe labour shortage and is facing problems related to the aging of engineers and the development of the next generation of operators. In addition, efforts to achieve carbon neutrality are urgently needed in response to the increasing awareness of the environment worldwide. AMADA will solve the issues in the sheet metal processing industry through its products and technologies and will also explore the future of manufacturing together with customers and create innovation.

For further details contact Amada Johannesburg on TEL: 011 453 5459 or visit www.amada.co.jp ■

Sandvik Coromant’s CoroDrill 860 with -SD geometry

With its CoroDrill 860 with -SD geometry, global metal-cutting company Sandvik Coromant is introducing a new solid-carbide drill that is optimised for drilling nickel-based HRSA materials and offers a standard drilling depth capability of up to 8xD while achieving ‘consistent and predictable tool life with high hole integrity’ - as required by industries such as aerospace.

Sandvik Coromant says current strategies for drilling nickel-alloy aero-engine parts, where process security is paramount, cannot meet the high demands from the industry and do not achieve maximum tool life. The new CoroDrill 860 with -SD geometry, which is purpose-designed for superior machining of nickel alloys, does and guarantees the highest performance and process security in heat resistant super alloys.

“The combination of several key features contributes to the high level of performance in HRSA materials, including the S2BM grade, which combines a fine-grained cemented carbide substrate, a multi-layer PVD coating, and post treatment for maximum tool life. Furthermore, the drills feature a geometry that optimises clearance angles, a highly controlled edge preparation, flute shape, corner chamfer, and double margin – thereby ensuring these drills achieve the highest levels of performance and process security.”

“Extensive design development and comprehensive product tests in multiple HRSA materials have shown that CoroDrill 860 with -SD geometry has consistent performance in 3, 5 and 8xD applications offering excellent machining stability and process security, capabilities that make process planning and cost calculations more reliable when predicting tool life and conducting cost-per-part analysis.”

For further details contact Sandvik Coromant on TEL: 010 500 2295 or visit www.sandvik.coromant.com ■

Hurco's VM30i now available as a Plus version

One of Hurco's best-selling three-axis vertical machining centres (VMCs), the VM30i with a 1 270mm x 508mm x 508mm working envelope in a compact footprint of approximately 4 100mm x 2 700mm, is now available as a Plus version. It has been upgraded from a single-screen to a twin-screen WinMax control and has a 12 000rev/min 15kW spindle instead of a 10 000rev/min version. Additional new benefits include 20-bar through-spindle coolant, LCD remote jog and an auger for efficient swarf evacuation.

Philip Carr, an applications engineer at High Wycombe-based Hurco Europe Ltd, recently demonstrated the raw power of the new spindle, with a Kyocera SGS seven-flute end mill ripping into mild steel to a depth of 50mm. He ran a programme that used toolpaths created using 'UltiPocket', a milling software option within Hurco's WinMax programming and control software that allows the boundary of a component to be defined and then pockets or islands within it. The approach eliminates complex calculations and shortens part programming time. Milling can be undertaken from the centre outwards if there are no islands, or vice versa if there are.

Of special interest are Hurco's alternative adaptive AdaptiPath routines, 'Zigzag' and 'One-Way', both of which are proprietary and support helical plunging. The former ensures that the tool is constantly in contact with the material surface to decrease machining time, moving the tool in a zigzag pattern with one pass being climb milling and the next conventional.

With One-Way, on the other hand, milling is either climb or conventional, with the cutter skimming the part surface on its return. In all cycles, the percentage of tool engagement during cutting is set by entering a value in the step-over field. Rest machining is available with the AdaptiPath routines, allowing the programme to specify a small diameter mill to clear out remaining pocket areas, in corners for example, which a larger tool might not be able to reach.

Mr Carr pointed out that the addition of a second control screen allows a graphical image of the part to be generated as the cycle is being programmed and a full simulation to be displayed after it is complete. Operators are provided with a precise visual representation of the cycle and the ability to slow down a simulation enhances understanding and analysis.

The machine now includes a twin- rather than single-screen control.

Whereas previously only DXF files could be imported into the control, it is possible with the recently introduced Solid Model Import option to bring in an STP file and work directly from it. There is also now the ability to import a 3D surface from a model into a conversational program at the machine. Software features in WinMax that enable 2.5 diameter work include Swept Surface with its automatic blending functions and 3D mould shape rotation around an axis. For some users, all this functionality is sufficient to avoid the expense of sourcing a CAD/CAM system.

Tool Change Optimisation is a further feature within WinMax that reduces the number of tool changes in conversational programs. In typical conversational program execution, each data block is completed for roughing and finishing before the program moves on to the next data block. By harnessing the power of Tool Change Optimisation, a cycle is completed sequentially by tool, so all operations that use tool 1 are completed before the program moves on to the operations that use tool 2, and so on.

The machine now includes a twin- rather than single-screen control

Significant savings in run times are possible by eliminating unnecessary cutter exchanges, especially when drilling, tapping and perhaps counter-boring multiple holes of different diameter, for example.

Mr Carr concluded: "Using a Hurco VM30i Plus with our revolutionary WinMax twin-screen control system, a manufacturer can take advantage of a powerful piece of production equipment that doubles as a VMC and a CAD/CAM system. With its upgraded mechanical specification as well, the VM30i Plus is at the forefront of cost-effective machining technology. Having this tool in their arsenal, manufacturers can achieve higher levels of efficiency, precision and productivity, all without moving from the shopfloor."

For further details contact TH Machine Tools on TEL: 012 259 1375/0122 or visit www.thmachinetools.co.za or www.hurco.com ■

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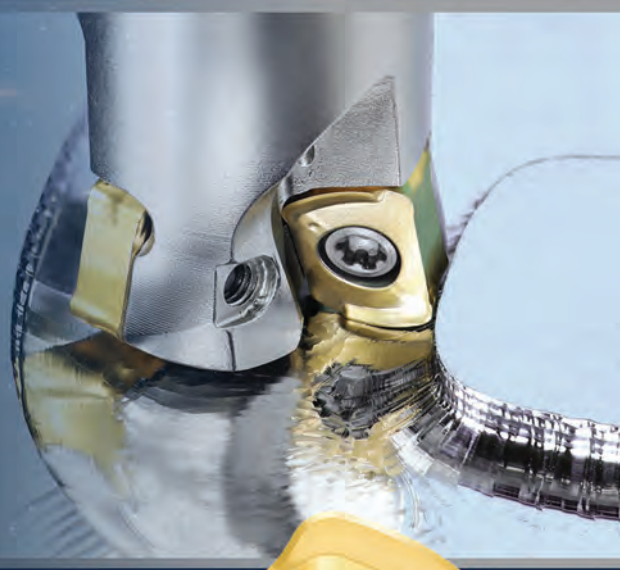

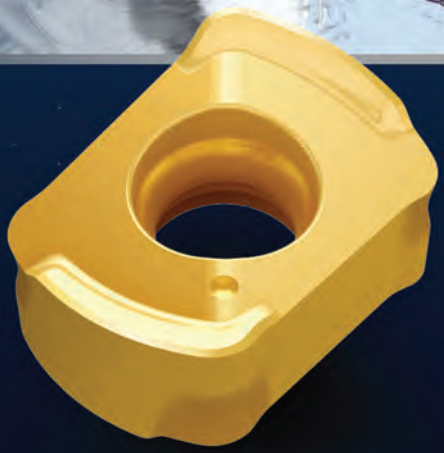

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