METALWORKING NEWS
VOLUME 22.6
January 2024

Mitutoyo

Precision metrology for your inspection departments

QM-DATA200 AND PROFILE PROJECTOR

Extending the capabilities of 2D optical measuring instruments. The data processing unit has been especially designed to process measurement data generated by a profile projector or measuring microscope.

Measuring instructions, measuring values and calculation results for various operations are shown on the back-lit LCD in a clear, easy to understand style. You can also print measuring results.

MISTAR 555 - Shop-floor Type CNC CMM

Versatility. Simple Operation. Reduced Footprint. Compact Design. Best-in-class Drive Speed & Acceleration. Widest Temperature Accuracy Guarantee

Mitutoyo's MiStar 555 eliminates need for environmentally controlled CMM enclosure. Production ready for near-line or in-line operation on the shop floor. Highly environment-resistant coordinate measuring machine, allowing shop-floor inspection outside the measuring room.

METALWORKING NEWS

January 2024

What can we expect for 2024?

What does the year hold... well, who knows? It is a bit like a spinning wheel and we can only hope that the ball lands on the right number and colour.

Can we expect more blatant abuse of power, more being caught with their hand in the cookie jar, more allegations of corruption, more blaming of the accuser, more denying of the irrefutable facts, more of the lack of prosecution of the real criminals leaving us with zero confidence in the justice system – it goes on and on and most of us cannot keep up with all the shenanigans that are revealed daily.

How does the Minister of Police justify spending state money to take his assistant to attend the Rugby World Cup final in France? Then there are revelations by OUTA of authorised payments, that implicate the Minister of Higher Education, of R93 579.00 for 20 branded T-shirts (costing R4 679.00 each); R264 340.00 for six branded umbrellas (R44 057.00 per umbrella); R36 300.00 to design a letterhead, and R668 200.00 to print 100 copies of the Services Seta Annual Performance Plan.

It is a critical year for elections around the world. According to The Economist: In 2024, countries with more than half the world's population – over four billion people - will send their citizens to the polls in the next 12 months.

These are hugely significant elections with consequences for the future of democracy, the global economy, and the potential for wider armed conflict. Worrying trends will continue to evolve, including the on-going rise of right-wing populism and autocracy.

The most significant elections will take place in Taiwan, Indonesia, India, the UK, South Africa, and the US.

In South Africa, thirty years after the end of white rule, democracy itself is struggling. The Economist quotes: "Some of the happiest queuing ever took place in South Africa on April 27th 1994. On that day millions lined up to elect Nelson Mandela's party (ANC) in the country's first general election under multiracial democracy. Some 86% of eligible voters turned out."

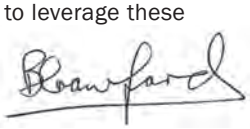
But when South Africans go to the polls this year, there will be no sense of jubilation. The country is profoundly fed up with corruption, crime and joblessness. Analysts expect turnout to be even lower than the 49% who cast their ballots last time, in 2019. It is possible that less than a quarter of the post-1994, 'born free' generation will bother to vote.

As pressure from impending regulations, potential economic headwinds and geopolitical tensions grow, manufacturers are increasingly looking at cutting-edge technologies to help navigate these challenges. Increased government pressure on sustainability initiatives and the growing visibility of climate change impacts, is seeing manufacturers worldwide placing a heightened emphasis on sustainability. Across industries and governments globally, there is a widespread adoption of objectives to achieve carbon neutrality.

While many manufacturers are still effectively blind to a staggering percentage of events on the factory floor and in their supply chains, Smart Manufacturing solutions will be key in the next year to reduce manufacturing inefficiencies, increase productivity and, ultimately, weather the economic storm.

Manufacturing leaders will need to embrace the new technologies to achieve a more efficient and productive operation and combat inflation. Managers will look to increase their sustainability initiatives and adopt more Industry 4.0 solutions in the coming year. Organisations that are slow to leverage these advanced technologies will get left behind.

My big question is... How do we spin the wheel so that the ball will land on change, on commitment, on prosperity and hope?



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Editor
Bruce Crawford

Online Editor
Damon Crawford

Editorial Board
WIllie Du Preez – Visiting Professor, Department of Mechanical and Mechatronics Engineering, Central University of Technology, Free State

Production Manager
Wendy Crawford

Layout
Ria Arnold

Advertising
Bruce Crawford / Wendy Crawford
Cell: + 27 83 628 7654
E-mail online@engnews.co.za
Website: www.metalworkingnews.info

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Making sheet metal fabrication simpler, more productive and more sustainable.

TRUMPF

TruBend Series 1000 Basic Edition

The TruBend Series 1000 Basic Edition focuses on the essentials: It combines TRUMPF quality with good value for money, thus making for an economical introduction to the TRUMPF bending world. Fast setup, simple control, and smooth operation with minimal downtime maximize your return on investment.

The TruBend Series 1000 Basic Edition is available in three predefined variants: Pick the variant that's right for you.

TruLaser 1000 Basic Edition (L99)

Discover a laser cutting machine that offers improved start-up and operating costs and is intuitive to use and operate.

The TruLaser Series 1000 Basic Edition is the ideal start into the world of high-quality laser cutting. It is equipped with a TruFiber laser for cutting a wide range of sheet thicknesses. The intuitive programming system makes it possible to start production quickly.

TruPunch 1000 (S05)

The TruPunch 1000 is the perfect entry to professional punching. The compact machine excels with its high level of processing flexibility: In addition to just punching, you can also use it to form threads, extrude, and bend flanges. You can process midsize sheets completely in one tool setup without repositioning. You can even produce smaller orders and lot sizes economically, quickly and with flexibility.

Sole agents for TRUMPF in South Africa for over 42 years.

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MTMA

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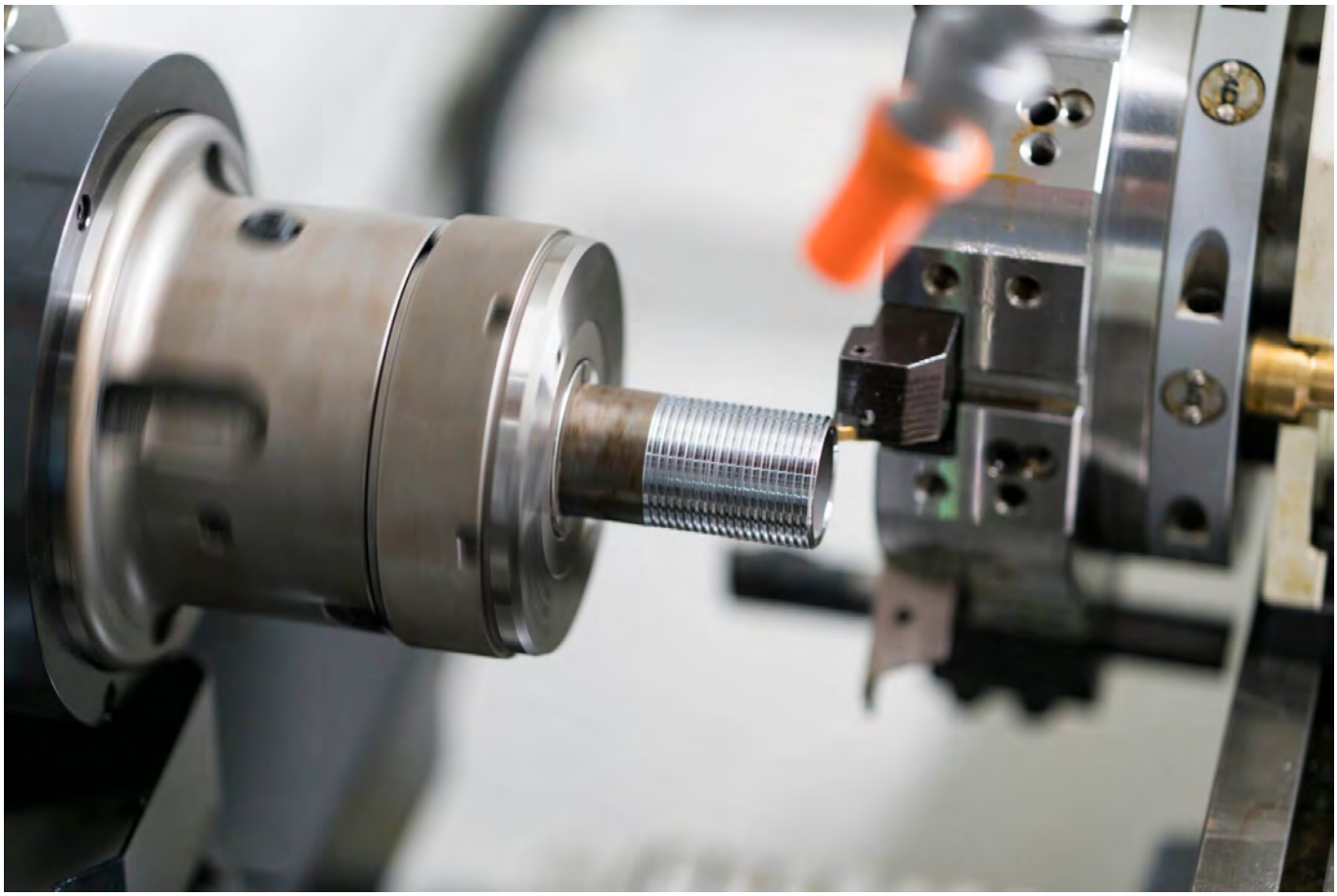
Preventative maintenance is key to profitability



If your spindles aren't turning, you aren't making money. The best way to keep those spindles in motion is to employ a few simple and proven preventative maintenance strategies. Here are five suggestions to help ensure success.

1. **Perform baseline tests**
   This includes running a basic part and keeping the data on that part handy for future comparison. Another test is a basic geometry check to get good reference numbers so you can detect squareness, straightness and other positioning errors down the line. Always check spindle vibration. If something is out of whack there, things go downhill fast.

   Lastly, a ball bar test is always very helpful. Doing this helps track and correct positioning variance over time.
   Baseline tests are important. If you have a collision, or you need to replace a part on the machine (like a spindle or ball screw), you know where things were when the machine was making good parts. You can make more informed adjustments before you get back up and running.

2. **Calibrate, calibrate, calibrate**
   There is no hard and fast rule as to how often you should calibrate your machines, except that you should do it as often as necessary. If you're running standard parts using standard materials, once a week or so will work.

   If you're machining high-precision parts using exotic materials, you may want to calibrate every shift. Every company calibrates differently, but if you're only calibrating every six months or so, you need to up your game.

3. **Take advantage of your OEM/reseller**
   Most machine tool builders and resellers have preventive

maintenance and repair programmes. No one knows the machines like they do, and having them come in and professionally inspect, calibrate and clean your machine is invaluable. Purchasing a maintenance programme is a small cost compared to that of a breakdown.

Another approach is to have a dedicated preventive maintenance person on your maintenance team. Generally, what happens, however, is that the preventive person gets pulled in to help put out fires (machine down, building issue, etc.) and those proactive maintenance tasks fall by the wayside. If you see this happening, it might be more effective to rely on the OEM or reseller to take on those services for you.

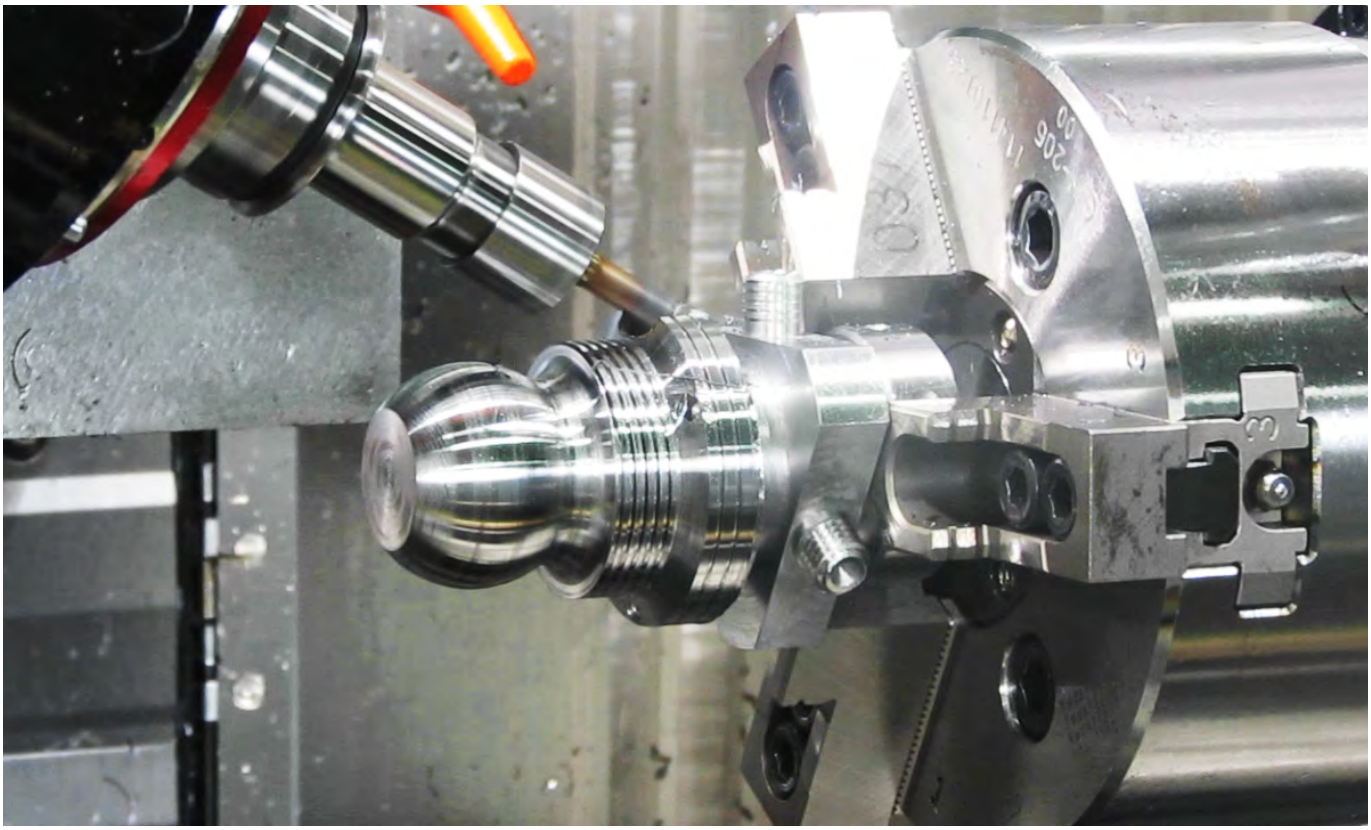
4. **Put tune-ups on your calendar**
Whether you purchased the maintenance package from your supplier or not, you need to put regular tune-ups on your calendar. An inspection and tune-up service takes three to five days, so scheduling ahead of time will keep your production timetable on track.

A thorough tune-up will include laser calibration, lubrication, spindle vibration analysis, thermal analysis, a deep cleaning and any other maintenance specific to that machine.

5. **Use quality inspection tools**
To ensure you have the best inspection equipment for your machines, you should ask your OEM or reseller what they recommend. They'll help you choose the best tools for your machine.

In general, the inspection tools you should include in your arsenal are a performance diagnostic system on your machine, a high-precision ball-bar system, a laser calibrator that can calibrate on all axes of motion, an accelerometer and a thermal-inspection device such as a Flir camera.

Preventive maintenance affects downtime and your bottom line. Following these simple strategies will help make sure that "PM" stands for "preventive maintenance," rather than "postmortem." ■



This is the viewpoint of Terry Ritterbush, Regional Sales Manager, Mitsui Seiki USA and it first appeared in Manufacturing Engineering

cover story

The changing face of metrology

Metrology has always been vital in precision manufacturing to ensure products meet both quality and design specifications. As industry demands have increased over the years, we have seen a transformation in measurement technology - advances in metrology and improvements to manufacturing capability typically go hand-in-hand. As Renishaw celebrates its 50th anniversary, Paul Maxted, Director of Industrial Metrology Applications at Renishaw, explores the changing role of metrology in manufacturing over the last few decades and predicts how it is set to develop in the future.

Paul Maxted, Director of Industrial Metrology Applications

"At Renishaw, we've always understood the role of metrology in optimising manufacturing processes. Indeed, the company was founded on exactly that, when Sir David McMurtry developed the first touch-trigger probe to solve a dimensional measurement issue for the Olympus engines which powered Concorde. The creation of this industry-changing sensor enabled measurement on a co-ordinate measuring machine (CMM) to be automated for the first time. Since our company was founded in 1973, there has

been a revolution in measurement processes - let's take a look back."

Bringing metrology to the shop floor

"Processes in a traditional machine shop have always been reliant on skilled individuals, like toolmakers, setter/operators and other experts, producing quality machined parts in batches. In CNC machining operations the setup of a recurring batch of parts requires skilled input and often results in balancing a batch quantity with an excessively long set time. This not only ties up valuable machine time but adds inventory costs to a business."

Monitor data from connected devices such as CMMs using Renishaw Central: Smart manufacturing data platform

"It was and is still common for a manufacturing facility to have a dedicated CMM room and skilled inspection staff. CMM rooms are often remote from the shop floor where parts can be measured in a temperature-controlled environment. Separating machining and metrology ensures measurement traceability, however, it creates a disconnect between manufacturing and quality."

"CMM measurement is often a bottleneck that delays production, with CNC operators often waiting to get first-off approval before producing parts in volume. However, the alternative of immediately starting production increases the risk of non-conforming parts, waste and quality costs which quickly escalate - a dilemma."

"Implementing on-machine probing and tool setting systems to automate and reduce setup times allow for smaller batch quantities and increased productivity. Further evolutions in shop floor measurement and gauging equipment mean that metrology systems empower production people to measure accurately in-line or near-line production. Ultimately, bringing metrology to the shop floor enables faster, more frequent part and process measurement and the ability to react more rapidly to process drift and dimensional changes."

The first probe for CMMs (TP1) was made commercially available by Renishaw in 1973

"Over the years, Renishaw has helped hundreds of global customers integrate metrology and proactively apply controls using our Productive Process Pyramid™ concept, supporting them through four core steps."

"The Process foundation requires engineers to consider how they set up the entire factory for consistent performance, including CNC machine assessment, control of tooling, fixtures and other critical sources of variation."

"Next, manufacturers can look at process setting, checking the machine, tooling, material and fixtures before machining – integrating metrology to automate and eliminate manual intervention."

"Adding probing within a CNC operation, in-process controls automatically react to any real-time changes, for example temperature variations, tool wear and process drift, again, avoiding expert intervention and adjustment."

"Following machining, measuring at the post-process stage enables engineers to validate the process step or final part. However, if manufacturers have already taken the previous preventative, predictive and active steps to improve process control, quality confidence is already high."

Data-driven manufacturing

"To derive the full value of metrology, manufacturers require a great deal of process data to be collected, as well as the ability to leverage the measurement results. With the right tools, manufacturers can use this data to gain valuable insights into the entire process chain, finding where they can make changes that will be most impactful to process control, quality and productivity."

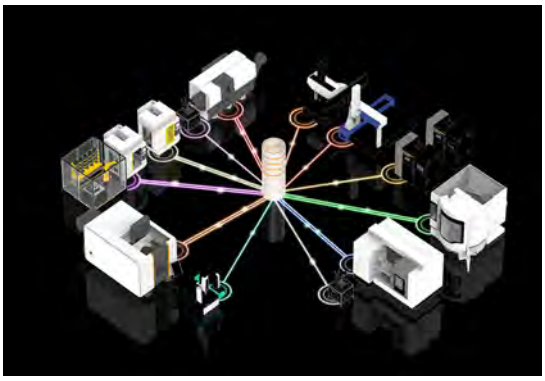
"Organising manufacturing data to provide valuable insights at each of these stages has traditionally been difficult on the shop floor. However, the introduction of Renishaw Central a manufacturing data and machine shop connectivity platform, is a gamechanger. With this system we can digitalise all process and metrology data, visualise, and automatically control all manufacturing and measurement processes. The results can be significant. Renishaw Central, piloted in our own machine shops, allowed us to reduce unplanned automation stoppages and increase machining capacity by 79 hours per week. We were also able to reduce CNC setting times by over 80% when it was applied with our Equator™ gauging system and IPC (Intelligent process control) software."

Connect multiple machines and devices using Renishaw Central: Smart manufacturing data platform

"Manufacturers are now able to use real-time process and measurement data to improve operations part-by-part, batch-by-batch, and drive long-term improvement, with a smart factory approach to analysing process data. Monitoring patterns in process data over time enables engineers to continuously improve and optimise. This could mean enhanced product

performance, more robust process design or making products faster at lower cost."

"In our factories today, there are still occasions where we experience minor, frustrating stoppages, process alarms or events that impact productivity. However, as we gain more visibility of our processes, over time, we can adapt and continuously improve them. As we begin to understand our longer-term manufacturing capability, we can make informed decisions to refine the frequency for measurements and controls."



Unlock the power of data-driven manufacturing with Renishaw Central smart manufacturing data platform

Looking forward

"As manufacturing becomes more autonomous, we see a trend towards metrology being directly integrated into all automated CNC machining systems. With this approach, manufacturers can leave machines running unmanned making good parts, safely, improving productivity, and freeing up engineers for more proactive value-added activities."

"Fully automated systems become critical as manufacturing looks to re-shore operations. To enable manufacturers to become more globally cost competitive and ensure a resilient, local supply chain, it will be vital to manage these operations using automated metrology systems that collect real-time data."

"There has been a huge shift in measurement technology in the last 50 years, taking metrology from an off-line inspection process into a fundamental pillar of high-precision, automated manufacturing. It has been a privilege to work alongside so many passionate engineers and manufacturing customers over the last few decades. They have helped to drive this change and transformed the performance and quality of products globally including cars, jet engines, mobile phones and anything precision moulded or machined. All these products are influenced by Renishaw technology at some point during their manufacture."

For further details visit www.renishaw.com ■

Robotic Innovations presented with FANUC sales award

FANUC is proud to announce that Robotic Innovations has been chosen as the winner of the 2023 sales award for their outstanding sales of FANUC robots in South Africa. The award was presented by Dr Kiyonori Inaba at an event held during the iREX 2023 exhibition held in Tokyo.

"Congratulations to Altus Mostert and the Robotic Innovations team for 20 years of dedication and hard work. We look forward to working closely with you for many years to come," said Marc Mahl, Managing Director of FANUC South Africa.

Dr Kiyonori Inaba of FANUC Corporation presenting the award to Altus Mostert, Managing Director of Robotic Innovations

Dr Kiyonori Inaba is Director, Executive Vice President and General Manager of the Robot Business Division of FANUC Corporation, and is the grandson of Dr Seiuemon Inaba, the founder of FANUC Corporation and was Honorary Chairman at the time of his passing in October 2020, at the age of 95.

Dr Kiyonori Inaba is the son of Dr Yoshiharu Inaba, who is the current Chairman and CEO of FANUC Corporation and is the Chairman of the Japan Robot Association and the Japan Machine Tool Builders' Association.

Robotic Innovations, a South African and Australian based company that was founded in 2004, specialises in robotic system integration and design turnkey automation systems for a number of manufacturing applications.

The company is a full service company, offering turnkey robot systems and a full range of services to support new and existing robotic systems. They offer robotic systems that cater for welding, palletising, handling, vision picking, sheet metal bending, cutting and trimming, painting, spot welding, conveyor solutions and simulations.

The company has to deal with new market requirements, companies producing an increasingly wide range of products and shorter life cycles, the growing focus on Industry 4.0, sustainability and connectivity with the digital revolution. With this in mind one of their major success stories has been with Atlantis Foundries. Over six years ago Atlantis Foundries embarked on a process that has paved the way to the company becoming a Smart Foundry by embracing the Fourth Industrial Revolution. Robotic Innovations has helped Atlantis Foundries revolutionise the foundry industry by using a robotic 3D camera system. Additionally, a number of processes and robots have been implemented to further organise the various areas of the foundry and to streamline the operations.

The latest project to be completed at Atlantis Foundries by Robotic Innovations is the automation of core assembly handling. Robotic Innovations uses FANUC robots for picking and placing as well as core trimming. The full story can be read at https://online.fliphtml5.com/fcuca/jdbb/#p=10

For further details contact Robotic Innovations on TEL 012 345 4373 or visit www.roboticinnovations.co.za or Fanuc South Africa on TEL: 011 392 3610 or visit www.fanuc.co.za ■

Mazak

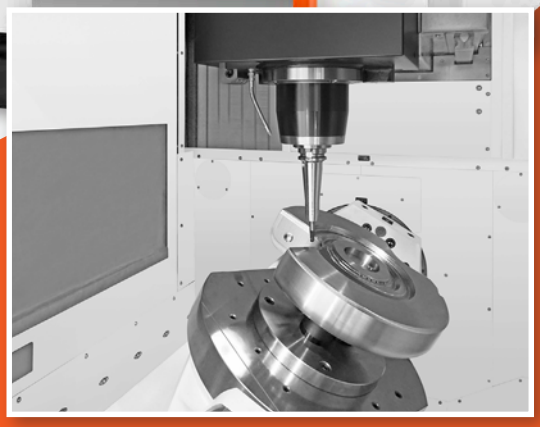
VARIAXIS C-600

Mazak 5-axis technology in a compact footprint

VARIAXIS C-600 eases transition to multi-tasking

The automation-ready VARIAXIS C-600 simultaneous 5-axis vertical machining center uses rigid C-frame construction, a standard 30-tool changer, dual-supported tilting table and fast rapid traverse rates to reduce cycle times on demanding jobs. It accepts a wide range of spindles, including high-speed and high-torque options, to produce a wide range of parts from steel and non-ferrous metals.

- Its MAZATROL SmoothAi CNC adds efficiency and value, with a wide variety of advanced programming functions for complete ease of use and repeatable high-accuracy performance.
- High-torque and high-speed spindle options for versatile performance in a wide variety of materials, including aluminium, stainless steel, nickel and titanium
- Automation-ready design includes options such as a 2-pallet changer, robotic loaders and hydraulic/pneumatic jigs



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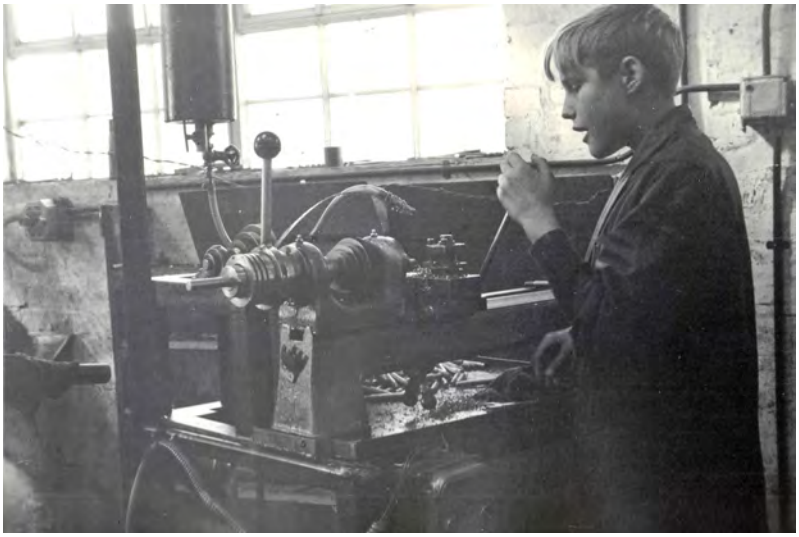
Multitrade Distributors reflects on 40 Years

Multitrade Distributors, a provider of tungsten carbide cutting tools and tool holders recently commemorated its 40th anniversary, marking four decades in the industry. The company, with its head-office based in Illiondale, Gauteng, was established by Johny Hansen and a former business partner has grown from humble beginnings to become one of the leading suppliers of cutting tools in South Africa, with branches in Johannesburg, Durban, Port Elizabeth, and Cape Town. Today, Multitrade Distributors says it supplies approximately 10% of the local cutting tool market.



A young Johny Hansen working in his father's company, Hansen's Engineering in Port Elizabeth

Hansen's journey began over 50 years ago when he joined his father's company, Hansen's Engineering in Port Elizabeth. After honing his skills as a turner machinist and completing his studies and apprenticeship, Hansen saw an opportunity to start his own business selling cutting tools. In 1983, Hansen and his former partner began trading as Multitrade Distributors in Port Elizabeth. They were made the sole agents for Mitsubishi Materials tooling in South Africa after exceeding the sales of the Cape Town agent by 500%. In 1984, Hansen and his wife Yolande moved to Johannesburg to grow Multitrade Distributors, operating and selling cutting tools from the boot of his car before later renting office space from Mitsubishi Corporation.

Throughout the years, Multitrade Distributors has added new agencies and expanded its product range, now also supplying products from companies such as Moldino, Ceratizit, Union Materials, ARNO Werkzeuge and D'Andrea, as well as additive manufacturing solutions from Meltio, GE Additive and AMAZEMET through Multitrade 3D Systems.

Hansen attributes the company's success in its 40 years of existence to the support and partnerships with loyal customers, suppliers, as well as the dedication and hard work of the Multitrade team.

"I would like to express my heartfelt gratitude to the company's valued customers, dedicated staff, and the extended supplier network, especially Mitsubishi Materials, for their unwavering support throughout the years. I would also like to thank Terry Nicholls and Mark Lotter for their commitment to the company's growth over the years," said Hansen.

Pamela Van Jaarsveld, the current Managing Director, added, "We are grateful to Johny and his team for their vision and dedication to building this company from the ground up. We are honoured to continue their legacy and are excited about the future of Multitrade Distributors. We remain committed to delivering value to our customers and partners and look forward to another 40 years of growth and success."

"As Multitrade Distributors reflects on 40 years of achievements, it stands poised for the future, continuing its legacy of providing quality cutting tools and services to the industry."

For more information contact Multitrade Distributors on TEL: 011 453 8034 visit www.multitradedistributors.co.za ■

When Johny Hansen moved to Johannesburg he used the boot of his car as his showroom. That changed when he rented office space from Mitsubishi Corporation

The current staff of Multitrade Distributors at the head-office in Illiondale, Gauteng

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Integral
Machine Tools

Metalformers adds 12kW fibre laser, material warehouse and drilling, tapping and counter sink machine to its processing equipment

Metalformers Pty Ltd is one of three associated companies processing sheet metal from the same facility in Industria, Gauteng. Hennie van Niekerk, the inventor of the Ultra Lock, the world's first intentional emergency locking device for security gates, started his first engineering business, Henwill Engineering, in 1989. Initially Henwill Engineering was mainly a jobbing shop but has since grown into a full production shop that manufactures and fabricates various components and products that are used as electrical support systems, cable management systems and structural support systems for the construction and IT industries in Southern Africa.

The new 12kW Senfeng fibre laser that Metalformers have recently purchased

"We supply the manufacturers, wholesalers and suppliers with custom components such as strut, cable trays, cable ladders, power skirting, cantilever arms, wiring channels, brackets, clamps and fasteners who then install them," explained Van Niekerk.

"Metalformers was established in 1992 to accommodate the ever-increasing requests for supporting products and equipment for the industries that we were already involved in. These included computer cabinets, self-service terminals and distribution boxes, all products that require sheet metal components. In short, the company was established to take care of our laser cutting, bending, punching, profiling and forming of sheet metal requirements. We have subsequently added fibre welding services to this package."

"We make products that have relatively long production runs of the components that are fabricated, once cut or bent, to make these products."

Metalformers have also recently installed a CoastOne bridge type drilling, tapping or countersinking machine

"However, we are also well-known in the industry for being a go-to place to help with new product design and prototyping with typical short runs. We have a flexible approach to metal forming and realise there is a big market for smaller batches and shorter part runs."

"The array of components and products is numerous and come in all shapes and sizes according to the clients' drawings or requirements. Flat sheet is bent, formed, punched, stamped or notched. Depending on the component required we also weld and if necessary, have the components galvanised or painted for the clients. Many of them are high volume orders and therefore require equipment that is reliable with repeatable operations at high speed."

"Although we still have a number of machines that you cannot consider modern, they are nevertheless essential to the operations that we need to perform to produce the components. Take the eccentric presses for example. We have 25 of them ranging from three tons to 150 tons. At this stage it is not economically viable to go 'modern'. You could say the same about our three guillotines."

"Having said that, we have invested substantial amounts in equipment and software in other areas of the manufacturing plant, which includes a Durma fibre laser and Durma press brake, a number of Safan press brakes and guillotines, a Dimeco-Alipresse cut-to-length and levelling line,

Euromac CNC turret punch presses and a Modula vertical warehouse for our press brake tooling."

"Additionally, we have added five hand-held fibre laser welding systems to our fabricating department."

12kW Senfeng fibre laser and material warehouse

"In our business it is not just about making products, it is about making the best products in the most effective way," said Derrick van Niekerk of Ultrafab, one of two brothers working in the family business, the other one being Henk.

"Increasingly metal fabricators are turning to automated equipment to reduce production downtime and costs, streamline manufacturing, minimise material handling, and address a shortage of skilled labour," continued Derrick van Niekerk.

"In some parts of the world, low unemployment and high wages lead job shops and contract manufacturers to invest in capital equipment rather than in additional labour. Automation can help small subcontractors compete with larger fabricating operations and automated equipment helps provide quick deliveries, competitive pricing, and could add a production shift without investing in more labour."

"Automated operations can range from simple load/unload devices to robotic systems to lights-out production cells with full tower and material warehousing systems. You have got choose the one that best suits your business and vision."

"An automatic storage and retrieval system that integrates with the laser machine, a system that automates material handling from warehouse to the cutting table, a system that automatically retrieves the correct material, brings it to the machine, and automatically loads it, is what we have been looking for."

"We have had such a wonderful experience with our Modula vertical warehouse storage system that when we decided to purchase a new fibre laser machine we decided we had to look at the material handling aspect of the sheet."

"We are not a service centre that needs large areas for material storage nor are we a production operation servicing a few clients that also needs area for material

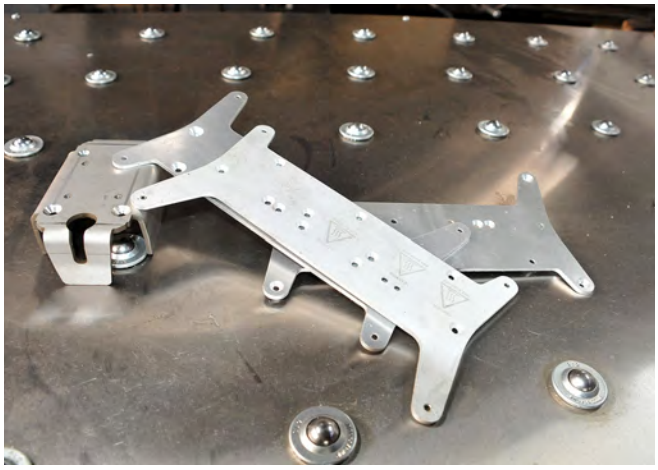
Metalformers have been looking for an automatic storage and retrieval system that integrates with the laser machine, a system that automates material handling from warehouse to the cutting table, a system that automatically retrieves the correct material, brings it to the machine, and automatically loads it. They have invested in a four-tier warehouse storage system which sometimes is called a tower storage system. For true process optimisation you need to supply sheet metal materials with different thicknesses and formats accurately and quickly. Metalformers have done this with four tiers of racking, each able to store up to 3 tons of material, in a tower format that can add more racking or stations when required

and we are not a 24-hour a day operation. Rather we use a select amount of various gauge sheet regularly and could have many changeovers of the various gauges of sheet in a day. Therefore we need accurate selection and loading of the sheet of the popular materials and sizes. Poor inventory management is the silent killer."

"This is why we have gone for the four-tier warehouse storage system which sometimes is called a tower storage system. For true process optimisation you need to supply sheet metal materials with different thicknesses and formats accurately and quickly. We have done this with four tiers of racking, each able to store up to 3 tons of material, in a tower format that can add more racking or stations when required."

"There are many different options and solutions but the main benefits have to be a reduction of the footprint, elimination of handling and stock management errors, efficient inventory management, significant risk mitigation, enhanced efficiency and an operator does not have to carry out manual extractions."

"The storage system has been setup next to our new Senfeng 12kW fibre laser that has a 3 000mm by 1 500mm bed."



Aluminium components that have been drilled, tapped and countersunk on the new bridge-type machine

"We have also recently installed a CoastOne bridge-type drilling, tapping or countersinking machine."

Metalix software suite

"Investing in a laser cutting system is a big decision and can seem overwhelming, but with a systematic approach to understanding the needs of your company you will be able to make an informed decision."

"But to make you stand out from the rest and be more cost-effective, which makes you very competitive in the market, you have to choose the right software package."

"After testing various software platforms, we very quickly found that the Metalix software suite is a very powerful piece of software and fits very easily into our workflow. It allows us to rapidly go from design to cutting and punching of parts."

"The agility, ease of use and speed we can work with when using Metalix is key to keeping our machines running 15 plus hours per day. Sometimes we have nests with over 30 to 50 different parts totalling more than 100 000 parts, and Metalix has no problem nesting it and managing it very effectively."

"We have found the nesting engine to be extremely good compared to other software we have used. And we trust the software very much to make the most of available material with minimum waste."

"What makes Metalix stand out for me personally is the flexibility that Metalix offers me as the programmer. Metalix AutoNest can make automatic decisions that work in most situations but when I would like to take a specific approach to a job, it is extremely easy and fast to implement things my way. The software does not push you into a corner and force you to do it a certain way."

"Metalix cncKad for me is a very powerful tool. Not only for preparing NC code, but the drawing side of cncKad is extremely feature-rich. Making changes to parts is unmatched in any other CNC software I have tried. Manipulating or changing drawings, or even creating parts from scratch or using the built-in parts library is very fast to do."

"Also, the compatibility with other software packages is very good. For our 3D design we prefer to use PTC Creo. Using the CAD Link Creo plugin, with very few mouse clicks within Creo, we get our parts into Metalix with the correct material, thickness and bend parameters. There is no other workflow that can do it that fast."

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Gears for Africa cuts lead times with investment in new Penta BOLT VII 6025 15kW fibre laser cutting machine purchase

Machine has the ability to cut plate weighing up to 7 tons.

The increased wattage from these power sources and cutting heads that have the ability to adjust the beam mode for thicker materials has made the fibre laser a machine tool capable of addressing all sorts of cutting applications

Gears for Africa have recently purchased a Penta BOLT VII 6025 15kW fibre laser from African Laser Solutions and will in future do the profiling of material, especially where thick material is involved or a large component is required, which was outsourced previously

Years ago, whenever you visited a precision sheet metal business the talk would be about what material they were cutting, the thickness of material and what speed they were achieving on their 2kW, 3kW or 6kW CO2 laser system. Then the disrupter - the fibre laser - was introduced. Talk of jaw-dropping cutting speeds and feed figures burst forth, while at the same time running costs were reduced.

Subsequently it was common to see one high-powered fibre laser replace multiple CO2 machines. Fabricators could rely on fewer cutting machines to produce more than ever. That being said, if one of those extraordinarily productive fibre machines happened to produce bad parts that needed to be recut, all those efficiency gains go out the window. If the machine crashes, the downtime can throw a serious wrench into the schedule and, at worst, starve the rest of the fabrication shop. Work flow grinds to a halt.

But that was more the unusual than the norm. What hindered the work flow and caused bottle necks were the downstream operations that have not met the criteria of the upstream technology advancements. These days, speed is king. A high-powered fibre laser coupled with automation can feed an enormous number of downstream processes. It has made modern metal fabrication extraordinarily productive, even if some parts need deburring.

The transition to fibre laser cutting was quicker than most thought. Initially fibre laser cutting catered for thin gauge material and CO2 looked after the thicker gauge but not so as to encroach on the plasma cutting niche. Fibre laser cutters gained a reputation for working best on thinner materials.

Additionally, CO2 lasers can't cut through reflective materials such as copper, brass, and bronze because the beam reflected by the metal may bounce back into the laser lens and mirrors, causing significant damage and potentially breaking the machine. With no mirrors or delicate lenses added to their narrow wavelength range, fibre lasers can cut through any metal, including highly reflective ones, at incredible speeds without energy loss or equipment damage. Fibre lasers are now the tool of choice for cutting metal below 15mm thickness.

Fibre laser cutting produces generally high-quality cuts and edges for thinner parts, which means costly secondary finishing or cleaning usually isn't required. Post-cutting tooling often isn't required as well, as it often is with other processes like stamping. As well as the cost and time associated with the tooling process, tools don't need to be maintained or checked for deviation as much. A reduced amount of contamination of workpiece cutting edges also occurs.

Generally, when laser cutting metals with fibre lasers, the upper limit on thickness of metal sheet that can be cut is around 20mm to 25mm for mild steels. However, with specialised fibre lasers that are available it is possible to cut plates thicker than this. The notion that fibre lasers can only cut thin materials is now a tale of the past. Today a 12kW fibre laser can cut mild steel as thick as 60mm, while a 20 or 20kW machine can work with up to 100mm of the same material.

Gears for Africa is an established manufacturer of industrial and heavy-duty gears, sprockets, pullies and splines. They also repair and service gearing related plant and equipment in the heavy-duty industrial plant sectors including mining, rail, earth-moving, building, electrical and agricultural

industries. Their clients range from large mining enterprises, multinational and local conglomerates to small and medium enterprises (SME's).

Gears for Africa's shop floor is equipped with the latest technology in machining and tooling available on the market including a number of high-end CNCs such as a DMG MORI DMF 260/11 5-axis linear milling machine, a DN Solutions Puma V8300 vertical turning center, a DMG MORI CTX beta 2000 turning center, a GF Machining Solutions CUT 30 P wire EDM, a Kapp Niles ZE 800 gear profiler and others to perform the most common gear-cutting processes of hobbing, broaching, milling, grinding and helical, bevel, spiral, spur, worm, crown, rack and pinion, face and hypoid gear manufacture and spline shaft manufacture.

Advances in cutting with ultrahigh-power fibre lasers: New applications

Ultrahigh-power fibre lasers enable fast, high-quality thick cutting, including air-assist cutting of steels, and offer many advantages over other cutting options. With these recent breakthroughs, fibre lasers are providing high-quality cuts with thicker materials. With this development new applications for fibre laser cutting are being discovered and tested by OEMs and companies.

Ultrahigh-power (UHP) fibre lasers in the range of 10kW to 100kW (IPG's high-power CW fibre lasers cover output power range from 1kW to over 100kW) have seen rapid adoption for cutting during the past few years, and the maximum laser power used for cutting is expected to continue to climb. UHP lasers are defined here as greater than 10kW of power, and they enable new process regimes to facilitate the expansion of laser cutting into new markets, e.g. by cutting up to 50mm steels 4x faster than high-power plasma using air-assist gas.

New Penta BOLT VII 6025 15kW fibre laser cutting machine purchase

Gears for Africa is one such company that has integrated a new application into the company's processes, using an UHP laser.

"Manufacturers are always looking to stabilise costs and prices and one way to do this is to assess raw material challenges. Lead times is a delicate and difficult subject to discuss with customers and are often due to a whole host of issues that are out of your control. Of course, the most advantageous way to navigate these issues is by simply fostering good relationships and providing good communication with both customers and suppliers," said Chris van Aswegen of African Lazer Solutions, the sole agents in South Africa for Penta Laser machines.

"The other way is to take control of matters that you can and bring outsourced work inhouse. Material supply you cannot change but where you rely on others to do some processing of material you can. This can dramatically reduce lead times and downtime on expensive machinery."

"Fibre lasers (named so because the laser beam is created using solid-state laser diodes and then delivered to the cutting head with fibre-optic cable) have come a long way in being able to handle the variety of metal thicknesses that an engineering business has to tackle on a regular basis. The increased wattage from these power sources and cutting heads that have the ability to adjust the beam mode for thicker materials has made the fibre laser a machine tool capable of addressing all sorts of cutting applications."

"Gears for Africa were committed to responding to their customers' demands and to keeping up with the latest technology to produce quality parts more quickly and more cost-effectively," continued van Aswegen.

"Before this new machine investment Gears for Africa would rely on material suppliers to do the profiling of material, especially where thick material is involved or a large component is required."

"To circumvent the frustrations Gears for Africa decided to purchase a new Penta BOLT VII 6025 15kW fibre laser cutting machine, one large enough to accommodate their profiling needs while not compromising on efficiencies or quality."

"The Penta BOLT VII 6025 15kW fibre laser features a modular bed frame design, with separate components for high dynamic motion and high load-bearing. This design ensures the loading capacity when cutting thick plate and the long-term stability of the machine tool."

"The machine is powered by the Italian laser CNC, based on Z32 Windows, with a 27-inch full touch screen, has a bed size of 6m by 2.5m, has a bevel cutting option included, has 2 extra axis (the B and C axis rotate in 45 degree to optimise cutting ability), operates on a two-frame system (both the machine and the table have their own frames) and has a two table hydraulic shuttle changing system."

"The machine also comes equipped with a chiller, a stabiliser and a Donaldson extraction system. The Atlas Copco compressed air system has been beefed up to 13 bar 22kW so ▸

Gears for Africa have not worked out the time savings yet as the machine was only installed in November 2023. And the machine will not be operating anywhere near capacity. But estimated costs saved by reduced lead times is going to be significant and then of course there will be spare capacity on the machines to acquire new clients

Amongst the other gear cutting CNC machines that Gears for Africa has is a 5-axis DMG MORI DMF 260/11 Linear milling machine that was supplied by Retecon

The Atlas Copco compressed air system has been beefed up to 13 bar 22kW so as to save on cutting costs

The Penta BOLT VII 6025 15kW fibre laser comes equipped with a chiller, a stabiliser and a Donaldson extraction system

as to save on cutting costs."

"The type of investment is not a first but it is inventive for the type of business and primary operation of Gears for Africa. Once profiled, material can be immediately sent directly to a CNC machine for final machining."

"Gears for Africa have not worked out the time savings yet as the machine was only installed in November 2023. And the machine will not be operating anywhere near capacity. But estimated costs saved by reduced lead times is going to be significant and then of course there will be spare capacity on the machines to acquire new clients."

"These days fibre lasers have a dynamic operating power and cutting range. They are being used for new applications daily. Soon the only restrictions will be governed by the size of material available and the downstream automation and efficiencies."

For further details contact African Lazer Solutions on mobile: 060 518 4453, email: chris@africanlazersolutions.co.za or visit www.africanlazersolutions.co.za or Gears for Africa on TEL 011 420 3314 or visit www.gearsforafrica.co.za ■

Investors approach Botswana to build a new railway line just to avoid South Africa

Plan for railway line gathering momentum.

Botswana has received unsolicited bids from investors to build a rail line to a Namibian port that will help avoid South Africa and its disintegrating logistics network.

The 1 500 km Trans-Kalahari Railway project is gathering momentum as Transnet, the State rail and ports monopoly in Botswana's southern neighbour, struggles to ship goods, according to Transport and Public Works Minister Eric Molale.

"We learned in June that the waiting period at all South Africa ports to offload and load can be a minimum of two weeks, floating on the sea for that period," he said in an interview in December 2023 in Gaborone, the capital.

"The United Arab Emirates, the Qataris, the Chinese, the Indians have also come to say this is not a long line for them and it is in fact, a comparatively short one that they can do very quickly."

Transnet has become one of the biggest drags on South Africa's economy and, along with power outages, resulted in a surprising contraction in growth in the third quarter. Snarled transportation also has the potential to crimp expansion in neighbouring countries, including landlocked Botswana – one of the world's biggest diamond producers and a major ▶

beef exporter that relies on South Africa for most of its trade.

An alternative route may also attract companies in South Africa, offering shorter travel than to the nation's own ports, said Molale.

Coal shipments on Transnet freight-rail network have plunged to 30-year lows and iron-ore railings are at their lowest in a decade. Port gridlock has led to delays to the loading and offloading of ships and some fashion retailers have resorted to flying in apparel.

"We see ourselves as best placed especially for companies in the Johannesburg, Pretoria area of Gauteng because either way, going west or east, they cover the same distance and some of them, like vehicle manufacturers have come to us," said the Minister.

The Trans-Kalahari Railway has been slow to develop since Botswana and Namibia signed an agreement in 2010. The original impetus was to export coal from eastern Botswana, yet prices declined and financiers have shunned backing the fuel. It will rather focus on exports from the fast-developing Kalahari Copperbelt in the west of the country.

The line would run from Gaborone, through the Kalahari Desert to Gobabis in Namibia and Walvis Bay on the Atlantic Ocean.

Nations in the region are seeking ways to better get their goods to global markets. The US is backing a rail line from the copper and cobalt mines in Zambia and the Democratic Republic of Congo to Lobito in Angola, while China's government selected a state-owned company to negotiate a concession to operate a railway connecting Zambia with the Tanzanian port of Dar es Salaam.

Copper and cobalt are important minerals in the global transition to cleaner fuels.

Botswana and Namibia set up a bi-national project office in 2015 to push the project. According to its website, 12 companies submitted expressions of interest last month. A request for proposals will be released in March and construction is due to begin in January 2025.

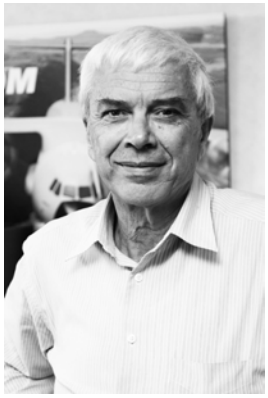
"There is a lot of money out there in the world and unsolicited bids have been coming in," said Molale.

Rail services in Botswana are provided by Botswana Railways in Botswana. Most routes in the country radiate from Gaborone. The railway network consists of 888km, its gauge is 1.067mm (3ft 6in) cape gauge. The first section of railway track in Botswana was laid in 1896. There is no direct connection with Namibia, but one does exist via South Africa, although an electrified railway connecting to Lüderitz, Namibia for coal traffic was scheduled.

Botswana is an associate member of the International Union of Railways (UIC). Botswana has the 93rd longest railway network in the world, it is one of the busiest railways in Africa. In comparison South Africa is 13th in the world with 22 387kms of railway line. ■

In loving memory of Dr Paul Potgieter:
A legacy of inspiration and hope

It is with heavy hearts that we share the news of the unexpected passing of, Dr Paul Potgieter, founder of Aerosud, a South African aerospace engineering and manufacturing company.



South Africa's aerospace community has lost a giant with the death of Dr Paul Potgieter in a motor vehicle accident, writes Linden Burns, Managing Director of Plane Talking.

Paul was the father of the Rooivalk helicopter programme and after leaving Atlas (now Denel), he established Aerosud as a pioneering, private-sector aerostructures engineering firm.

At the time, South Africa was still subject to international sanctions and Aerosud occupied a modest facility at Grand Central Airport in Midrand. One of its first challenging projects was to successfully modify the Mirage F1 and Cheetah D aircraft to accommodate the Klimov engine used in Russia's MiG-29 fighters. Within months of the first proving flights, sanctions were lifted and the project was shut down.

Paul saw the opportunity and grabbed it, becoming one of the first private-sector South African aerospace leaders and innovators to forge industrial ties with UK & EU (Airbus, GKN, BAE Systems) and US (Boeing, Spirit). Our paths crossed several times from the early 1990s, initially when I was a journalist covering the industry. When I started working as Airbus's PR advisor, Paul badgered me into facilitating an introduction to Airbus so he could present Aerosud's alternative lower-deck cabin crew rest pod solution for Airbus's A330 and A340 widebody jetliners.

It took a few years for the two companies to get to know each other and for Airbus to place its confidence in Aerosud. The relationship helped transform Aerosud. It became an exclusive supplier of components and sub-structures to Airbus and Boeing. In doing so, Aerosud has been able to establish and support its own supplier network, which includes niche firms such as Daliff Engineering in Cape Town.

In recent years Paul and his son, Paul Potgieter Jnr. drove the AHRLAC project (an advanced high-performance two-seater reconnaissance light aircraft). But a falling out between Aerosud and its then shareholder, Paramount, saw the latter take over the programme.

Paul was devoted to the industry in South Africa, its growth and nurturing young talent to fill a pipeline of skilled people for South Africa's high-tech industry.

He was a founder of the Aerospace, Maritime & Defence body and a key supporter of the Commercial Aerospace Manufacturers Assoc of SA. He conceived the Centurion Aerospace Village as a SEZ for the local aerospace cluster, (which is still to realise its potential).

Paul was an early adopter of carbon composites, thermo-plastics and novel metallics for aerospace components. In 2011 he persuaded the CSIR and the National Laser Centre to launch the "Aeroswift" project, to develop and commercialise scaled-up 3D printing of large aircraft parts using titanium powder, which aligned with SA's minerals beneficiation policy.

Paul was always generous and patient when explaining technologies, processes, the industry and its dynamic with government.

R.I.P. Dr Paul Potgieter, sympathies to his loved ones, friends and colleagues. ■

All Africa Expo
ISTMA 2023

The International Special Tooling and Machining Association (ISTMA), the global representative body for tooling manufacturing, hosted its 16th World Conference and General Assembly in Cape Town, South Africa in early November 2023. The event took place in collaboration with the Production Technologies Association of South Africa (PtSA). Metalworking News was invited to attend both the conference and the All Africa Expo that coincided with the gathering of numerous individuals and industry bodies from all over the world, as well as local manufacturers and suppliers, with the occasion jointly branded as the All Africa Expo ISTMA 2023.

The conference itself hosted a variety of industry professionals as speakers from various sectors of industry and these seminars were specifically tailored to address a range of topics. These included artificial intelligence in manufacturing, smart training solutions, high technology machining, sustainable manufacturing, innovations and applied research to ensure the future viability of the tool and die industry, and the Portuguese example of cooperation and partnerships for competitiveness, amongst others.

Speakers included the likes of Yanesh Naidoo - Innovations Director, Owner and Member of the Board, Jendamark Automation, Prof Dr-Ing Wolfgang Boos, MBA - CEO, WBA Aachener Werkzeugbau Akademie, Prof Justin Barnes - Manufacturing Ambassador, TWIMS and Associate Professor, University of Pretoria's Gordon Institute of Business Science (GIBS), Manuel Oliveira - Secretary General, CEFAMOL and ISTMA World Secretariat, Michael Kirbach - Director: DMG MORI Aerospace / Die & Mold Excellence Center, DECKEL Maho Pfronten, Markus Heseding - President, ISTMA Europe, Prof Dr-Ing Thomas Seul - President, VDWF e.V. and Prof Natasha Sacks - Professor of Advanced Manufacturing | Department of Industrial Engineering, Stellenbosch University.

Panel discussions were also led by Bob Williamson - President, ISTMA World. It was announced at the event that South Africa has become the latest member of ISTMA World, which now includes 22 countries as members and more than 8 000 member companies across the world. Delegations from both Zambia and Zimbabwe's tool, die and mould associations were also invited to attend.

The All Africa Expo provided a pivotal platform for African nations, manufacturers and distributors to showcase their expertise in tooling manufacturing and investment potential. It facilitated exposure for continental tooling producers to show off their tooling technology, tooling houses, and present this to influential industry stakeholders. The event marked the inaugural showcase of Africa's inventive spirit and pockets of manufacturing excellence, presenting global networking opportunities. While South Africa is unlikely to again see the ISTMA World Conference take place on its shores for some time due to it being held in different locations around the world each time it takes place, the All Africa Expo may become a staple platform from which toolmakers, distributors and other various industry players can come together to not only display their products and capabilities, but to network as toolmakers and suppliers with machine tool manufacturers and suppliers.

Other highlights of the All Africa Expo ISTMA 2023 included high-end technical sessions disseminating the latest production trends and tooling technologies, covering topics ranging from international and regional trade to government regulations and global trading conditions. Regional meetings provided a forum for networking with diverse tooling industry experts and relevant stakeholders worldwide.

Networking

An overall theme to take away from the All Africa Expo ISTMA 2023 was to reinforce contacts and relationships in business. The unique event and exhibition gave suppliers and manufacturers from both the tool, die and mould industries the chance to network extensively with those supplier and end user partners from the machine tool manufacturers and distributor industries to cross the exhibition floor and interact with one another. Having both sides of industry and various other stakeholders present in place made for a unique opportunity to engage in solutions for collaborative manufacturing.

The comprehensive industry exhibition featured distinct segments such as African country pavilions, highlighting market potential, government incentives, and logistical support offered by African nations. Carefully curated displays from African manufacturing companies showcased highly innovative products with rigorous quality standards and technical sophistication. The event also shone a spotlight on African tooling systems manufacturers, underlining the support capabilities of the South African and African continental tooling industry in designing and manufacturing moulds, dies, and advanced assembly systems, as well as tooling. Meanwhile, major international machine tool suppliers presented cutting-edge technologies with established support networks. Strategic international partners were featured as importers of tooling, moulds, and dies, supporting local industries with well-developed and supported supply chains.

An additional focus for delegates was the African Investment Indaba Conference, strategically designed to expose potential investors to enticing opportunities on the continent and to garner support and investment for the growth of manufacturing in Africa. Plant tours of local manufacturing facilities in the Western Cape provided an immersive experience, showcasing the vibrant tooling and manufacturing activities in the Western Cape. Metalworking News was told by a number of people that attended these tours that they were a major hit and well worth the effort. The unique exhibition covered the entire spectrum of manufacturing and tooling, making the All Africa Expo ISTMA 2023 a landmark event in the global tooling landscape.

The Production Technologies Association of South Africa (PtSA), established in 2006, is a membership-based organisation with the mission of promoting, protecting and

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supporting the collective interests of the Tool, Die, Mould and Special Machining industries (TDM Industry) of South Africa, in order to support the growth and development of all manufacturing sectors.

As part of this mission, the Association has entered into a partnership agreement with government (the dtic), the INTSIMBI Future Production Technologies Initiative, to develop programmes to address the needs of the TDM Industry in order to rehabilitate and grow the industry for the benefit of the manufacturing sector.

The Association offers various programmes and benefits to its members through its own project management and implementation agency. These include improvements in efficiency, competitiveness and profitability of the member companies, as well as ensuring that the required skills are available to the members.

PtSA has a co-operation agreement with the Werkzeugbau Akademie (WBA) in Germany which is the leading world partner of the TDM industry in the areas of consulting, further education and research.

PtSA is a member of the International Special Tooling and Machining Association which gives the members access to a number of international associations and member companies, and also has partnership agreements with a number of national organisations for the benefit of its members.

Training and upskilling programmes include a number of SAQA approved artisan qualifications and training programmes for the tooling industry. PtSA is a provider of toolmaking and machinist training programmes that ensure trained artisans are available to the industry; PtSA has accredited training facilities in the Western Cape, Eastern Cape, Gauteng and KwaZulu-Natal as the base for these artisan training programmes and PtSA short courses are available to its members in order to continuously improve the level of skills within member companies, and in particular with regard to new technologies.

Below are a selection photographs of those that attended the All Africa Expo ISTMA 2023.

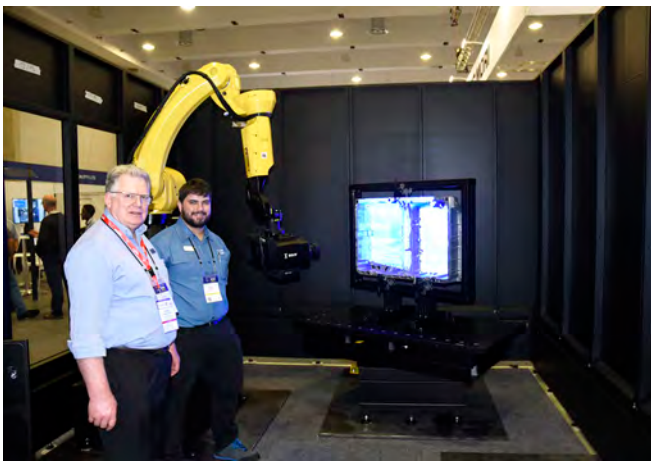
Bob Williamson - President, ISTMA World chairs a panel discussion during the conference. From left to right, Manuel Oliveira - Secretary General, CEFAMOL and ISTMA World Secretariat, Yanesh Naidoo - Innovations Director, Owner and Member of the Board, Jendamark Automation, Prof Justin Barnes - Manufacturing Ambassador, TWIMS and Associate Professor, University of Pretoria's Gordon Institute of Business Science (GIBS) and Rui Tocha, General Director at CENTIMFE - Technological Center for the Mould, Special Tools and Plastics Industry in Portugal

On the DMG MORI stand, Michael Kirbach - Director: DMG MORI Aerospace / Die and Mould Excellence Center, Chris Kroeger of Retecon, Mahmoud Aly - Managing Director - DMG MORI Africa and Hans-Peter Neth of Retecon

Gerald Green of Guhring South Africa, Arisoy Sinan, Guhring's Sales Director Africa, Middle East, India, and Jonathan Green of Guhring South Africa

Warrick Lowther, Jacques Oosthuizen and Allan Conolly of Somta Tools

Aurelio Grech-Cumbo of RGC Engineering with Matthew Parker - SPC Manager at Mitutoyo UK Ltd and Gerhard du Plooy of RGC Engineering



Aurelio Grech-Cumbo and Pieter Keyser of RGC Engineering showed off the GOM ATOS ScanBox Series 5

Aurelio Grech-Cumbo of RGC Engineering with Thomas Kopinitz, Managing Director of Hermle WWE AG and Frank Keller Sales Manager Projects HLS Hermle Systemtechnik GmbH

Johan Neveling, Ray Cooper and Graeme Cooper of WD Hearn with Stewart Lane from Renishaw

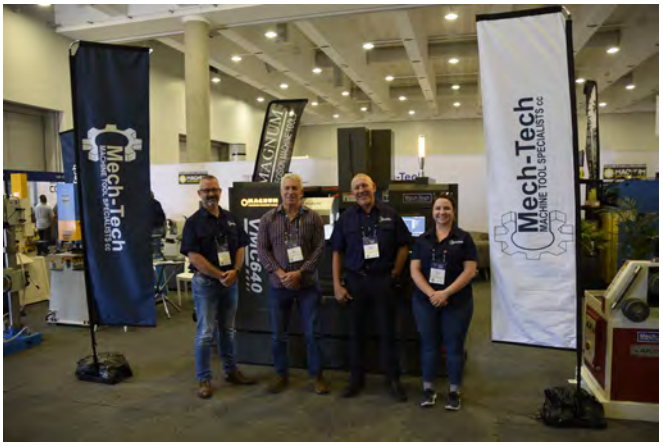
Dylan Eva and John Whitehead, both of WD Hearn

Thomas Miczek, Alphalaser's Sales Manager for Southwestern Germany and South Africa with Gábor Veress of Retecon

Mark Burn of Lead Machine Tools with Peter Bamann of Hwacheon

Gábor Veress of Retecon with Andrea Richina of GF Machining Solutions

Multitrade Distributors' Johny Hagedorn-Hansen, Jaclyn Hagedorn-Hansen, Pamela Van Jaarsveld and Lombard de Villiers with Tasuku Kaikoh, General Manager from Moldino, Thailand in the middle



Mech-Tech Machine Tool Specialists' Chris Lotter, Sean Walker of Magnum Machine Tools and Manie Lombaard and Lee-Ann Findlay of Mech-Tech Machine Tool Specialists

Nico Miligan of Unique Welding, Rico van der Merwe of EWN&S Gas and Welding Supplies with Joanne Canossa and Andre Jansen van Vuuren, both of Bystronic South Africa

Mark Burn of Lead Machine Tools with Johan Neveling of WD Hearn

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SPECTRUM MACHINE TOOLS

Dreams are big at TDL Engineering

One of TDL Engineering's latest purchases is a DN Solutions Puma DNT 2100M CNC lathe with XY travels of 230mm by 580mm, maximum swing diameter of 650mm, maximum turning diameter of 320mm and a maximum turning length of 513mm. The machine was supplied by Puma Machine Tools

TDL Engineering has been a long supporter of DN Solutions machines and they currently have six CNC machines on the shop floor – five lathes and one milling machine

A simple but powerful idiom was all it took to convince Daniël Lategan that it was time to start his own business and take a leap of faith that 12 years later is paying dividends in the form of success both personally as well as professionally for TDL Engineering, based in Triangle Farm, Cape Town. That phrase was that if your dreams don't scare you, then they aren't big enough.

Having spent over two decades in various roles as a Production Manager in various parts of Gauteng before starting his own business, Lategan had gained plenty of experience in the general engineering field, and specifically in the mill-turn side of the fabricating industry.

Taking time to learn from his mentors along the way, Lategan would go on to implement various business practices he had observed into his own business.

"I started at Siemens in 1987 where I also did my trade. I was there for five years before going to the army. After that I worked for Baisch Engineering in Johannesburg where I was the Production Manager for the shop floor. Amongst other things we manufactured various components for some of the large automotive manufacturers. I was with Baisch for about 10 years and while with them I visited Germany a number of times to help with the acquisitions and collections of various machines."

"This is where I began to really get my knowledge of machines and it was thanks to this experience that Hans Baisch himself afforded me at Baisch Engineering that I began to realise that you don't just have to stay as a fitter and turner. It's not often that a fitter and turner ventures out to own their own machine shop."

"After leaving Baisch, I went on to work for Peter Bahlig at World Power Products. I would consider him to have been another role model in my life. One example I can think of is when say on a Saturday morning, I would be standing behind a machine and Peter would ask me: "What do I think could be done to improve production on the shop floor?" Now I knew that everything is fully automated and production is working as well as it could be. But I respond that another machine

Owners Daniël and Eleanor Lategan

Component runs can be anywhere from 20 to 30 to into the hundreds

"We manufacture a wide variety of custom turn-mill components for industries such as the automotive, agriculture, electrical, construction, security, pool, water and leisure 4x4 or offroad and overlanding industries. We have skilled and qualified staff and are able to fabricate products in stainless steel, mild steel, brass, aluminium as well as nylon, enabling us to provide an array of components between 3mm and 400mm in diameter and up to 1.5m in length. Some of these components include bushes, pulleys, shafts, flanges, various custom nuts and bolts, hubs, rollers pins and knobs. But we are not limited to this. Our machines are capable of machining up to 0.003mm tolerances, and roundness within 3 microns."

could help. Peter then got on the phone and another machine arrived that next Monday morning. And that summed his character up, he would listen to you."

"I think that one of his winning recipes was that he always made sure he had stock of raw materials so that when a quote came in, we were able to respond to it quickly, and because he had the five factories, he was able to ensure that the work could be delivered upon ahead of what the competition were going to be able to do in terms of lead times. Another part of that winning recipe was buying that raw material stock at good prices and then just keeping it stored – he knew the work would come. This made a lot of sense to me."

"After that, my wife Eleanor was offered a job in Cape Town. She had been working for one of the big banks for many years and I had said to her that if the opportunity of moving to the Cape ever came up, she must take it. I will find a job there when we get there. And so that happened and my first job in the Cape was as a Production Manager at Swift

TDL Engineering also has a FANUC Robodrill on the shop floor

can manufacture in a shorter period."

"My relationship with Retecon had developed many years prior to all of this when I was still working at Baisch Engineering and I got to know some of the machines that they still sell today – although there have been some name changes such as Daewoo is now DN Solutions. They would call on me for example if there was a second-hand machine that had been sold and it needed some work. Retecon knew they could rely on me to make sure all was in order with the machine before it went to its new owner."

"Well one thing led to another and I joined Retecon in

A general view of the shop floor

Components for the leisure 4x4 or offroad and overlanding industries

A display cabinet with components in metal and plastic that were machined by TDL Engineering

TDL Engineering machines components for many different clients in many different industries

2008 in a technical sales and support role. I was with them for three years. During those years I was fortunate to visit many machine and fabrication shops in the Western Cape and it was the ideal opportunity for me because I really enjoyed the technical and support role, but didn't really know much about sales. And that was how I learned about cold calling and knocking on doors. Herein lay another big lesson – the Western Cape is vastly diverse – in some places it's acceptable to speak English and others, well you better be able to speak good Afrikaans otherwise you are not getting past the front desk. During this time, I got to know about 300 different engineering companies – there are actually more – but the thing I realised is that not many of them own their own CNC machines. So why don't I just start my own thing?"

"That was when I decided to buy my own machine, back in 2011. But just before this in 2010, my faith had grown substantially and I had gone to see Angus Buchan – he said to me that if my dreams didn't scare me, then they weren't big enough. So, I have to say this had a lot to do with me making my decision."

"At the time, I had no work so this made the dream big enough. Fortunately, though, I knew some of the customers from my time in sales so through that I was able to get my first orders. Another thing I firmly believe in is that you need to have faith in your employees and the faith to invest in them. Especially your machine operators as they are such a valuable part of your business – qualified and experienced operators are key in a market that has such a shortage of skilled workers. Having done some time in sales I also learned the importance and value of good customer service and relationship management."

"Eleanor eventually left the bank and joined me and so she runs that side of the business. My son has also spent some time in the factory but he has chosen a different path and is embarking on his Masters in Environmental Science."

"TDL Engineering recently moved to this current factory space and we now have just under 500m2 of under roof area. Our previous factory was just under half this size so we are enjoying having the space and layout of the machines for operational purposes."

"Currently we have six CNC machines on the shop floor – five lathes and one milling machine. The latest machine that we purchased in October 2023 is a DN Solutions mill-turn machine, supplied by Puma Machine Tools of course."

"We manufacture a wide variety of custom turn-mill components for industries such as the automotive, agriculture, electrical, construction, security, pool, water and leisure 4x4 or offroad and overlanding industries. We have skilled and qualified staff and are able to fabricate products in stainless steel, mild steel, brass, aluminium as well as nylon, enabling us to provide an array of components between 3mm and 400mm in diameter and up to 1.5m in length. Some of these components include bushes, pulleys, shafts, flanges, various custom nuts and bolts, hubs, rollers pins and knobs. But we are not limited to this. Our machines are capable of machining up to 0.003mm tolerances, and roundness within 3 microns."

"Our component runs can be anywhere from 20 to 30 to into the hundreds and we manufacture a good few thousand components in a month."

"Aside from precision, turn-mill engineering, we also offer CNC programming services, product development, design as well as manufacturing services. My many years of experience on the programming side of things has afforded me the knowledge of how to tweak something so as to improve whatever manufacturing process a specific CNC may be performing."

"A recipe for success for me is that the company is staffed and equipped with the latest technology and know-how so as to enable us to provide competitive and cost effective professional engineering services."

For further details contact TDL Engineering on TEL: 021 979 1333, email info@tdlengineering.co.za or visit www.tdlengineering.co.za ■

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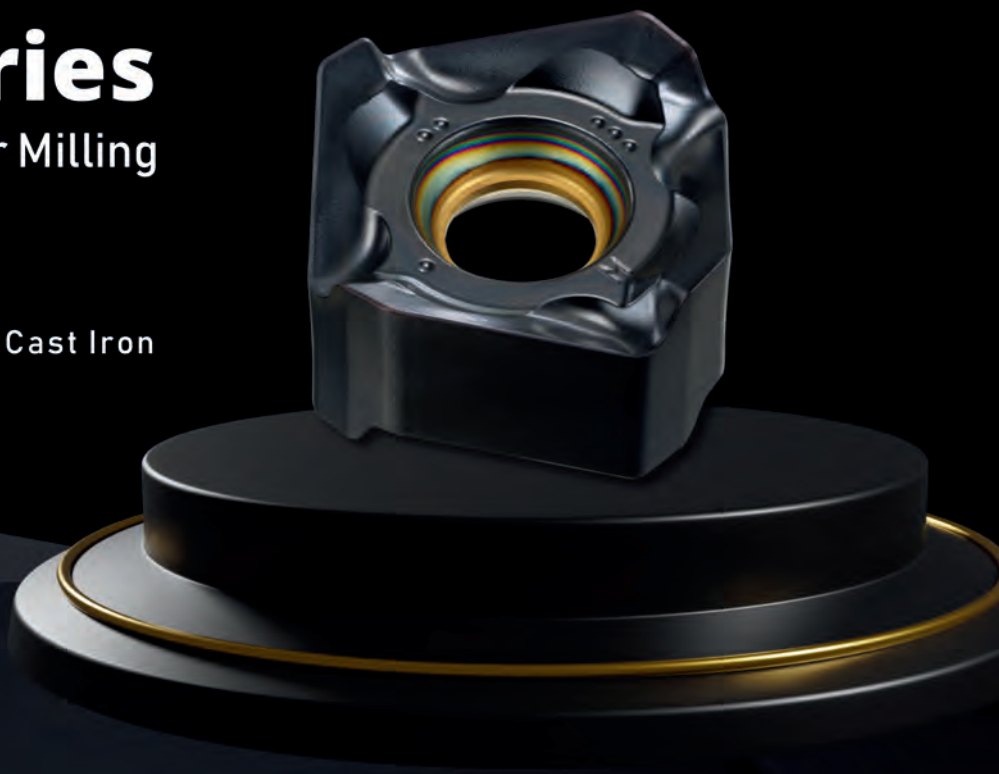

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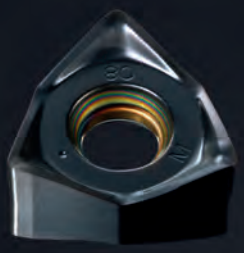

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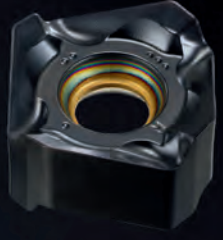

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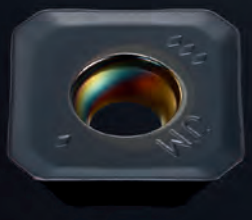

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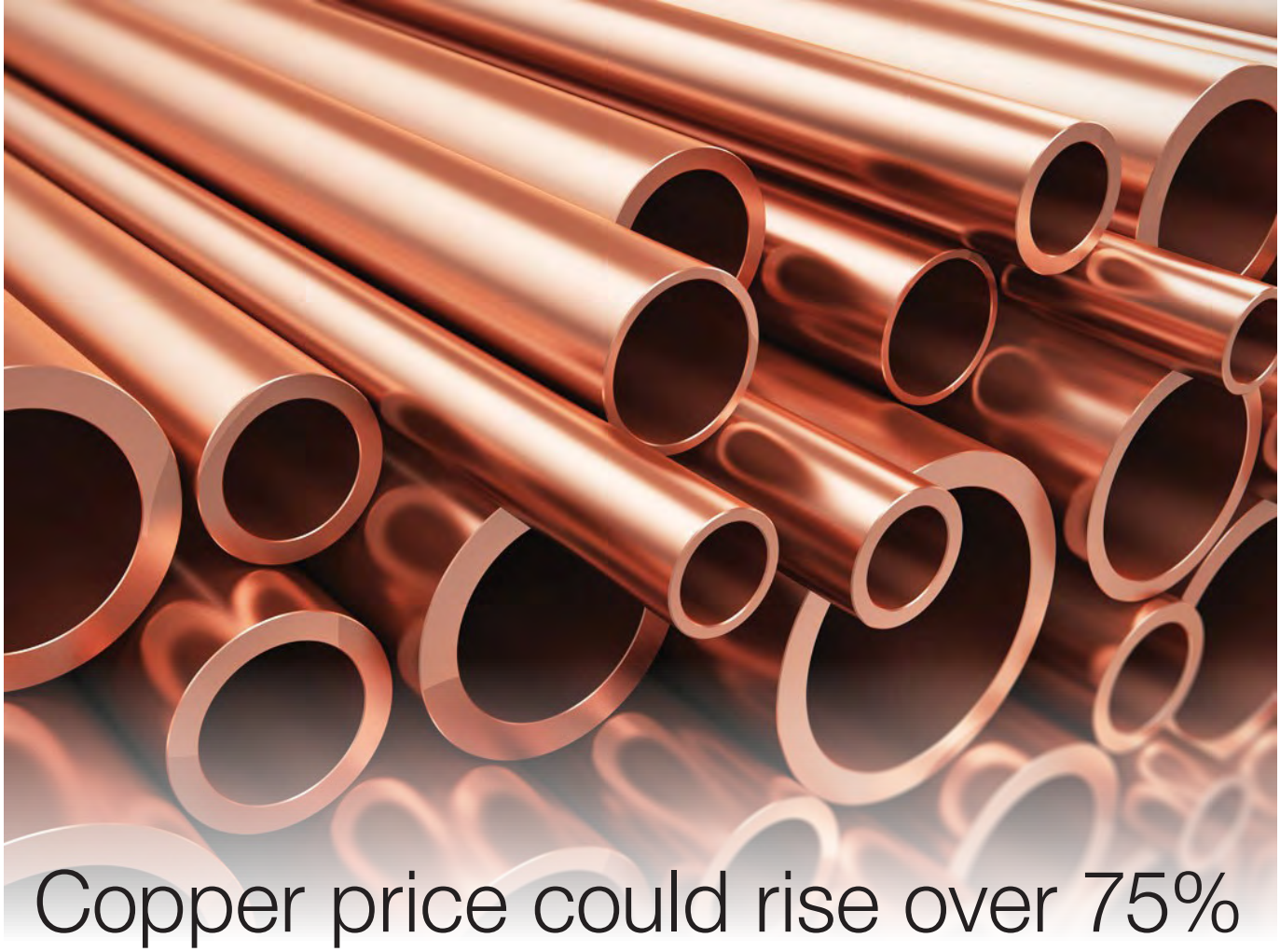

Copper price could rise over 75% to record highs by 2025

Supply squeeze helps copper prices buck tough year for base metals. Red metal known as a leading indicator on the global economy is set to be 2023's top-performing industrial mineral.

Copper prices are set to soar more than 75% over the next two years amid mining supply disruptions and higher demand for the metal, fuelled by the push for renewable energy, according to Lee Ying Shan in his CNBC article.

Rising demand driven by the green energy transition and a likely decline in the US dollar in the second half of 2024 will push copper prices higher, according to a report by BMI, a Fitch Solutions research unit.

Markets are banking on the US Federal Reserve to cut rates this year which will weaken the dollar and in turn make the greenback-priced copper more attractive to foreign buyers.

"The positive view for copper is more on macro factors," Bank of America Securities' head of Asia -Pacific basic materials, Matty Zhao, told CNBC, citing likely Fed rate cuts and a weaker US dollar.

Additionally, at the recent COP28 climate change conference, more than 60 countries backed a plan to triple global renewable energy capacity by 2030, a move that Citibank says "would be extremely bullish for copper."

In a December report, the investment bank forecast that the higher renewable energy targets would boost copper demand by extra 4.2 million tons by 2030.

This would potentially push copper prices to $15 000 a ton in 2025, the report added, way higher than the record peak of $10 730 per ton scaled in March last year.

"This assumes a very soft landing in the U.S. and Europe, an earlier global growth recovery, significant China easing," Citi analysts said, while also emphasising on continued investments in the energy transition sector.

A growing economy tends to boost demand for copper, which is used in electrical equipment and industrial machinery. The metal's demand is considered a proxy for economic health.

Low supply, high demand

Copper on the London Metal Exchange was trading at $8 559 a ton recently.

The base metal is a linchpin in the energy transition ecosystem, and is integral to manufacturing electric vehicles, power grids and wind turbines.

Other analysts see a bullish run for copper due to mining disruptions, with Goldman Sachs expecting a deficit of over half a million tons in 2024.

Last November, First Quantum Minerals halted production at the Cobre Panamá, one of the world's largest copper mines, following a Supreme Court ruling and nationwide protests over environmental concerns. Anglo American, a major producer, said it would cut copper output in 2024 and 2025 as it seeks to cut costs.

"The supply cuts reinforce our view that the copper market is entering a period of much clearer tightening," wrote Goldman's analysts, who see copper prices hitting $10 000 per ton within the year, and much higher in 2025.

The winners of the copper rush will be mainly Chile and Peru, BMI estimates. Both countries have large reserves of green transition minerals such as lithium and copper that are poised to benefit from increased investment and higher export demand. Chile holds around 21% of global copper reserves.

"Our confidence that copper substantially re-rates into 2025 (of $15 000 per ton average) is now substantially higher," Goldman said. ■

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Transnet stops plan to allow private companies to operate key rail line

Transnet withdrew a request for quotes for an operating lease on a freight-rail artery that connects its biggest port with its industrial hub, because changes in the nation's transport policy have affected the scope of the project.

Transnet first issued the call for private-sector partners on the so-called Container Corridor linking Durban with Johannesburg on 27 January 2023, it said in a statement.

Reforms contained in the National Rail Policy and Economic Regulation of Transport Bill, which include separating rail operations from infrastructure, mean that Transnet needs to review the process for bringing in private companies, it said.

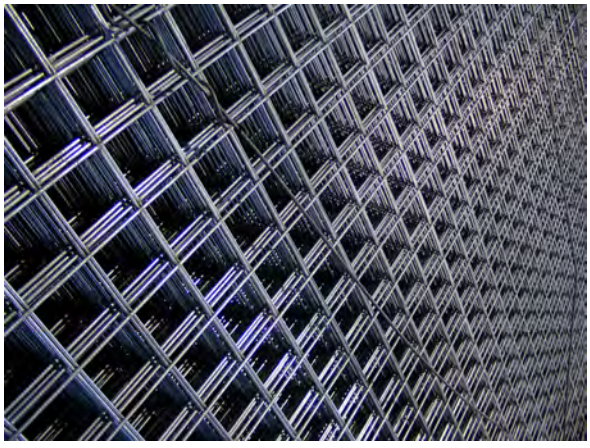
"Transnet is fully committed to increasing private-sector partnerships on key rail corridors, but believes it is necessary to complete the process of bringing the freight-rail ecosystem in line with national policy before taking any further steps to do so," it said.

Transnet, which operates the nation's ports, fuel pipelines and freight rail system, has amassed R130 billion of debt after years of mismanagement, underinvestment and corruption that have impacted its services and weighed on the economy.

Coal shipments on South Africa's freight-rail network have plunged to 30-year lows and iron-ore railings are at their lowest in a decade, prompting companies including Glencore to consider cutting jobs. Port snarl-ups are resulting in delays to the loading and offloading of ships and some fashion retailers have resorted to flying in apparel.

The Durban to Johannesburg line is used primarily to transport containers. ■

Competition Commission welcomes the Tribunal's confirmation of settlement agreement with the Allens Meshco Group



The Competition Commission has welcomed the Competition Tribunal's order confirming a settlement agreement concluded between the Commission and the Allens Meshco Group (AMG) in connection with collusive conduct in the wire industry.

In terms of the settlement agreement, the AMG which consists of Allens Meshco (Pty) Ltd, Agri Wire (Pty) Ltd, Agri-Wire North (Pty) Ltd, Agri-Wire Upington (Pty) Ltd, Cape Wire (Pty) Ltd, Forest Wire (Pty) Ltd, Independent Galvanising (Pty) Ltd, Associated Wire Industries (Pty) Ltd t/a Meshrite, admits guilt to collusive practices. Additionally, AMG has agreed to pay an administrative penalty of R5 million for its involvement in cartel conduct within the wire industry.

The Tribunal's confirmation of the settlement agreement on Wednesday, 22 November 2023, concludes the Commission's legal proceedings concerning ▸

cartel conduct within the wire industry. Before this, the Commission had successfully reached settlement agreements with Cape Gate, Hendok, and Wireforce for their involvement in collusive practices within the wire industry.

In 2009, the Commission referred a complaint against AMG and its competitors, including Cape Gate, Hendok, Wireforce, and CWI, for engaging in collusive conduct in contravention of section 4(1)(b)(i) of the Competition Act 89 of 1998, as amended. The Commission's investigation revealed that between 2001 and 2008, AMG and its competitors had colluded to fix the selling prices of wire and wire-related products in South Africa. This collusion involved establishing a common national price list and specific discounts from that list.

Tribunal confirms Cape Gate settlement agreement in long steel cartel case

In June 2023 Cape Gate (Pty) Ltd ("Cape Gate") agreed to pay a R1.3 million administrative penalty for alleged anticompetitive practices in the market for the production of long steel products in South Africa.

The agreement settled the dispute between the Competition Commission and Cape Gate in terms of which the Commission alleges that Cape Gate contravened the provisions of section 4(1)(b)(i) and (ii) of the Competition Act by fixing the price, trading conditions and dividing the market for long steel products.

In terms of the agreement, Cape Gate agrees to a full and final settlement of the Commission's referral by effecting payment of an administrative penalty in the sum of R1 375 344.32. However, Cape Gate does not admit to a contravention of the Act in respect of the conduct alleged by the Commission.

Among others, Cape Gate also undertakes to refrain from engaging in any anti-competitive conduct in contravention of the Act in the future; and to develop, implement and monitor a competition law compliance programme as part of its corporate governance policy. ■

Bell Equipment appoint Ashley Bell as new CEO

Ashley Jon Bell appointed to succeed outgoing group chief executive officer Leon Goosen.

Bell Equipment Ltd have appointed Ashley Jon Bell, grandson of the company's founder Irvine Bell, as new group chief executive officer, effective from 1 January 2024. This follows the resignation in July 2023 of Leon Goosen, who left the company on 31 December 2023 after 16 years of service, the last five and a half spent as group CEO.

New CEO Ashley Bell

Ashley Bell is well acquainted with the company having served as a non-executive director on the board since March 2015 and having provided valuable input as a member of the board's Risk and Sustainability and Social, Ethics, and Transformation committees.

A qualified commercial helicopter pilot, he holds a degree in business management and previously worked for Bell Equipment after graduating in 2007, assisting with product marketing management of Bell's articulated dumptruck and backhoe loader ranges. Since then, he has jointly established and managed several successful businesses in various industries.

He also co-founded Matriarch Equipment with his brother Justin Bell in 2009. The company focused on developing innovative equipment for a wide spectrum of industries and enjoyed notable success in agriculture and forestry. Bell acquired Matriarch in 2019 as part of their strategy to revitalise its presence in the agriculture and forestry industries and Matriarch's products now fall under the Bell brand.

Congratulating Ashley Bell on his appointment, Gary Bell, non-executive chairman of Bell Equipment, said: "Ashley joins a sizeable team representing the third generation of the Bell family actively engaged in the business and it's heartening to see the next generation stepping up to play an integral role in the future of the company."

"Having worked closely with Ashley for several years, he has all the personality traits and credentials we need, is well aligned with the board's strategy, and is a good fit to lead our experienced management team. I have every confidence that he will build on our family legacy with dedication and a passion for the business."

Ashley Bell said: "I am fortunate to have grown up in an environment where Bell Equipment has been a central theme, and I am both honoured and excited to step up as group CEO. I look forward to working with the entire Bell team, supported by our customers and suppliers, to ensure we execute our group strategy and make a positive impact for all stakeholders." ■

The dtic calls for comments on the extension of the ban on scrap metal exports

Calls for the ban to be scrapped grow.

The Department of Trade, Industry and Competition (the dtic) has published a request for comments from interested parties on key aspects of the Scrap Metals Policy.

These aspects include:

- The proposal to extend the temporary prohibition of the export of certain ferrous and non-ferrous waste and scrap metal;
- The extension of the temporary suspension of the Price Preference System insofar as it relates to certain ferrous and non-ferrous waste and scrap Metal;
- A further restriction on the export of copper semi-finished products, and ■

- Temporary prohibition of the export of used or second-hand rails and subject rails to Export Control.

On 15 June 2023, a trade policy directive and notice were published that ferrous and non-ferrous waste and scrap metal may not be exported from South Africa for six months from June to December 2023.

In addition, the International Trade Administration Commission of South Africa (ITAC) suspended the operation of the Price Preference System for the exportation of ferrous and non-ferrous waste and scrap metal for the same period.

The trade directive and notice forms part of Phase 1 of the Policy Implementation Actions on Measures to Restrict and Regulate Trade in Ferrous and Non-Ferrous Metals Waste, Scrap and Semi-Finished Ferrous and Non-Ferrous Metal Products to Limit Damage to Infrastructure and the Economy published in Government Gazette No. 47627.

Last year Cabinet considered and approved a comprehensive package of measures to address damage to public infrastructure and the economy by restricting the trade of waste scrap and semi processed metals.

RASA says ban will kill business

Meanwhile South African recyclers are complaining that the Government could extend its ban on the export of scrap metal and introduce other measures which they claim 'will kill business and the livelihoods of millions of South Africans.'

The Recycling Association of South Africa (RASA) has submitted its response to a consultation, noting 'a huge outcry from the business sector, including the manufacturing and steel sectors, who have shown that the consequences on the ban have led to the creation of a distorted local market.'

RASA CEO Nancy Strachan adds: "The ban has also been an attributing factor in the closure and imminent closure of businesses in South Africa."

Below is the link to the new gazette:

http://www.thedtic.gov.za/wp-content/uploads/Scrap-Metals-Gazette-49765.pdf

Comments can be hand delivered to the Director General of the dtic at 77 Meintjies Street, BlockA, 1st floor, Sunnyside, Pretoria or via email on scrapmetalpolicy2023@thedtic.gov.za. ■

M&C Zambia performs rapid overhaul of compressor motors for Copperbelt smelter

In August 2022 Marthinusen & Coutts Zambia was requested by a smelter based in the Copperbelt to provide an in-country repair solution on their two critical 4.5MW compressor motors. It was given only three weeks in which to overhaul and commission the motors.

The scope of work involved was to dismantle, clean, and assess all parts, dynamically balance the rotors at operating speed using M&C Zambia's own 12t balancing machine, supply new bearing assembly parts, assemble the motors and no-load test and laser align the motors on site.

Actom's solar generation system at the Knights site is now operational

"Upon dismantling both motors we identified that the stator coils indicated partial discharge and the stator wedges had deteriorated significantly over time. We consequently requested M&C's workshop in Cleveland, Johannesburg to supply partial discharge treatment of the stator coils and to manufacture the stator wedges that needed to be replaced," said Eugene Lottering, M&C Zambia's General Manager.

To ensure that all the work complied with international standards, M&C also sent a senior technician from Johannesburg to assist the local team on the contract.

"Our team is well experienced in how to approach and action various stages throughout the overhaul of these motors. We successfully completed various medium voltage overhauls up to 4 650kW. The motors were no-load tested at 11kV with exceptionally good results and the customer then gave us the go-ahead to commission the motors," Eugene explained.

The overhaul of compressor motors is complete

"Installing them on-site turned out to be a complicated procedure, especially the alignment of the motors to the compressors," he added.

The motors were finally tested on load, recording satisfactory vibration levels of below 1.34mm per second.

"The motors were successfully installed and commissioned three days before the scheduled deadline for completion," Eugene concluded. ■

Fuchs Lubricants South Africa invests R218 million to increase local production capacity

Following the successful completion of its Phase One expansion at its Isando facility, Fuchs Lubricants South Africa is on track with the next phase of the project, which commenced in 2023 and expected to be completed in 2024 at a total cost of R218 million. Phase Two will see a 40% increase in lubricants production capacity.

"As part of our growth strategy, we started planning our capacity expansion some five years ago. Phase One of the investment plan involved acquiring additional land at the Isando facility and construction of a new, state-of-the-art warehouse and head office complex, which was completed in mid-2022 by DRA Global, which engineered, procured, constructed, and managed the project," explained MD Paul Deppe. ▶

"The next part of our expansion is to increase our production capacity," says Deppe. This was necessary as the current plant is running at capacity 24/7. "To meet market demand, we had to look at expanding our production capability. It also afforded us the opportunity to introduce the latest technology in blending and filling processes."

Deppe pointed out that the new plant is an expansion of the existing plant and will bring about much needed capacity increase. "Fuchs embarked on its automation journey when it built its second grease plant in 2018. We are adopting the same methodology with the automation of this plant, using a well-known German company that has done work for the group in other parts of the world," said Deppe.

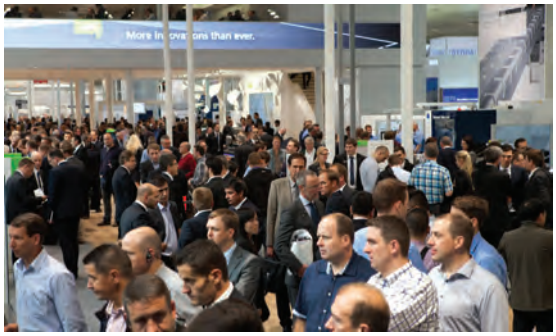
He added that 80% of the project spend will be local and the balance imported, mainly on the automation.

Esther Seabi, Sustainability Director at Fuchs, reveals that in line with the Fuchs Net Zero goals, the project will focus on energy efficiency and renewable energy as key drivers. Features will include insulation, variable speed drives (VSDs), heat recovery from heated product and flue gas, and a solar PV system. Recently, Fuchs received an accolade from the Green Building Council South Africa (GBCSA) Leadership Awards for 2021-2022. In addition, the new Fuchs head office has been certified as being net zero carbon.

The new warehouse in Isando incorporates some of the latest warehouse management technology, including scanning and system driven batch control. The new materials-handling equipment includes narrow-aisle turret trucks stacking up to 17m high. The warehouse includes a comprehensive environmental, safety and fire system, including in-rack sprinklers and automated spill barriers.

Machine Tools Africa 2024 set to take place in May 2024

Machine Tools Africa 2024, Africa's only machine tools exhibition showcasing cutting edge developments across the machine tools and related industries is set to take place in May 2024. A Machine Tools Merchants' Association of South Africa (MTMA) event, Machine Tools Africa will be taking place at the Expo Centre in Nasrec, Johannesburg, from 21 to 24 May 2024.



Speaking about the industry and the launch of the show, Joanne Canossa, MTMA Chairperson, says that over the 2020-2022 trading period, South African manufacturers and metal fabricators have had to endure more than one blow: Covid-19, KZN unrest and rioting, port congestion and sabotage resulting in shipping delays, flooding on our East Coast, a steel industry's strike and to top it off the Russian-Ukrainian war impacting on material and component supply globally.

However, with all this said, she says that "statistics show a large increase in revenue of industrial machinery in 2021/2022. This confirms that even though South Africa has been hit negatively for the past two years, businesses are investing in machinery and upgrades."

There has been keen interest in automation, smart factories, and Industry 5.0 and how it will affect the manufacturing sector in the coming years, and according to Canossa, the "timing for the Machine Tools Africa exhibition in 2024 is perfect."

"It will be very exciting to see how suppliers utilise this platform to target the manufacturing industry and display technological advances. The previous show in 2017 was a standout success, attracting high quality visitors to watch live demonstrations on machinery and equipment over four days. The 2024 show will be a great step towards the recovery and upgrading of local manufacturing businesses in South Africa."

"As an association, it is imperative the MTMA looks to the broader industrial sector. Only with investment in the manufacturing sector can the industry, and our economy benefit. South Africa has a well-established manufacturing sector that offers various opportunities for investors to diversify their portfolios, and the exhibition will provide a platform for industry stakeholders to work collaboratively to take advantage of the current environment," she says.

Machine Tools Africa 2024 will be all about machinery and tooling, control systems, robotics, design and accessories used in converting raw materials and metal castings into components and end-products that affect our everyday lives. This event is designed to showcase the very latest global machine tool technology and to highlight the importance of local suppliers and their international manufacturing partners.

All those involved in machine tools across mining, manufacturing, automotive, metallurgy, paper and pulp, aeronautics, aerospace, railways, energy, electronic and IT, and research and engineering should plan to visit Machine Tools Africa 2024. A series of free-to-attend technical seminars taking place at the show will enhance the visitor experience and add value to the programme.

For more information, contact Keraysha Pillay at Specialised Exhibitions a division of the Montgomery Group and organisers of Machine Tools Africa 2024 in partnership with MTMA. Email Keraysha at Keraysha.Pillay@montgomerygroup.com ■

Bottling it with Neck Ring International

Have you ever wondered how neck rings and guide plates are produced? And don't get confused with the neck rings worn by African and Asian women where it is said they are worn to make the neck look longer, they are worn to make a woman look not so inviting to the men of other tribes or to indicate the wealth and status of the wearer and the husbands' wealth – there are many various myths and reasons. We are talking about the neck rings that are commonly used in the forming of the 'finish area' of a glass container.

Business partners Operations Director Dave Stewart and Jan Swanepoel, who is the MD of Neck Ring International

We went to visit Neck Ring International, one of a few manufacturers of neck rings used in the glass industry in South Africa. We met up with Willem Swanepoel, Technical Manager at Neck Ring International, and he explained what a neck ring is.

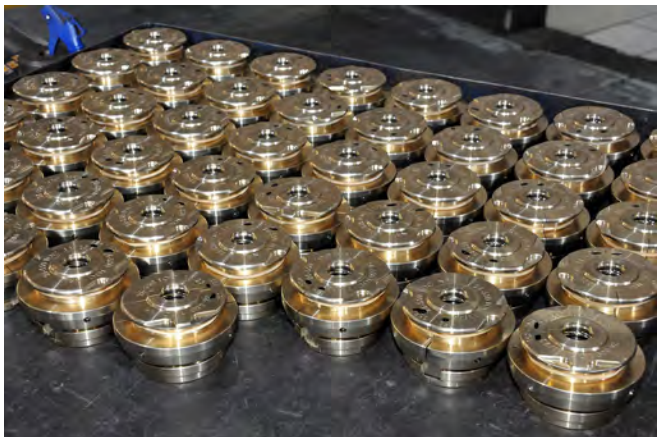
"The neck ring of a glass container is arguably the most important part of the container, whether it be a glass bottle or a glass jar. The neck ring gives the container strength, facilitates filling and emptying, and allows the container to be sealed to preserve the contents. As a result, it needs to be absolutely perfect, both in terms of shape and the thickness of the glass. Additionally, the surface finish is very crucial."

"Neck rings on glass bottles and jars too can all be looked at as specific parts. The uppermost part is called the ring or finish. It includes the bore, sealing surface, and bead or collar, depending on how the bottle is to be sealed. The neck sits below this and stretches from the parting line or collar to the curve of the shoulders."

"The finish of the bottle is formed in the neck ring mould before the container is blown or pressed to shape. The mould needs to be the perfect size and must be free of dirt and debris. If there is a problem with any of these the finished product will be flawed."

"The quality of the neck ring finish depends on several factors, including the material used to make the mould itself. On top of this the temperature and rate of cooling are important. Both of these also have an impact on how long the

Neck Ring International is not limited to machining neck rings only



Neck rings ready for delivery. The company can manufacture up to 1 000 different neck rings in a month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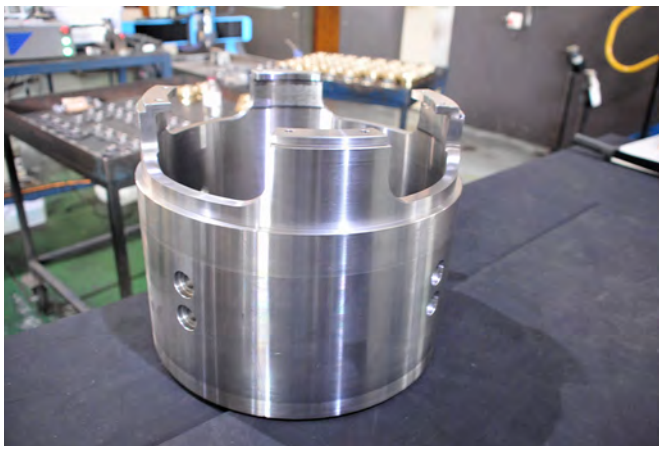
The machine shop at Neck Ring International



The company now offers CNC turning, CNC milling, fabrication and assembly as its services

glass must remain in the mould."

"All glass container manufacturers who make products that need to be sealable understand how important it is to use the right moulds and keep them in the perfect condition. Doing so retains the quality of the finished products. In order to accomplish both things the right tools are needed. Neck ring profile gauges are important as they allow the mould to be accurately measured to ensure the dimensions of the container are correct."

"In a neck mould for forming the finish portion of a glass container, a pair of semicylindrical outer metallic body members are formed of bronze alloys or hardened tool steel, for example, with each of said members having an internal, recessed shoulder thereon, a pair of semicylindrical metallic neck ring inserts, said inserts being formed of metal selected from the group consisting of bronze, cast iron and beryllium nickel alloy, said inserts adapted to seat on the shoulders formed in the body members, the internal configuration of said inserts being that of the external finish of a glass article to be formed."

Willem Swanepoel (34) has been with Neck Ring International for 10 years. He previously obtained an electrical diploma while working in that industry before joining his father's company. Jan Swanepoel is the MD and his partner in the business is Operations Director Dave Stewart.

The two directors acquired the company in 1999. At the time Neck Ring International was a business unit within Eloptro, a company that was part of the SOE Denel Group at the time. Jan Swanepoel was General Manager of Eloptro and Dave Stewart ran the Neck Ring International business unit. Neck Ring International was established in 1987 in response to international economic sanctions. The government's interministerial cabinet committee agreed on the sale of certain state assets in 1999 with Neck Ring International being one of them.

Other business units in Eloptro to be sold were Voltco, the consumer electrical products division, Syncat, the specialist catalyst producer. Eloptro has subsequently been closed and the remaining assets acquired by Micromax.

"The glass container industry is still huge in South Africa. Our neck rings are used by glass container manufacturers that ultimately are in the non-alcoholic, alcoholic beverage and food industries. Glass packaging is having a bit of a renaissance since the world has become very conscious of recycling and sustainability and as a result plastic packaging has taken a beating by environmental groups because of its long-life and the impact it has on the environment," explained Jan Swanepoel.

"The stakes are high, from landfills overflowing with waste to the depletion of finite resources. Glass, being 100% recyclable, presents an incredible opportunity to address these challenges. However, despite its recyclability, a significant portion of glass still ends up in landfills. People need to be educated. They say each ton of recycled glass added to a furnace saves 1.2 tons of raw materials, about 580kg CO2 is saved throughout the supply chain, air pollution is reduced by 20% and water pollution cut by 50%."

"We don't have local figures but the current UK glass

A component that was final machined

A neck ring before it has been machined

A neck ring is manufactured in two halves and besides bronze alloy or hardened tool steel they can also be manufactured in an aluminium nickel

Neck Ring International has seven mills/machining centers and 13 lathes on the floor

container market is approximately 5 billion containers with a turnover in the region of £500 million shared amongst five manufacturers. The European market is 30 to 40 billion containers worth approximately £4 billion. Locally a plant has been completed in Nigel, which makes it the largest glass container production facility in Africa and one of the largest and most efficient facilities globally."

"When we acquired the business, its focus was 100% on manufacturing neck rings. This still plays an important role in our mix of services but we have taken away the 'all eggs in one basket' syndrome and moved it into a situation where it now offers CNC turning, CNC milling, fabrication and assembly as its services. This has certainly spread the risk but it has also given us the opportunity to grow the business over the years."

"We now have a number of clients that are either directly or indirectly active in the mining, agriculture, hydraulic and general engineering industries. The amount of different

Neck Ring International has an EDM spark eroder

The company's DN Solutions Daewoo ACE V-35 vertical machining center has been a workhorse for the company

Other services offered include welding, metal spraying, finishing and fabrication

Brothers Willem and Henro Swanepoel

components that we have machined goes into the hundreds. Some recent examples are a lever assembly that we machined and fabricated for the mining industry, brake discs for mine ventilation fans, heat-treated sprockets for a double chain, air filters turned and milled according to a customer drawing and bearing end caps with a grease nipple that was machined from brass."

"Some other components that we have machined include adaptors, anchor blocks, cylinders, swivel links, idler shafts, oil plugs, screws, shells, levers, magnet frames, end plates, bearing sleeves, gear wheel shafts, couplings, covers, camshafts, shafts, custom bolts and washers, sleeves, spacers, motor support beams, pins, pistons, traction handles, valve housing, glands and cylinder shafts."

"We also machine many wear part type components and here we either make from scratch or supplied drawing."

"We certainly are a fully-fledged CNC machining operation and currently we have seven mills/machining centers and 13 lathes on the floor. We could be looking at investing in new machines in the future."

"We also have an EDM spark eroder, a CMM and shadow graph for inspection and offer other services such as welding, metal spraying, finishing and fabrication."

"We are only involved in the glass industry. Making moulds for the plastic injection industry is not what we know and we stay away from it."

"Back to the glass industry. We are not restricted to just manufacturing neck rings. We have manufactured plungers from raw material to pre machining to metal spray welding and then the final machined component. Other components for this industry include blanks, baffles and guide plates."

"It's essential to have a clear understanding of bottle neck finishes, thread sizes, and dimensions when considering packaging for your product. When it comes to the process of selecting a closure for your bottle or another container, there are several measurements needed to ensure a secure and sealed fit. In this guide, we will cover the key points you need to know to understand bottle neck finishes."

"As said previously the neck ring is manufactured in two halves and besides bronze alloy or hardened tool steel they can also be manufactured in an aluminium nickel. We import our material from Hungary and New Zealand. The size range we work in is 92 diameter up to 120 diameter."

"We can manufacture up to 1 000 different neck rings in a month and usually manufacture them in batches between 100 and 400."

"Some of our clients in the glass container manufacturing industry include Allied Glass, a UK company that makes the bottles for Diageo's Tanqueray No.10, which is reportedly the world's best-selling gin, Cape Town based company Amcor, Swiss engineering group Bucher Emhart Glass that manufactures equipment for glass container manufacture, our very own Consol Glass which is now part of the Ardagh Glass Packaging group, Sisecam from Turkey, a company that has 44 glass container manufacturing plants, Japanese glass container manufacturing company Toyo Glass and German company Glass Technology International."

"There are also other companies in Portugal, South America, Cameroon, the US and Germany that are connected to the food, beverage and brewing sectors, as well as manufacturing pharmaceutical glass bottles and jars."

"We now have a team of over 50 staff who are led by the seven managers that we have appointed. With the trust that we have placed in these guys we have a source of business intelligence that helps Dave and myself make more accurate decisions. There is also a sense of empowerment."

"Not all of the staff operate from our facility in Roodekop, which is an industrial area south of Johannesburg. We have a second workshop not far from our main facility. It is located on the premises of one of our bigger clients. We have 24 staff based there and they run on a three-shift system."

"They are there exclusively for the client to maintain and repair, where necessary, the client's neck rings, moulds and other associated components and products. There are no CNCs there, only welding equipment and other hand-held equipment and tools so that there is immediate reaction to any breakdowns. It is an arrangement that we have had with the client for some time."

"New developments such as brand identity, e-commerce, sustainability and lifestyle are impacting bottle design. Rapidly evolving consumer demands, along with strict retail and regulatory requirements, are driving packaging companies to push the boundaries of what a bottle can be. While evolving design tools allow designers to be more creative and help customers achieve their unique brand identity through shape, embossing and etching, there's more to it than that."

"Next time you take a sip of your favourite beer or pour a glass of wine, obviously from glass containers, or you take a scoop of mayonnaise or peanut butter, think of what design and machining has gone into that glass bottle. It is surprising how many critical engineering and design methodologies that are deployed long before the final product reaches the customer."

For further details contact Neck Ring International on TEL: 011 724 3900 or visit https://nri.co.za/ ■

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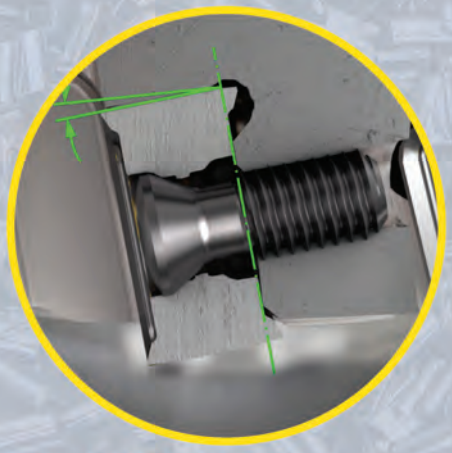

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Cliff's Way Engineering management committed to learning and adaptation

Making processes more productive is one big benefit of success driven manufacturing, but so is keeping people motivated and encouraging creativity

Humble leaders embrace continuous improvement and see it as a part of a symbiotic relationship with staff, clients and suppliers. They identify gaps in technical expertise and people skills, and jump at training opportunities for themselves, their team and even their peers. Leaders acknowledge the willingness to invest in the company, and they reciprocate by excitedly deploying those new skills to their position.

Gregg, Brian and Teneile Dixon

As a young man, Brian Dixon realised his passion for engineering and had a dream to have his own company. In 1987 Dixon actioned his dreams and became a co-founder of Cliff's Way Engineering. He has since then become the sole owner and continues to achieve his life's goals with the same amount of passion.

"I was working at DJ Engineering, a company that was run by my father, Kenneth Dixon and his brother Roland Dixon. It was a general engineering company that machined and fabricated all sorts of components using various materials. It was a great learning period for me but I always wanted to run my own business, which my father and uncle understood when I told them I was leaving to venture out on my own. They had started a business themselves and knew how tough it was but gave me all the encouragement I needed."

"It was not easy, especially as I had a young family to look after."

Soon after Dixon ventured out on his own, he was joined by his cousins, Cliff and Trevor Petersen.

"Our partnership lasted 20 years before Cliff went off on his own and started Delmas Drum and Engineering, which is in the factory next to us. In 2017 I bought Trevor out of the business and became the sole owner."

"We also started a company named Cliff's Way Aerospace for the production and assembly of machined components that are produced to tight tolerances in a range of materials. The bulk of the work was for aerospace, mainly the production of airframe components, and it was an approved supplier to Airbus for the Airbus A400 military transport aircraft through the Denel sponsored Aerospace Industry Support Initiative (AISI). The main objective of the Aerospace Industry Support Initiative (AISI) was to assist the aerospace and defence industry to improve its competitiveness, productivity and

Machining center/milling capacity that includes 3-Axis, 4-Axis and 5-Axis machines, is 5 000mm by 2 000mm by 800mm in the XYZ

Cliff's Way Engineering have purchased 6 new CNC machines in the last year. This has taken the DN Solutions count to 8 machines

Cliff's Way Engineering are capable of machining and fabricating many different size components

Shafts that are in different stages of machining

quality management systems and provided focused assistance to us and others through 18 months of training and skills transfer through Aerosud Aviation and Denel Aerostructures respectively, with support from Airbus. Once we completed the programme we could compete globally."

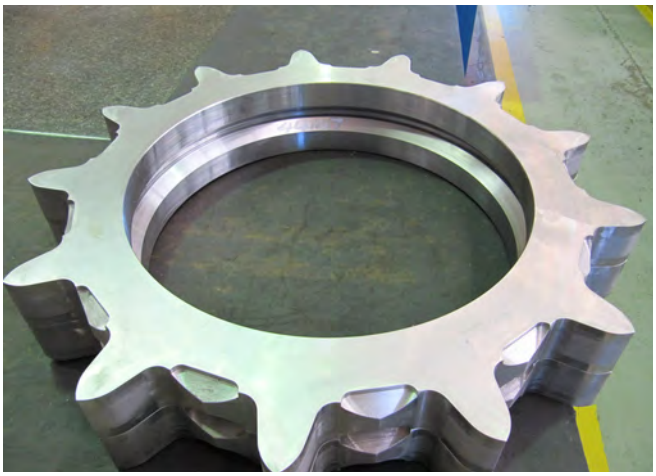
"The company machined and supplied components for the first 50 Airbus A400 military transport aircraft."

"The first CNC machine that the company purchased was a Mazak Quickturn 20 CNC lathe and one of our first clients was Joy Mining. We machine many different general engineering components for them, including track pads for the underground mining and drilling equipment, as well as spares and wear parts."

Through their dedication to their clients and willingness to grow, Cliff's Way Engineering can now boast that they have clients it automotive, transport, mining, defence, rail, medical, hospitality, agriculture, electrical, energy, gas, glass and petroleum industry.

"This gives us a large spread of clients with a variety of component and machining requirements. Our machining capacity relative to component size offers machining on conventional and CNC turning lathes with a maximum size of 950mm by 3 800mm or 750mm over the bed by a length of 4 000mm."

"Our CNC vertical boring turning department can accommodate components up to 1 600mm by 1 250mm in height and our machining center/milling capacity that includes 3-Axis, 4-Axis and 5-Axis machines, is 5 000mm by



Cliff's Way Engineering can now boast that they have clients it automotive, transport, mining, defence, rail, medical, hospitality, agriculture, electrical, energy, gas, glass and petroleum industry

In 2015 the company established Cliff's Way Welding to offer welding and fabrication services. This includes MIG, TIG and Argon welding and hand held plasma cutting up to 30mm plate

AMADA SUCCESS is Built

ENSIS 3015 AJ

High-precision fiber laser
processing of thin-to-thick materials
without additional machine setup

Following the success and technological breakthrough with the ENSIS fiber laser, AMADA now presents the ENSIS range in 3, 6 and 9 kW derivatives of this fiber Laser. The ENSIS range uses variable beam control technology developed by AMADA enables modulation of the laser beam as a function of sheet thickness, changing the beam shape to suit material/thickness utilising a single lens for the entire range of materials and thicknesses which reduces machine setup requirements.

Ease of operation – intuitive AMNC 3i numerical control, large front and side access sliding doors and a high capacity automatic nozzle changer are further features ensuring machine setup is reduced to a minimum.

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.

- Full range cutting capability without the need to change lenses
- Rapid feed rates: 170m/min, of the fastest in class
- New helical rack drive ensures high speeds and smooth operation
- Energy saving - ECO Cut and reduced power consumption

HG 1003

Press Brake With Automatic Tool Changer

Triple or quadruple your number of bending setups per day. An Automatic Tool Changer (ATC) performs tool changes quickly and precisely - eliminating costly delays associated with manual tool changes. The ATC is equipped with 18 magazines for dies and 15 for punches - providing the flexibility to accommodate rush jobs seamlessly. Now, complex tool layouts can be precisely loaded in three minutes or less.

on INNOVATION

LC 2515 C1 AJ
Punch/Fiber Laser Combination

Equipped with an innovative Multi Purpose Turret, the LC 2515 C1 AJ is a revolutionary punch/fiber laser combination machine that maximises productivity while eliminating secondary operations. The CI AJ features a highly efficient 2kW fiber laser that achieves faster cutting speeds and a wider range of cutting capabilities compared to a CO2 laser.

LCG 3015 AJ
Fiber Laser

Leadership isn't attained through compromise. It's achieved when excellence is the only noteworthy benchmark. Amada's ongoing commitment to maximise your productivity has resulted in machines that set the global standard for speed, precision and performance.

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.

AMADA
For your success

AMADA

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Cliff's Way Engineering will machine all types of material

Shafts that are ready for delivery

2 000mm by 800mm in the XYZ."

"We now have over 20 CNC machines and 6 of these have been purchased in the last year. It has taken our DN Solutions count to 8 machines, which includes both lathes and milling machines, and we have another one on order."

"Besides turning and milling services we also offer CMM, 3D inspection, assembly, rope attachment, cylindrical grinding, grinding, gear cutting programming and drawing services."

"In 2015 we established Cliff's Way Welding to offer welding and fabrication services. This includes MIG, TIG and Argon welding and hand held plasma cutting up to 30mm plate."

"95% of the metal we machine at the moment is made of steel but we are at home with machining all of the other metals. We are governed by what our clients want."

New machines

"Almost any shop can automate at least some of its production, even in low-volume, high-mix applications. The key to getting started is finding the simplest solutions that fit your requirements. It helps to work with an automation partner that understands your needs."

As for his shop, Dixon believes its diversity of capabilities and customers, along with the added capacity of the new machines, will put it in a stronger position to respond quickly to market changes.

"In fact, the new machines played a key role in the last couple of months," said Dixon.

"As a critical manufacturer, one of our clients has had to up its capacity and delivery of components and products that are vital to the end user. We have been able step in to help the customer, increasing production of certain components. The customer is an OEM and we did our best to survive the continuing demand as we all had to make adjustments."

"We have looked at our company and we believe that the answers are sound financials, the right equipment, competitive pricing besides excellent delivery times, a formal quality programme, a divergent management structure, a diversified customer base, offer more than machining services, a good shop appearance, eye toward new technology and a strong succession plan."

"We can tick the boxes of all of these. My son Gregg, joined the company on a full-time basis in 2012 and he looks after engineering. My daughter Teneile, who was previously with the company for five years and re-joined in 2015, takes care of human resources, our ISO 9001 standard rating that we have had since 1997, projects and IT."

Business coach takes successful company to new heights.

"Besides being immediate family, which in itself is a win-win trust plus, we all have the same vision and learning appetite for the company."

"After many years of running our business the same way, we realised we needed to make some changes to it. We weren't struggling but we felt like we needed some energy had to be put into the company to take it forward. We had tried various options but we were not comfortable with most of them. In that time, we have observed that it is rare to meet someone who listens, guides, encourages, motivates,

As for his shop, Brian Dixon believes its diversity of capabilities and customers, along with the added capacity of the new machines, will put it in a stronger position to respond quickly to market changes

It is Cliff's Way Engineering's vision to be an OEM supplier

Besides turning and milling services Cliff's Way Engineering also offer CMM, 3D inspection, assembly, rope attachment, reverse engineering, cylindrical grinding, grinding, gear cutting programming and drawing services

The CNC vertical boring turning department can accommodate components up to 1 600mm by 1 250mm in height

supports and helps you see the bigger picture so that you can reach your goals."

"Advances in technology and equipment have made it easier than ever for machine shops to deliver tight tolerances and complex geometries. In order to compete, shops need to do more than just produce exceptional parts. They need a quality-first and team mindset that guides every part of their business, their service and their relationship with clients."

"Many companies in manufacturing today have organised themselves into working teams. However, managers have not become coaches but rather managers, while workers have not become players."

"Traditionally, managers simply dictated employees to do something differently without taking the time to build skills and make the new way of doing things sustainable. When the manager came back around to check, he invariably saw the old way creeping back, and there would be strong words exchanged. We can hardly expect to win hearts and minds in this manner. The coach must be patient, consistent, and empathetic."

"A lean transformation often involves massive procedural and behavioural changes that require lots of work. How those changes are introduced and reinforced affect how well those changes will be sustained. Good coaching positively engages the person being coached (the learner). It builds capability and understanding about what is important, and it shows how to follow through and consistently perform work to meet business needs. This applies whether the person welds a part, supervises a department, or manages an entire plant."

"We began our journey two years ago with the appointment of a business coach."

"The new leaf of life for the company has seen all staff, 55 of us, grow and as a result there has been a huge impact. We hold training sessions every Friday where everyone participates.

"Remember collectively, the team must score for the company to win. Points in this game are represented by profits. The offensive plays are designed to deliver first-to-market innovation, compressed throughput cycles, agility and continuous productivity gains, to name a few. Defensively, it's about recognising market trends, new materials and technologies that can impact the game plan. Companies that consistently score points win the game."

"Business coaching is a service where business leaders, owners and managers engage in a personal dialogue with business experts and coaches to expand their business and improve their interpersonal and professional skills."

"The biggest complement is that our auditors are now considering engaging a business coach."

For further details contact Cliff's Way Engineering on TEL 011 824 1784 or visit www.cliffsway.com ■

Cliff's Way Engineering have recently taken delivery of a DN Solutions Puma 4100 CNC lathe which was supplied by Puma Machine Tools

Tools for sustainable machining

Cutting tools and sustainable manufacturing

The term "sustainability" has become increasingly popular in recent years. It is frequently seen in headlines, featured in forms of news media, scientific research, and practical seminars. Is the word sustainability merely a trending word or the question of the hour?

The emphasis on sustainability stems from global growing awareness intended for critical environmental issues and climate change, largely caused by human activity. The focus on sustainability reflects our deep commitment to the principles of securing a better future for the planet and generations to come.

Consequently, sustainability has gained prominence in various fields, ranging from everyday life and business to transportation, urban planning, and manufacturing. Manufacturing should unquestionably be sustainable. Today, there is widespread recognition and agreement regarding the correctness of this statement. Manufacturing processes use natural resources, consume energy, create waste, and pollute the environment. We can mitigate the negative environmental impact only by adopting sustainable production technologies.

Machining remains a primary method for producing parts of machines and mechanisms. Therefore, the question of how to make machining sustainable is relevant more than ever. A cutting tool contacts the machined workpiece directly and shapes it to its required form, removing the rest of the unnecessary material in the form of metal chips. Can a cutting tool be a key factor for improving sustainability? The answer to the above question is undoubtedly a resounding, yes!

Despite its smaller size in comparison to other elements of a technological system, the machine or workholding fixture called the cutting tool can play a pivotal role in achieving sustainable manufacturing practices. The cutting action involved in material removal during machining is an energy-intensive process. However, the cutting tool is designed to be energy-efficient and, therefore, can significantly reduce energy consumption.

The impact of key tool characteristics cannot be underestimated. Advanced cutting geometries minimize cutting forces while anti-vibration designs mitigate chatter, which causes force oscillation. Progressive coatings enhance lubricity, diminishing friction, and efficient cooling methods effectively reduce heat generation. Collectively, these tool elements substantially reduce the environmental impact of machining operations.

Fig. 1 – A Logiq-3-Cham drill with an exchangeable carbide head has 3 flutes

In many instances, a cutting tool can hinder productivity growth, limiting the full realization and capabilities of modern machines. Therefore, tools that guarantee higher productivity play a crucial role in reducing cutting time, machine power consumption, and greenhouse gas (GHG) emissions. Reliable, long-lasting cutting tools that enhance tool life, reduce the frequency of tool replacements, or insert indexing. This diminishes machine downtime associated with tool changes, ultimately improving overall manufacturing efficiency.

In addition, utilising cutting tools that provide a better surface finish can eliminate the need for finish machining operations, thereby decreasing the machining allowance or material stock to be removed. As a result, a dual effect is achieved reducing both machining time and material waste.

Hence, the term "sustainable cutting tool" is not merely a passing trend but a vital concept that is progressively embraced and integrated as a fundamental principle of sustainable manufacturing. Ultimately the main parameter to analyse a tool is its performance. However, the component of tool sustainability has become a contemporary factor of paramount importance. Understanding the various aspects of how cutting tools impact sustainability largely shapes the requirements for modern tools and guides their development.

A case study featuring how Iscar's tools improve machining sustainability

How can a cutting tool improve machining sustainability? A brief review of select Iscar products helps us to understand this profoundly. The design concept of tools with replaceable cutting parts significantly contributes to the sustainable utilisation of cutting material.

Fig 2 – In boring, using anti-vibration bars improves performance and reduces power consumption

Iscar's tool systems with exchangeable carbide heads, such as Multi-Master and Sumocham, provide a good example of this concept by allowing the rational use of cemented carbides. In addition to the traditional approach of saving cutting material, the mentioned systems offer further advantages related to sustainability. Both the Multi-Master and Sumocham families feature high repeatability, which allows for the realisation of the no-setup-time principle. This means that replacing a worn head does not require additional setup operations to adjust tool parameters. As a result, machine downtime is significantly reduced.

Logiq-3-Cham represents the next step in the development of drilling tools with exchangeable heads, based on the features of its predecessor, the Sumocham drilling line. One notable parameter that sets Logiq-3-Cham apart from the other drilling systems is its three flutes (Fig. 1), as opposed to the traditional two. This change enables increased feed and speed of up to 50%.

Alongside improved productivity, this new design also brings sustainability advantages by reducing energy consumption and GHG emissions. Drilling 16mm diameter holes with an 80mm depth in a part made from low alloy steel exemplifies these features well. With a tool life of 500 holes, when compared to a competitor's drill with a replaceable two-flute head, the use of Iscar's Logiq-3-Cham tool results in a 26% decrease in cycle time and a 19% decrease in energy consumption. Consequently, CO2 emission is reduced by 19%.

The anti-vibration design of cutting tools plays an essential role in reducing power consumption, extending tool life, and improving the surface finish of the generated surface. Iscar has developed vibration-damping solutions that use various principles. These include vibration damping through specially designed mechanisms, such as in boring bars (Fig. 2), as well as the development of specific chatter-resistant cutting geometries. The geometry incorporates variable helix and unequal angular pitch in multi-flute solid carbide endmills and heads, along with a serrated cutting edge for effective chip splitting action in indexable inserts (Fig. 3). Additionally, these tools and inserts ensure better chip handling, which enhances the performance of machining operations. The smart design of the pocket reducer allows mounting smaller size inserts, which provides the option of extending the use of existing tool bodies instead of purchasing new ones. This not only reduces the waste of raw materials but also helps decrease GHG emissions.

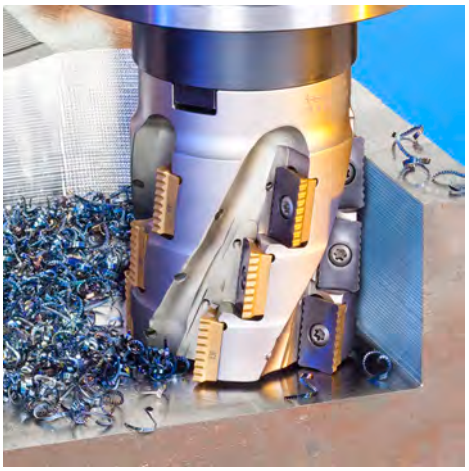

Fig. 3 – Chip-splitting geometry of Millshred indexable milling cutters provides high stable milling and better chip handling

Additive manufacturing (AM) has introduced new sustainability features in tool design. Firstly, AM technologies enable the production of a tool body that closely resembles its final shape, minimising the need for finish machining and significantly reducing tool material consumption. Additionally, these technologies make it easier to create inner coolant channels in an optimal manner, improving the coolant flow through the tool body to the cutting zone.

The examples featured in this article illustrate how energy- and material-efficient, durable cutting tools can have a significant impact on technological sustainability. Such tools not only help reduce energy consumption and waste, but also contribute to cost savings and environmental stewardship.

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

Sandvik's acquisition of pro-micron to strengthen position in sensorised tools market

Sandvik has signed an agreement to acquire pro-micron GmbH, a German-based supplier of sensorised tools and automation software. Sensorised tools is a high-growth market, with strong underlying drivers such as the accelerated shift to automated production, increasing demand of production data from customers and closed loop manufacturing driving the need for digitalisation.

pro-micron's state-of-the-art sensorised tools offering for diagnostics and process monitoring help reduce production errors and increase automation for customers within areas like solid round tools machining. With spike technology, pro-micron offers its customers a path towards autonomous machining.

Smart sensors with sensitive, unique signals, as well as advanced software tools track, synchronise and edit process and machine data, enabling customers not only to analyse and to monitor serial production but also to predict quality results in real time using AI algorithms.

pro-micron's long-standing relationships with machine tool builders will help strengthen and expand Sandvik partnerships with these customers. The company will be reported in Sandvik Coromant, a division within Sandvik Manufacturing and Machining Solutions.

"The acquisition of pro-micron fits very well with our strategic focus to grow within key high-growth industry segments, in this case the area of sensorised tools and automation," says Stefan Widing, President and CEO of Sandvik.

pro-micron, founded in 2002 has around 56 employees and is headquartered in Kaufbeuren, Bavaria, Germany. In 2022, the company generated revenues of about SEK 88 million ($8.8 million).

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

TH MACHINE TOOLS
Machines that work!

Hurco VMONEi
Vertical CNC Machining Centre 3-Axis

Spindle Taper: BT 40 Big-Plus dual contact
Travels X, Y, Z: 660 x 406 x 356mm
Rapids X,Y,Z: 28 m/minute
ATC Number of Stations: 16
Spindle Speed: 8,000 RPM
Spindle Motor: 10 HP (7.5 kW)

Hurco VM10i
Vertical CNC Machining Centre 3-Axis

Spindle Taper: BT 40 Big-Plus dual contact
Travels X, Y, Z: 660 x 406 x 508mm
Rapids X,Y,Z: 28 m/minute
ATC Number of Stations: 24
Spindle Speed: 10,000 RPM
Spindle Motor: 15 HP (11 kW)

Hurco VM20i / Hurco VM30i
Vertical CNC Machining Centre 3-Axis

Spindle Taper: BT 40 Big-Plus dual contact
Travels X, Y, Z: 1,016 x 508 x 508mm / 1,270 x 508 x 508mm
Rapids X,Y,Z: 28 m/minute
ATC Number of Stations: 24
Spindle Speed: 10,000 RPM
Spindle Motor: 20 HP (15 kW)

HURCO
CNC MACHINING & TURNING CENTRES

Hurco VMX42Di
Vertical CNC Machining Centre 3-Axis

Spindle Taper: BT 40 Big-Plus dual contact
Travels X, Y, Z: 1,067 x 610 x 610mm
Rapids X,Y,Z: 45/45/40 m/minute
ATC Number of Stations: 40
Spindle Speed: 15,000 RPM with chiller
Spindle Motor: 20 HP (15 kW)

Hurco TM6i XP / TM8i XP
2-Axis Slant Bed CNC Turning Centre

Max Turning Length: 340 mm / 525 mm
Max Turning Diameter: Ø 316 mm / Ø 356 mm
Spindle Through Hole: Ø 45 mm / Ø 64.5 mm
Travels X/Z: 176/356mm / 203/550mm
Rapid Traverse Rate X, Z: 30/30 m/minute
Turret Stations: 12
Spindle Speed: 6,000 RPM / 4,000 RPM
Spindle Motor: 17.5 HP (13 kW) / 31.1HP (23.2 kW)

Hurco TM12i
2-Axis Slant Bed CNC Turning Centre

Max Turning Length: 1000 mm
Max Turning Diameter: Ø 510 mm
Spindle Through Hole: Ø 104 mm
Travels X/Z: 305/1016mm
Rapid Traverse Rate X, Z: 30/30 m/minute
Turret Stations: 12
Spindle Speed: 2,800 RPM
Spindle Motor: 74HP (55 kW)

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François Duval appointed as the new President of CECIMO

During its General Assembly, the European Association of Manufacturing Technologies (CECIMO) announced the appointment of Mr. François Duval as its new President for a two-year term, succeeding Dr. Heinz-Jürgen Prokop. This leadership transition also sees Mr. Riccardo Rosa take on the role of Chairman of the Technical Committee. CECIMO delegates also confirmed Mr. Marcus Burton as Chairman of the Economic Committee and Mr. Michael Merkle as Chairman of the Communication and Advocacy Committee, for a further term of office.

François Duval, recognised for his outstanding contributions to the machine tool industry, reiterated his appreciation for the new role: "I'm truly honoured to take on the role of CECIMO President for the next two years, and I look forward to working together on our shared goals. Especially in these challenging times, my main priorities are supporting innovation in the manufacturing sector and ensuring that European regulations allow businesses to thrive and remain competitive."

Mr. Duval's commitment to industry development underscores the interdependence of innovation and skilled talent. "As manufacturing solutions become more complex, the need for expertise becomes paramount. To truly reap the benefits of the innovations we offer, we must provide our customers with unwavering support and guidance. Complex innovation requires a skilled and talented workforce and a commitment to helping customers realise their full potential," said Mr. Duval.

In tandem with Mr. Duval's appointment, Mr. Riccardo Rosa, President of Rosa Ermando Spa steps into the role of Chairman of the Technical Committee. His priorities will be centred around the application of the new Machinery Regulation and advocating for sector-friendly regulations.

Standardisation will also continue to be a key focus on the Committee's agenda. Continuing their pivotal roles, Mr. Michael Merkle, CEO of Agathon AG, will keep on leading the Communication and Advocacy Committee, focusing on promoting industry competitiveness and sustainable economic growth. Likewise, Mr. Marcus Burton, Special Advisor at Yamazaki Mazak UK Ltd, maintains leadership as Chairman of the Economic Committee, overseeing industry statistics and forecasts.

The collaborative synergy between the CECIMO Chairs, the Board and the CECIMO Secretariat enables Mr. François Duval, President of CECIMO, to guide the association toward success in the manufacturing sector.

Who is François Duval?

With a degree in engineering from the Institut Catholique d'Arts et Métiers (ICAM) in Lille, France Mr. Duval has embarked on a remarkable journey that has spanned almost three decades within the Fives Group. Throughout his career, he has held prominent management positions and has distinguished himself as an exceptional leader. Mr. Duval has been Managing Director of GF Machining Solutions France since July 2020. With over two decades of experience in the machine tool industry, including six years as President of the Machine Tool Manufacturers and Importers Group within the French trade association SYMOP, which has now become EVOLIS, he has played a key role in shaping the landscape of the industry.

Mr. Duval began his career in the MT sector as Managing Director of Cinetic Machining, where he oversaw the development of Rouchaud milling and laser welding solutions for the automotive powertrain, aluminium extrusion milling and routers for the aerospace industry, and machine tool reconditioning. His subsequent acquisition of Metrap, the largest remanufacturer in France, marked a significant milestone in his career. By merging Metrap with Cinetic Machining, he created Fives Machining, a testament to his strategic vision and leadership. He has also participated and gained experience in powder bed fusion and direct energy deposition as a board member of AddUp, a JV between Fives and Michelin. He has a broad international career with extensive experience in Eastern Europe, Asia, and Australia. ■

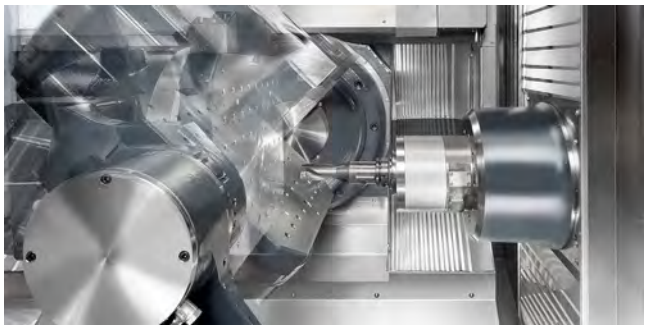
Walter and Heller sign partnership agreement

Walter AG and Gebr. Heller Maschinenfabrik GmbH recently entered into a technology and development partnership. The collaboration focuses on integrated customer solutions for the machining industry. The companies aim to test, optimise and market their products through the joint development of sustainable machining processes.

The two CEOs of the Baden-Württemberg-based companies are looking forward to working closely together and are more than convinced that this is a win-win strategy. Heller CEO Dr Thorsten Schmidt: "Walter is an excellent technology partner with extensive tooling expertise and a wealth of experience in machining. In addition, Walter provides the necessary tooling technology to give Heller's customers a direct productivity advantage in metal cutting. Together with the strengths that Heller brings to the table, we are able to forge a strong partnership in the areas of development and technology."

According to Christoph Geigges, President of Walter, both companies will clearly benefit from working together: "We ▸

see many opportunities in working with Heller, as they have the knowledge and experience in setting up and machining various workpieces, as required. Together with our large assortment of cutting tools, we can provide the ideal package for customers. To work with Heller on specific application projects, covering components in the automotive and aerospace industries around the world, is an exciting development which will bring benefits for all parties."



The Tübingen-based company has held a strong partnership with Heller for many years, both as a customer and as a supplier. Several Heller machines are already in use at Walter's technology centres and production facilities.

About Heller

Heller was founded in Nürtingen/Germany in 1894 as a small craft business. Today, the global group of companies, employing more than 2 600 people (status: 31 December 2022) develops and produces state-of-the-art CNC machine tools and manufacturing systems for metal-cutting applications. Five production facilities in Europe, Asia and North and South America ensure a reliable supply to customers from many different sectors. In addition, Heller is represented in all major markets with its own sales and service subsidiaries as well as qualified service partners. The Heller product range comprises 4-axis and 5-axis machining centers, mill/turn machining centers, special-purpose and process machines, machines for crankshaft and camshaft machining as well as coating modules. The portfolio is supplemented by a modular range of services and an expanded spectrum of solutions for the digitisation and automation of production.

About Walter

For more than 100 years, Walter has stood for competence and quality in the field of machining technology. The company was founded in 1919 by Richard Walter and has its headquarters in Tübingen, Germany. The wide portfolio includes precision tools for milling, turning, grooving, drilling, and threading, as well as individual special tools and technology solutions along the process chain. An additional element is Walter Tool Management Solutions, providing customers with cost planning security, continuous productivity improvements and quicker returns on their investment. Meanwhile, with production facilities in the Americas, Europe and Asia, numerous subsidiaries, sales partners, and 4 400 employees worldwide, Walter has a global presence and customers in more than 80 countries. Alongside Engineering Kompetenz, the corporate culture promotes diversity and a sustainable company strategy. ■

Innovation meets tradition - OPEN MIND cracks the nut with a CNC milled nutcracker

In keeping with the Christmas season and its traditions, OPEN MIND showed how an exact replica of a famous nutcracker from the Erzgebirge, a region in East Germany, is milled from aluminium. The example demonstrates an end-to-end digital process chain and efficient 5-axis machining with hyperMILL.

Together with EMUGE-FRANKEN, CAD/CAM developer OPEN MIND set itself a task: To digitally reproduce a 40 centimetre tall nutcracker as accurately as possible and mill it from aluminium as efficiently as possible. The traditional Seiffener Volkskunst provided the wooden figure, which was handcrafted in around 150 steps and consists of around thirty individual parts.

From scan to surface model

OPEN MIND turned to WESTCAM for the 3D scan of the nutcracker. The Austrian partner is not only characterised by its hyperMILL expertise, but it also has extensive know-how in 3D measurement technology. The result of the scan was a high-resolution mesh model consisting of 1.2 million triangles. At OPEN MIND, a surface-based 3D model was created using the hyperMILL® CAD/CAM solution and designed completely parametrically. The advantage of the latter is that production-related changes to the model can be made very easily afterwards.

For production, the nutcracker model was divided into the upper part, legs, arms and lever, which were pinned and glued together after completion.

The example – https://www.youtube.com/watch?v=NVbI6YfBYPs

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

Kennametal introduces new cutting accessory to automate chip clearance

Its latest accessory to launch features a unique fan blade.

Kennametal Inc. has announced its newest metal cutting accessory - the Chip Fan. Its latest accessory to launch features a unique fan blade design activated by centrifugal force to support automated chip clearance, especially effective while operating unattended or lights-out machining.

The Chip Fan is manufactured with a high quality 4140 steel cylindrical shank and durable, glass fibre reinforced nylon fan blades that can easily be replaced if they become worn or damaged.

The accessory features through coolant in combination with fan blades to support complete chip evacuation.

"We're proud to now offer an ideal tooling accessory that can support machinists across industries to minimise downtime," said Kennametal Scott Etling, Vice President of Marketing, Global Product Management. "With the Chip Fan's powerful chip clearance capabilities and high-quality engineering, users can count on less disruptive machining stops for long-term use."

"With the Chip Fan's powerful chip clearance capabilities and high-quality engineering, users can count on less disruptive machining stops for long-term use."

Interactive tour takes latest technologies direct to new and existing customers

Aimed at bringing innovative tools directly to customers' doorsteps, Kennametal has launched a nationwide tooling roadshow in North America covering more than 20 markets. The Kennametal Metal Cutting Tour will provide current and prospective customers an opportunity to meet with the company's team of experts and explore innovative solutions that can be used across industries like aerospace and automotive, specifically electric vehicles, to deliver increased productivity and performance.

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

Kennmetal's interactive tour takes its latest technologies directly to new and existing customers

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How 2 000 torches are being crafted for the Paris 2024 Olympic Games

It takes only four cars from the scrapyard – or the steel from about 50 washing machines – to make the 2 000 torches needed for the Paris 2024 Olympic and Paralympic Games, but the process requires a specific savoir faire.

Six tons of steel were melted by manufacturing corporation ArcelorMittal (MT.LU), a Paris 2024 official partner, before being shaped into 0.7mm plates that were shipped to the Normandy factory of French silverware and cutlery company Guy Degrenne.

There, it is laser-cut, welded and assembled by a couple of dozen workers who will deliver the torches by the end of January, marking the end of a nine-month process.

"It's a bit like my baby, our baby," Delphine Moulin, Paris 2024 director of celebration, told Reuters amid the sounds of metal being cut, bent, polished and sprayed with micro-particles of steel.

The result is a slender-looking torch, with a wavy touch which represents the Mediterranean Sea and oceans that will carry the Olympic flame from Greece and French overseas territories.

"We wanted it to be unique. You can see that it's different from the usually flared shape of the Olympic torch," Moulin added.

The torch, which is 70cm high and weighs 1.5kg, is water and windproof as it is designed so the flame can withstand a sustained wind of 20kph and gusts at 60kph.

"It also went through a crash test, resisting a three-metre fall," said ArcelorMittal's Franck Wasilewski, the project manager.

"It requires so much attention to details, first to make the perfect steel. You don't use the same kind of steel to make rails and to make this torch," ArcelorMittal France president Eric Niedziela said.

"It is also our pride to have this French product made with our partners (Guy Degrenne), their savoir faire is unique."

Some 1 500 torches will be used for the Olympic relay, with the other 500 going to the Paralympics' relay.

There will be 11 000 torch bearers to bring the flame to its final destination in Paris, meaning the same torch will be carried by almost 10 different people.

"This is a sustainable option," Moulin said.

Paris 2024 officials and ArcelorMittal have been tight-lipped on the budget of the torches' fabrication, declining to give an estimate of the overall cost.

The Paris 2024 flame will be lit on April 16 in Ancient Olympia and will remain in the country for about a week before a handover ceremony in Athens and the start of its journey to France.

The Games will be held from 26 July to 11 August and the Paralympics run from 28 August to 8 September. ■

The UNITED GRINDING Group has intensified its Southeast Asian business and established its own subsidiary in Singapore

The UNITED GRINDING Group has been present in the Southeast Asian region for many years through representatives and the Walter Ewag Asia Pacific subsidiary. Now the specialist for grinding, eroding, laser, and measuring machines bundles and intensifies its activities in this region by founding a group subsidiary in Singapore, United Grinding Asia Pacific Pte. Ltd.

"Southeast Asia is a strategically very crucial region for us. Establishing a UNITED GRINDING subsidiary is the logical step to intensify our activities in this region," explains Stephan Nell, CEO of the UNITED GRINDING Group. The potential is high, and the number of customers is continuously increasing. "Proximity to our customers has always been important to us to ensure fast and uncomplicated support," adds Nell. The ability to offer the group's bundled technology and application know-how from a single subsidiary offers customers many advantages.

Michael Schmid, CEO of the new UNITED GRINDING branch and already responsible for the Southeast Asian business of the WALTER and EWAG brands for more than 20 years, adds: "We can bundle the strength of our powerful team in the joint group subsidiary and serve our customers even better."

"In the future, we will offer all three group technologies, surface and profile grinding, cylindrical grinding, and tool machining, under one roof. I am convinced that bundling and intensifying our activities in this region is a win-win for all parties involved." ■

IPG Photonics and Miller Electric announce strategic technology collaboration to deliver leading laser solutions to the handheld welding market

Two industry leaders join forces to pioneer innovations in handheld laser welding systems.

IPG Photonics Corporation, a global leader in fibre laser technology, and Miller Electric Mfg. LLC, a leading worldwide manufacturer of arc welding products, today announced a strategic partnership with a goal to further promote laser solutions for handheld welding applications.

The combination of IPG Photonics' expertise in fibre laser technology and Miller's extensive knowledge of the unique needs of traditional welding methods will bring ease of use, speed and precision, transforming the handheld welding process.

Welding innovation

IPG Photonics and Miller Electric are renowned for their unwavering commitment to innovation and are synonymous with quality and reliability. The alliance will advance laser technologies for the handheld welding market and reshape the landscape of welding tools to provide welders with powerful, efficient, and precise solutions that meet the demands of modern welding applications. The partnership will deliver dependable solutions that welders can rely on for their critical tasks.

"We are excited to embark on this partnership with Miller Electric, as it allows us to pioneer new frontiers in handheld welding technology. Our combined expertise will empower welders with next-generation laser solutions that redefine what's possible in precision welding," said Trevor Ness, SVP Worldwide Sales and Strategic Business Development at IPG Photonics.

Industry transformation

This partnership will usher in a new era of handheld welding solutions, offering welders access to next-generation laser technology by understanding and addressing their unique needs, ensuring that solutions are customised to suit their specific requirements. Both companies bring unique expertise to develop specific solutions to address customer challenges, and together they will further advance and bring to market products which are easy to learn and operate while offering unmatched benefits. ■

Big machines will feature at the 32nd edition of BIEMH

Spain's machine tool exhibition to take place 3 to 7 June 2024 at the Bilbao Exhibition Centre.

The 32nd edition of the BIEMH is shaping up to be a real industrial and technological spectacle, where large machines in operation will be the undisputed protagonists. As the leading trade fair in advanced manufacturing, BIEMH 2024 has already confirmed the participation of leading companies in the sector. These include names such as Danobat, Soraluce, Ibarmia, Zayer, Nicolas Correa, Intermaher, Maquinser, Maquina Center, Daunert, Delteco, BLM, Amada, Trumpf, Tecoi, Tci, Geminis and Lagun, among others.

In addition, the return of companies that, for various reasons, had not taken part in previous editions is noteworthy: Juaristi, Iscar, Izar, Bahco, Oxyser, Panatec, Ehaff and Iraupen are just some of them.

Along with the impressive state-of-the-art machinery, automation, robotics and digitalisation will consolidate their position as an outstanding feature of the event. These sectors, which not only contribute to improving efficiency but also boost quality, innovation, flexibility and competitiveness, will account for around 30% of the companies exhibiting at the fair.

The BIEMH 2024 exhibition will be complemented by companies from sectors such as tools; accessories; components; metrology and services for production, thus providing a comprehensive and diversified view of the latest innovations and solutions in advanced industry.

For further details visit www.bilbaoexhibitioncentre.com ■

Russia is importing more CNC machine tools and China is now its main source

Chinese shipments to Russia of an important class of advanced machine tools have increased tenfold since the full-scale invasion of Ukraine, with the country's producers now dominating trade in high-precision computer numerical control devices vital to Moscow's military industries, according to a Financial Times article.

The soaring shipments of CNC units, which permit extremely precise metal milling, have become a big concern to Ukraine's allies as they seek to crack down on Russia's access to the equipment.

Russian customs returns show Chinese producers shipped $68 million worth of CNC tools in July, the latest verifiable figure available, up from just $6.5 million in February 2022 when Moscow launched the full-scale invasion.

Michael Raska, assistant professor at Singapore's S Rajaratnam School of International Studies, said CNC exports were an example of how China and Russia were being drawn into a deepening military-industrial partnership.

"China and Russia share the same political interest, which is to challenge and confront the US," Raska said. "The fact is Russia has been cut off from importing European machinery, it has no choice but to rely on China."

Russian imports of CNC tools from the EU, historically its main source, have dramatically fallen as restrictions have tightened since February 2022. Analysts said Moscow was seeking to obtain CNC tools from sources that would not be closed off by international controls.

The customs returns show Chinese-origin CNC devices made up 57 per cent of Russian imports by value in July, up from just 12 per cent before the war. They suggest Moscow also continued to import substantial amounts of CNC tools made in Taiwan and South Korea. ■

Hexagon agrees to sale of non-core Tesa PMI business

Hexagon AB has entered into an agreement to sell its Tesa PMI (Precision Measurement Instruments) business to Hangzhou Great Star Industrial Company Ltd. This divestment reflects Hexagon's commitment to focus on core business activities directly accretive to its mid-term growth, margin and cash generation targets.

In 2022 PMI contributed 50.9 million euro in revenues, with below group average profitability, to Hexagon's Manufacturing Intelligence division.

The Tesa brand is a global market leader in the field of height gauges with a wide range of instruments, including callipers, micrometers, dial gauges, lever-type dial test indicators and inductive probes.

For more information visit www.hexagon.com

Exhibition and event listings updated on Metalworking News website

The Metalworking News exhibition and event listings have been updated to display the most significant physical exhibitions and conferences scheduled for 2024 and 2025.

Metalworking News has selected the premium local and global events to feature in our monthly calendar providing an 'at-glance' overview of all of the most important upcoming events. Links to event websites are included providing a seamless user interaction for event planning purposes.

The full list of events can be viewed at https://metalworkingnews.info/exhibitions-web-links/ ■

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TMTS 2024 – 27 to 31 March 2024

Taipei Nangang Exhibition Center, Taiwan.

TMTS 2024, known as the Taiwan International Machine Tool Show 2024, is a biennial trade fair for the machine tool industry that will be held in Taipei, Taiwan. The event is organised by the Taiwan Machine Tool & Accessory Builders' Association.

TMTS 2024 will showcase the latest innovations and advancements in the machine tool industry, including a wide range of machine tools, cutting tools, measurement instruments, and automation equipment. In addition, various related academic and commercial activities will also be held to attract professionals from the global machine tool industry.

TMTS 2024 Taiwan International Machine Tool Show is going to present a brand new look. Under the theme "DX & GX for a Sustainable Future", the show will showcase the latest machine tools, automation equipment, key components and intelligent manufacturing technology, and will attract professionals and entrepreneurs from the global machine tool industry and the related application sectors.

For further details visit https://www.tmts.tw/en ■

Tyrolit acquires Acme Abrasives

Tyrolit plans to integrate Acme wheels into its portfolio of grinding and specialty abrasive solutions for industrial clients.

The Tyrolit Group has acquired all of the stock of Acme Abrasives, a specialized abrasives manufacturer and provider based in Michigan, which is now Tyrolit's seventh manufacturing plant in the U.S.

According to Tyrolit, the acquisition will further expand the company's product portfolio for the steel and foundry, as well as the rail industry. Acme Abrasives is a manufacturer of hot-pressed grinding wheels for the steel and specialty steel industry. Tyrolit will integrate Acme wheels in its portfolio of grinding and specialty abrasive solutions for industrial clients.

Tyrolit CEO Thomas Friess says, "We have built a successful global economic base that allows us to further pursue our strategic direction of business activities. The further expansion of our portfolio — especially for crucial industries like steel, foundry and rail — strengthens our operational competitiveness."

"With the addition of Acme Abrasives, we are aiming to optimize our customers' benefit and further utilize our global position. Acme has a longstanding commitment to quality and efficiency. We are excited about the opportunity to serve our partners even better and offer high-quality products and services for a wide variety of specific needs," explains Matthias Kuprian, executive board member.

For further information contact Grinding Techniques on TEL: 011 271 6400 or email info@grindtech.com or visit www.grindtech.com ■

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Mazak's Integrex i-200H S multi-tasking machining center

Mazak's Integrex i-200H S multi-tasking machining center, which is ideally suited to a broad range of industry sectors, from automotive and aerospace through to general subcontract machining.

The machine forms part of Mazak's i-H series, which culminates 40 years of multi-tasking innovation and learnings that has produced the most innovative, compact, automation-friendly and productive Integrex range ever manufactured.

As with all models in the i-H series, the i-200H S features a flat-fronted design with rear-mounted tool magazine to easily accommodate the growing requirement for automation while maintaining excellent accessibility for the operator. The i-200H S can be fitted with a variety of automation solutions, including bar feeders, robotised machine tending and gantry loading systems.

The powerful 5 000rpm main spindle is supported by a compact 12 000rpm milling spindle with versatile B-axis range of -30 to +120° for the complete Done-In-One machining of complex components. An equal Ø65mm bar capacity across both spindles allows for a balanced cutting process while maximising component rigidity.

The i-200H S is controlled via Mazak's SmoothAi CNC, which incorporates a suite of software packages to deliver the practical application of Artificial Intelligence, Digital Twinning and Automation technology.

The model features the new Smooth Oscillation Cutting programme, which is built into the SmoothAi CNC. It provides chip control for further process stability, even when cutting challenging materials.

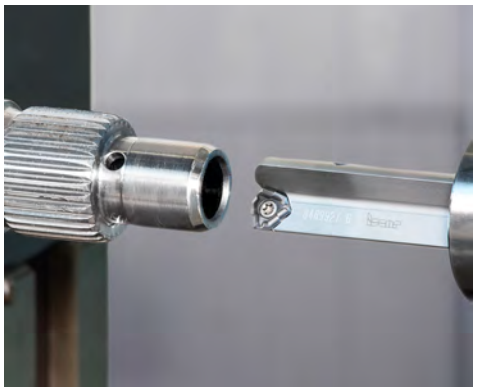
For further details contact Hi-Tech Machine Tools on TEL: 011 608 0088 or visit www.hitech.co.za ■

ISCAR/UNITAC are expanding the lower diameter range of the GD-DH gundrills family

New 14mm to 15.99mm gundrills carrying inserts with 3 cutting edges.

ISCAR/UNITAC are expanding the lower diameter range of the GD-DH gundrills family by adding drills in the diameter range of 14mm to 15.99mm carrying a new TOGT 070304-DT insert and featuring 3-chip splitting cutting edges.

The TOGT 070304-DT insert features 3-chip splitting cutting edges, a positive rake chip-breaker and a wiper for high hole surface quality and high feed. The new insert is made from IC908, a versatile PVD coated grade.



The peripherally ground and highly accurate insert provides high hole diameter accuracy of IT10 and produces narrow chips for efficient chip evacuation, enabling higher feed rates compared to other drills available in the market. A wiper on the insert provides extra fine surface finish, and the direct insert mounting ensures that no adjustment is needed for an accurate hole diameter. It can carry new economical solid carbide or brazed guide pads.

The drills are now available in the diameter range of 14mm to 28mm and in 10, 15 and 25 drilling length to diameter ratios. Longer gundrills with up to 2 400mm length can be supplied on request.

UNITAC is an IMC Group company headquartered in Japan.

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

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This post goes out to all machine shops

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The new Sandvik Coromant CoroMill MR80 offers reliable and cost-efficient face and profile milling

Cutter designed for roughing in face, profile milling operations.

Sandvik Coromant's new milling concept - the CoroMill MR80 - is primarily designed for challenging roughing operations in a wide range of face and profile milling applications in steel and stainless steel.

CoroMill MR80 is a double-sided round insert concept with a higher number of inserts compared to regular round insert cutters. It is ideally suited to low depth of cut - up to 3mm - in face milling and profile milling applications in both steel and stainless steel.

Originally designed for machining cast stainless components such as turbochargers and exhaust manifolds in the automotive sector, this product has been further developed to cater to steel milling applications, which require the security of a round cutting edge, such as the die and mould segment. As a result, CoroMill MR80 is an extremely capable and versatile milling concept that offers both higher productivity and economical machining in a wide range of operations, with no compromise on security.

"The round cutting edge is considered to be the most secure edge for challenging materials as well as tough cutting conditions," says Sangram Dash, global product application specialist for indexable milling tools at Sandvik Coromant. "Furthermore, the shim offers additional security for the cutter body, protecting against coining deformation and machining accidents, while also securing the insert in the tip seat by restricting micro-movements during cutting."

An economical solution, CoroMill MR80 features double-sided inserts with 12 indexing possibilities when operated within a 3mm depth of cut. "That means more parts for each set of inserts," says Dash. A higher number of inserts on a cutter body also enables a higher table feed and increased productivity. On top of that, the overall security and reliability mean less damage to the cutter body and inserts which, ultimately, helps to cut costs.

Thanks to its lightweight cutting geometry, it is also possible to use CoroMill MR80 as a problem solver in difficult machining situations, even with long overhangs.

"Frequently, due to their intricate shapes, automotive cast stainless components are mounted on a fixture that may not be suitable for higher cutting loads," says Dash. "And often, in die and mould applications, the cutter must go deep into the mould cavity, mounted on a long adaptor. In both cases, the cutting forces must be limited so that vibration can be avoided. Although CoroMill MR80 is a double-sided negative concept, it works with fairly low cutting forces and is a suitable solution for such applications."

The CoroMill MR80 assortment offers cylindrical and arbor cutter bodies, with diameters from 32 to 100mm, 3 to 12 cutting teeth and even pitch and shim protection. All cutter bodies feature internal coolant supply. The double-sided E-L50 inserts offer true and easy indexing (6 + 6), with a 3mm recommended depth of cut.

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

Latest Mitutoyo vision systems enhance measurement productivity with technological advancements

Mitutoyo has announced new enhancements to its Vision Pro vision measurement system line. It comes just a few months after the company released the Mitutoyo LH600F/FG linear high measurement system.

Mitutoyo's recent introduction of the QV Vision Pro Series has set the stage for the future of vision measurement with several new features. The StrobeSnap vision measuring function speeds up quality run time compared to other competitor's machines by approximately 35 to 45 per cent regardless of measurement position or continuity while achieving higher throughput and high-precision measurements. Additionally, autofocus on the QV Pro Series is about 39 per cent faster than previous models, which were already the fastest in their class, without loss of accuracy for measurement.

These product enhancements are set to help Mitutoyo further penetrate the semiconductor and automotive industries.

Having also recently introduced the QV Vision Pro Series, Mitutoyo has sought to improve the speed of its Vision Pro vision measurement products, with a particular focus on quality run time and autofocus.

"It's an exciting time in the marketplace for machine vision measurement and Mitutoyo is at the forefront of the industry bringing our customers best-in-class machines and real-time solutions to meet the biggest and most complicated quality measuring challenges they will be facing in the years ahead," states Matt Dye, President Mitutoyo America Corporation.

The most recent market research shows the vision machine measuring (VMM) market is set to explode with an expected value of $41Billion by 2030.

Additionally, as the automotive industry transitions from combustion engines to electric, vision measurement is taking on a larger role in the construction of electric vehicles (EV). EV motors are now manufactured in a way which makes vision measurement a more accurate, effective, and cost-effective solution than its CMM counterparts for parts quality inspection, with motors typically composed of several layers of rotors that are stamped and stacked on top of each other and laminated together. Most CMM probes would have a difficult time measuring these parts with any accuracy.

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

Amada launches AMTES (Autonomous Mobile Transport Engineering System)

Amada launched its AMTES (Autonomous Mobile Transport Engineering System) at FABTECH that was held last year in the USA.

The AMTES (Autonomous Mobile Transport Engineering System) is used for fully automated blank-to-bend processing and tracking. Company officials showcased the autonomous mobile robot (AMR) concept, dubbed the Autonomous Mobile Transport Engineering System (AMTES). A demonstration cell at the booth showed an AMR transporting parts from cutting to bending and operations downstream.

"The AMTES will take this material to wherever it needs to go. In our setup here, it's taking parts to a bending robot, but it can go anywhere. It could go to painting, welding, another press brake, or a buffer area near assembly," said a company spokesperson. He added the AMR system communicates continually with other machines and systems on the floor, to ensure it arrives at the right place at the right time and moves the correct parts to where they need to go.

After the parts are formed, the AMTES moves them to a buffer station. The AMTES utilises lidar technology to automatically transfer parts from blanking to the next process without operator intervention.

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

DMG MORI INH 63: New 5-axis machining center is automation-ready

A new, horizontal-spindle, 5-axis machining center has been introduced by DMG MORI that is capable of maximising productivity when machining complex workpieces weighing up to one ton.

The robust INH 63 has a working volume of 1 070mm diameter by 1 000mm high and a maximum pallet size of 630mm by 630mm. Due to its compact dimensions, it can be integrated easily into automated production systems.

Dies, moulds, battery boxes for electric vehicles and aerospace valve bodies are typical components that might be produced on the machine. Its stable design with a symmetrical structure optimised by FEM and twin ballscrews in all orthogonal axes promote precise, dynamic milling.

Magnescale linear encoders result in high positioning accuracy, while reliable cooling of the ballscrews and other sources of heat suppress thermal displacement and changes in the machine structure.

Compared to the previous model, the manufacturer has increased the cutting capacity by 65 per cent. For 5-axis machining, the INH 63 swivels the rotary table from + 45 to -195 degrees, direct drive motors delivering speeds of 90rpm and 30rpm respectively.

The powerMASTER spindle is rated at 12 000rpm, 808Nm and 85kW (10%), while a version with up to 16 000rpm or 1 414Nm at 8 000rpm is optional for heavy-duty cutting. For MASTER spindles, DMG MORI provides a warranty of 36 months with no runtime limit.

The wheel magazine, which has 63 tool positions as standard, can be expanded to six wheels, providing space for 363 tools up to 320mm in diameter by 700mm long and weighing 35kg (optionally 50kg). The high capacity allows long periods of autonomous operation if a large pallet storage solution is integrated.

The INH 63 can be used flexibly in automated production. Either a linear pallet pool or a circular storage system can be supplied, according to the required number of pallet positions and the available production space. Hydraulic clamping pressure is maintained even during automatic pallet change.

The machine is equipped with innovative features that enable energy-efficient operation. For example, the vertical zero-sludgeCOOLANT pro tank increases coolant life, reducing carbon dioxide emissions by up to 7.5 tons per year.

Coolant nozzles in the work area having a diameter of 3.8mm do not clog and, with optional AI Chip Removal to take into account the volume of swarf being generated, a coolant delivery energy reduction of up to 57 per cent is possible.

Other energy-saving options include the zeroFOG airborne coolant mist collector, which not only keeps the factory environment clean but also reduces the amount of carbon dioxide emitted by a further 35 per cent.

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

Trumpf has increased the productivity of the TruPrint 2000

"The 3D printer is now also designed for mass production. Users from all industries benefit from the machine's high productivity," says Mirko De Boni, product manager at Trumpf responsible for the TruPrint 2000. The high-tech company has equipped the 3D printer with a square instead of a round build plate and increased the power of the integrated fibre laser to 500 watts as an alternative to the

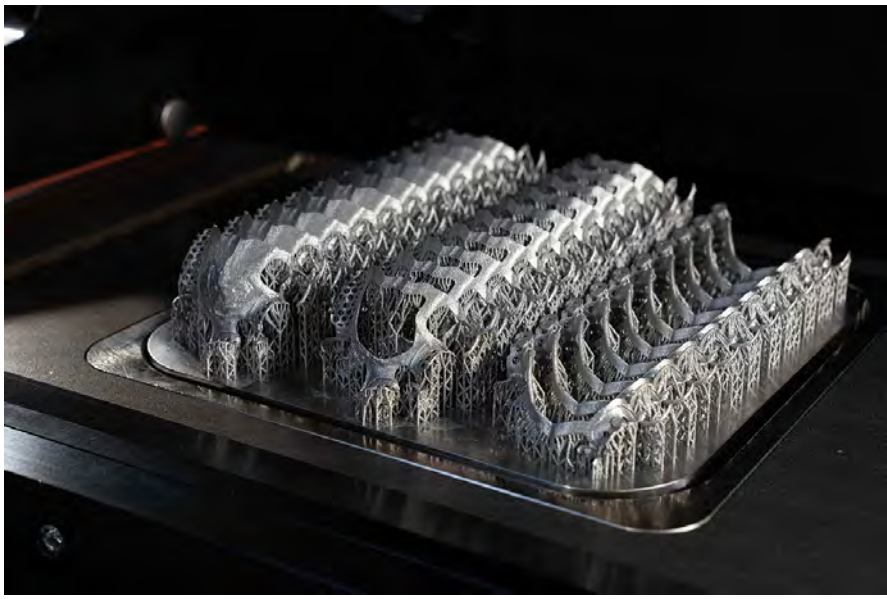
300 watts laser in the basic configuration. For example, dental technology companies print up to 36 per cent more removable partial dentures on the square build plate than on a comparable round build plate. Trumpf presented the 3D printer for the first time at Formnext 2023.

As a multilaser version, the TruPrint 2000 has two lasers. Both lasers can process the entire build plate simultaneously. Users print ▸

80 per cent more components with the multi-laser variant compared to the single-laser variant.

"The TruPrint 2000 not only works very productively, but also precisely and with the highest quality. According to the highest medical standards, medical technology manufacturers use the 3D printer to produce skull plates, spine cages or knee joints made of titanium, for example," said De Boni.

"Safety is the top priority for Trumpf 3D printing, especially for critical areas such as medical technology. With the upgrade of the TruPrint 2000, patients receive high-quality implants with even more long-term stability." If required, the TruPrint 2000 also prints these implants in series.

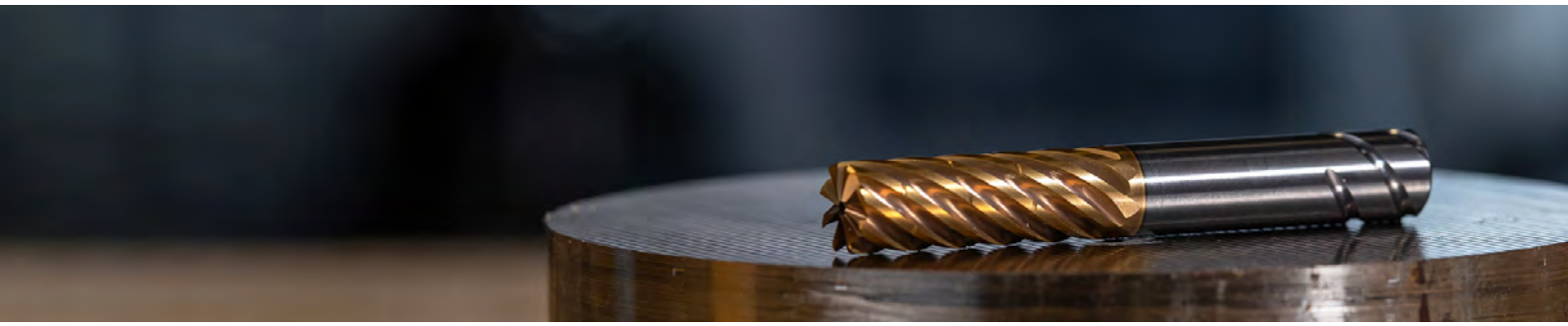


TruPrint 2000 especially flexible due to variable spot size

With its so-called motorised beam expander, the TruPrint 2000 automatically adjusts the spot diameter of the laser to the task at hand. Depending on the application, the spot diameter is 55 or 80 micrometres. The 80-micrometer spot enables higher productivity. Users can use the 55-micron spot when special metal powders require a higher energy density. Now even the TruPrint 2000 is sharing the same process condition as all the other Trumpf machines, driven by the 80 microns beam size and the optimized gas-flux.

"With this standardisation, users can now easily transfer the parameters for printing their parts from machine to machine, such as from a TruPrint 2000 to a TruPrint 1000 or TruPrint 3000, allowing for more flexible manufacturing," said De Boni.

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



Kennametal expands its best-selling and best performing line of HARVI solid carbide end mills

Kennametal has expanded its bestselling and best performing line of HARVI solid carbide end mills with a new 8-flute design option that requires zero stops for tool changes. The new HARVI IV 8-flute end mill is a high-performance and versatile solution for machinists in aerospace and defence, medical, energy and general engineering applications that require maximum output when cutting a range of difficult-to-machine materials.

"Our first 8-flute end mill will move customers from one challenging cut to the next without having to stop for tool changes," says Scott Etling, vice president of marketing, global product management.

"Machinists need to achieve high productivity when working on tougher materials while remaining cost-effective. Our new HARVI IV 8-flute end mills deliver just that and were designed especially for roughing and finishing applications that requires a combination of flexibility and safe processing."

While similar products often work on one type of material, HARVI IV 8-flute end mills' innovative design provides versatility that supports cutting across difficult applications like high-temperature alloys, stainless steels, steels, and hardened materials. Its design also delivers higher metal removal rates and process stability with an internal coolant supply that clears away chips even in deep cavities.

The launch of the new HARVI IV 8-flute end mills coincides with Kennametal's newly announced stainless steel, titanium, and other high-temp alloys end milling grade KCSM15A. This innovative coating technology provides extended tool life for users and the best wear resistance in Kennametal's history of solid carbide end milling.

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

TaeguTec's vibration free Hush-Bore is so quiet its boring

TaeguTec's Hush-Bore is a head-exchangeable, vibration-free boring bar line for deep internal turning.

The damping system in the shank of the Hush-Bore can achieve deep internal machining by more than 5XBD. This remarkable damping performance allows the workpiece to have very good surface roughness, which prolongs tool life and promotes stable machining. It also means increased feed and cutting speeds, making it a more productive option.

The depth of machining in internal turning varies based on the type of shank material used. Carbide boring bars can be used up to 5XBD, whereas steel boring bars can be used up to 3XBD (bar diameter).

Yet, even with carbide boring bars, deep internal turning is still very challenging to manage. Since its launch, the anti-vibration Hush-Bore line for deep internal machining has garnered positive comments from numerous customers, demonstrating how this problem has only spurred innovation.

In response, TaeguTec has added 12xD and 14xD shanks to its line-up of already available 7xD and 10xD shanks, providing even deeper internal turning solutions to the Hush-Bore's dampening technology.

Shanks for the Hush-Bore line are available as standard items in 7 different diameters (Ø16, 20, 25, 32, 40, 50, and 60mm) and in 4 lengths (7XBD, 10XBD, 12XBD and 14XBD). The various exchangeable heads can be securely fastened with serrated couplings located in the boring bars.

TaeguTec has introduced its top-tier WIN-SFEED technology to the Hush-Bore boring bar family of highly efficient cutting tools.

With a new Ø80 shank and a dedicated head introduced to the anti-vibration Hush-Bore boring bar line specialised in deep internal machining, TaeguTec has expanded its reach in the deep internal machining market.

Available in two types - a modular head with standard inserts for machining various materials, and an adapter that can machine while fastened to a standard square holder, allowing for relatively large-diameter internal machining.

Additionally, TaeguTec provides specialised sleeves that improve the set-up time of the Hush-Bore boring bars, making it quick and simple.

These specific sleeves with a one-sided slit maintain a robust clamping force and high precision because of their wide contact area when combined with the new Hush-Bore shank.

To further diversify the Hush-Bore family's range, TaeguTec offers modular threading heads for both 16 IR/L and 22 IR/L inserts. The new modular heads are compatible with both Hush-Bore shanks and C-Adapters with Hush-Bore head connections.

For internal grooving of deep holes, TaeguTec's Hush-Bore uses the highly effective and productive T-Clamp line of inserts, thereby offering ranges between 2mm to 6mm and are mountable to the existing Hush-Bore shanks as well as head-changeable C-Adapters.

Although internal grooving negatively impacts surface finish due to the vibrations caused by long overhangs, using the Hush-Bore grooving products results in good surface roughness, even in deep internal grooving of 5xD or higher, and offers improved tool life and excellent machining performance.

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

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Albrecht ULTRA - maximum results thanks to maximum cutting performance

In manufacturing technology, the metal removal rate is an important indicator that can be used to measure the productivity of tools and machines. This indicator can be significantly improved by higher cutting and feed rates. Albrecht Präzision GmbH & Co. KG has developed an efficient solution for this called Albrecht ULTRA for diameters from 16mm to 25mm.

Albrecht has developed the high-performance chuck especially for volume machining and for machining materials that are difficult to machine. These mainly include components for the aircraft industry. Slim in design from the interference contour, the ULTRA series is available in two sizes for clamping ranges from 16mm to 25mm. The tools are clamped via a mechanical clamping gear and a clamping sleeve with a flat taper angle and special coating. This guarantees an exceptionally high clamping force, good damping properties and great process reliability for the application. The high balancing quality of G 2.5 to 20 000 revolutions per minute also protects the spindle bearing. If required, the chuck can be fine-balanced together with the tool. Holes with dimensions 6xM6 are provided for this purpose. This not only improves tool life, but also the surfaces during finishing as well as heavy machining.

With the Albrecht ULTRA high-performance chuck, a significant improvement in cutting and feed rates is evident in volume machining applications

Optionally, the user can obtain peripheral cooling via innovative, replaceable closing caps with adjusted bores. This ensures that the coolant is reliably supplied to the cutting edge even at higher speeds. Initial test results showed a significantly higher metal removal rate and tool life compared to conventional cooling. The caps are available with bore angles of 10°, 20° and 30°. The manufacturer caters to individual customer requirements.

In the case of extreme cutting forces, the Pin-Lock clamping sleeve with a radial locking pin in the Weldon clamping surface ensures that the milling cutter or drill cannot pull out or twist during machining. The following application example shows just how effective the new high-performance chuck is: On a machining center with an output of 100 kilowatts, a metal removal rate of 13.5 litres per minute was achieved on a component made of aluminium.

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

Hurco's 5-Axis VMC with integrated trunnion table for increased efficiency

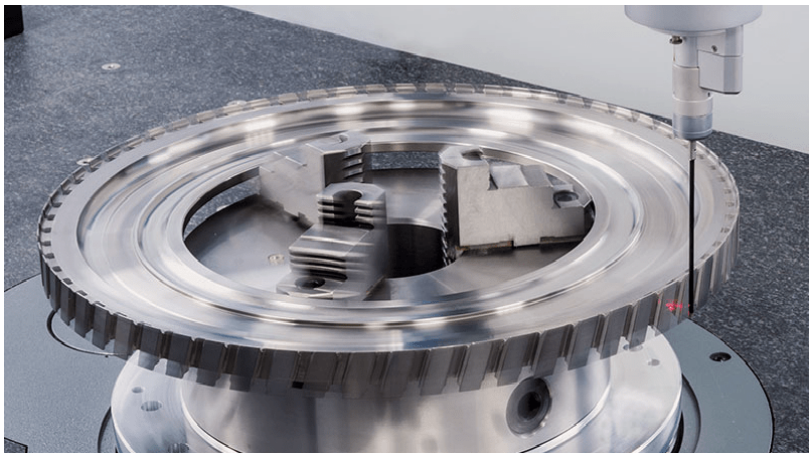
The Hurco VM10Ui (XYZ travels: 535mm by 406mm by 482mm and A and C rotary axes travels: +30°/-110° and 360°) is a 5-axis machining center that utilises real trunnion table integration and provides more clearance in Z.

Complete integration of ProCobots into the Hurco control eliminates daunting robot programming and makes it easy to optimise operations through automation. With quick installation and changeover (less than 5 minutes) and high flexibility, ProCobots automation increases production for high-mix manufacturing. ProCobots can handle low-value tasks so machinists can focus on the high-value tasks.

"Hurco is known for its powerful and intuitive conversational programming, which only makes sense considering that form of programming was invented by the company's co-founder, the late Gerald Roch," said a company spokesperson. "However, even machine shops who use G-code and rely on CAD/CAM software have found increased productivity by leveraging the versatility of the Hurco control. These shops often use NC for the complex parts, but use conversational programming for one-offs, simple 2D work and fixturing."

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

OmniSurf3D adds surface texture analysis to Hexagon CMMs



Hexagon Manufacturing Intelligence CMMs already provide world-leading geometrical measurements and analyses. However, their new HP-OW and HP-O optical sensors, coupled with unique customer requirements, created the need for more specialised 3D surface analysis.

The chosen solution was to integrate Digital Metrology's OmniSurf3D software into the workflow of Hexagon's QUINDOS software. QUINDOS remotely and transparently executes OmniSurf3D to process the surface data and calculate the texture parameters. The OmniSurf3D parameters and graphics are automatically returned to QUINDOS, which outputs all geometrical and texture results in a single report.

The result is a seamless integration of advanced surface texture from within a standard CMM programme.

The HP-OW sensor uses chromatic white-light spectroscopy to take highly accurate measurements on varied surface finishes across a wide array of applications. The sensor has a measurement range of several millimetres while achieving a resolution in the nanometric range. In combination with a large acceptance angle of up to ±30°, it provides very versatile measurement possibilities, making it ideally suited to measure anything from small features to large surfaces. HP-OW probes are available in three variations, making it possible to adapt to different measurement ranges, working distances and other metrology requirements.

The advanced HP-O sensor solution is a scanning technology for coordinate measuring machines and is based on frequency-modulated interferometric optical distance measurement. The HP-O optical sensor range sets new standards for optical measurements on coordinate measuring machines offering unprecedented benefits combining precision, measurement flexibility and throughput.

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

Okuma's new CNC control OSP-P500

Okuma's new CNC control OSP-P500 offers a series of advanced capabilities, including a digital twin, cybersecurity and energy-saving technology. Operators can accurately calculate cycle time and electricity consumption with the digital twin, as well as develop a machining schedule and estimate delivery time and costs.

Meanwhile, the digital twin can be used on an office PC to prepare for machining a subsequent set of parts while machining on the first set continues. The control has features that protect against unauthorised access and connection, help control potential damage and simplify emergency data restoration. The control also reduces energy consumption with features including Eco Idling Stop, which allows the machine to make autonomous decisions to stop unnecessary operations, and Eco Power Monitor, which displays and records power consumption and carbon dioxide emissions for analysis.

Versions of the control are available for lathes, multitasking machines, machining centers and machining centers with multitasking. The control is available in two sizes, with either a 15-inch or a 21.5-inch operation panel, and has a space-saving, ergonomic design and full-colour touch screen.

Optimised hardware and software controls improve processing capacity and response speed, with the time for machining general parts shortened by up to 15 per cent. Use of the digital twin can reduce physical machine preparation time.

Okuma first introduced its internally developed OSP control in 1963 and combined it with drives, motors, and spindles to become a 'single source' supplier.

For further details contact Integral Machine Tools on TEL: 072 397 9956 or 074 373 7503. ■

New OSG range: The AE-CRE-H and AE-HFE-H endmills for high hardness materials

OSG Corporation has announced the expansion of its AE-H end mill series for high-hardness steels with the AE-CRE-H high-efficiency radius type carbide end mill and AE-HFE-H high-feed radius type carbide end mill.

The OSG AE-CRE-H high-efficiency radius type carbide end mill

The AE-CRE-H radius type carbide end mill features multi-flute and unequal spacing teeth specifications to suppress chattering for stable and high-efficiency roughing of high-hardness steels. To achieve both cutting edge strength and good chip evacuation, the AE-CRE-H is engineered with a 2-stage gash shape and a large chip pocket. Furthermore, the AE-CRE-H features a large positive R shape and short flute length with high tool rigidity to allow large depth of cut and high-feed milling, which is ideal for high-speed direct engraving. The AE-CRE-H is available from diameter 1mm up to 13mm with a total of 13 items. A 4-flute specification is applied for outer diameter up to 2mm. A 5-flute specification is applied for outer diameter from 3mm and above.

The AE-HFE-H high-feed radius type carbide end mill reduces cutting resistance with its unique composite radius shape, and enables high-speed, high-feed machining even at overhang length of L/D = 7 in high-hardness steels. Similar to the AE-CRE-H, the AE-HFE-H also features a 2-stage gash shape for achieving both cutting edge strength and good chip evacuation with a large chip pocket. Furthermore, with its unequal spacing teeth configuration, chattering can be suppressed to enable stable and highly efficient machining. The AE-HFE-H is available from diameter 1 mm up to 12mm with a total of 9 items.

The OSG AE-HFE-H high-feed radius type carbide end mill

For outer diameter 5mm and above, both the AE-CRE-H and AE-HFE-H are configured with a straight edge specification that minimises shape change with consideration of regrinding, which contributes to the realisation of resource circulation and a sustainable manufacturing environment. In addition, these end mills are coated with OSG's DUROREY coating for high-hardness steel, which exhibits high chipping resistance even in work materials of over 60 HRC, enabling long tool life and high-speed milling.

OSG's AE-H end mill series for high-hardness steels now includes multi-flute, radius, ball, long neck and exchangeable head configurations to accommodate a wide range of applications and milling methods with superior performance.

For further details contact Somta Tools on TEL: 011 390 8700 or visit www.somta.co.za ■

JFY International launches the TPE8 Series CNC press brake

JFY International has introduced the TPE8 Series CNC press brake, ideal for the efficient bending of small parts. What sets it apart is the all-electric TPE8 Series is powered by a direct-drive servo motor for unparalleled precision and stability. A servo-electric press brake is a subcategory within the electric press brake family, powered by servo motors. These machines provide high-speed bending operations. These motors move the ram through the use of a ball screw or a belt drive mechanism, translating the motor's rotary motion into the linear motion needed for bending.

Their defining characteristic is their energy efficiency. The servo motors only consume electricity when the ram is in motion, significantly reducing overall energy consumption. Furthermore, the absence of hydraulics in their operation makes them a cleaner and more environmentally friendly option. You can say goodbye to the traditional hydraulic press brakes that were previously manufactured by JFY International.

The machine has increased its efficiency by 1.5 times, say the manufacturers, as compared to hydraulic models. This allows for faster, smoother, and more precise bending.

The TPE 8 has an adjustable bending speed feature, which allows you to adapt to different workpieces effortlessly with adjustable bending speeds. This is versatility at your fingertips say JFY International.

Another feature is the green energy efficiency because the direct-drive servo motor not only slashes energy costs by 70% but also champions environmental protection.

JFY International has a commitment to a greener planet and the TPE8 Series is not just a machine, it's a step towards a sustainable and eco-friendly future.

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

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HUSHBORE

ANTI VIBRATION BAR

HUSHBORE line introduces Ø80 head exchangeable anti-vibration boring bars

- Shanks include built-in vibration damping technology - Good surface roughness and improved tool life
- Stainless steel shank prevents corrosion
- Shank diameter: Ø80, length: 7xD, 10xD(available as standard items in 2 types)
- Available in various dedicated head types
- Dedicated Adapter use a 20x20 standard square holder
- Internal coolant type

WINSFEED ADVANCED MACHINING

TaeguTec SA (Pty) Ltd
Member IMC Group

Tel (011) 362 1500 • Fax (011) 362-1511
Clearwater Office Park, Block F, Cnr Atlas & Park Roads, Parkhaven, Boksburg
Email: info@taegutec.co.za

www.taegutec.com

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