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A friend of mine that I have had from my schooldays, who now resides in Italy and has done so for over 10 years, came and stayed with us over the holiday period. Many subjects and topics were covered in the brief 24 hours he spent with us. Despite all the technical innovations that allow family and friends that these days are scattered all over the world to keep in regular contact with each other, nothing beats face-to-face contact.

Further on in the magazine I talk about how South Africa, as a country, is not alone when it comes to emergency power cuts and planned load shedding. Italy is not one of those countries that are high on this list but it does have its fair share of problems, as perceived by its citizens. According to my friend corruption and bureaucracy are the most notable frustrations to live with in Italy. We all know about the “mafia” of Italy but bureaucracy, and to the extent that it exists, I was unaware of. He cites two examples. When he first arrived in Italy he decided to convert an old farm barn into his home. What he didn’t realise was that this exercise would take an extraordinary amount of time all because of getting through the bureaucratic red tape and abiding by the rules. His experience was exasperated because of the attitude and competence of the tradesmen – electricians etc. – that he needed to call on. Sound familiar?

“Officials in Italy seem to love ensnaring us in the stuff and even the simplest processes seem to be made impossibly convoluted. And then there’s the additional cost of obtaining documents, having them translated and making copies of every page,” was his comment.

The second example was getting an international driver’s license. Here South Africa wins hands down. It takes us five minutes whereas in Italy it could take up to 10 days and all it requires is someone to stamp the papers that you have completed.

According to the scribes the concept of bureaucracy has been present in Italy since Roman times, when various organisational bodies were in charge of it, but not always acted fairly upon. Later on in history, bureaucracy grew closer to the principles of law and equal individual rights. However, because of some unexpected negative side effects in the organisation of public offices, the term burocrazia has ended up designating the inefficiency of the public system, characterised by corruption and bad handling of documents. Such negative connotations, always associated with a lack of efficiency, are sadly well rooted into Italian administration. Sound familiar?

It would be easy to assume the problem is caused by a lack of rules governing daily procedures, but a quick glance at the Italian bureaucratic legislation shows this is not entirely true. The real problem lies in the slowness of offices and in the inefficiency and negligence of some people working in the public system which, as a consequence, is overwhelmed with paperwork. Sound familiar?

Some experts believe that the lack of a good bureaucratic system does not only affect the interests of each individual citizen, but also damages greatly both the image and the economy of the country. Look what the then Home Affairs Minister Malusi Gigaba did to tourism in South Africa when he introduced the controversial unabridged birth certificates rule for foreign minors travelling to South Africa. He should never have been allowed to pass the rule and thank goodness it has now been scrapped. He has also been sent to the political scrap heap.

What the conversation made me realise was that each country has its own problems and there is good and bad in bureaucracy. It is the inefficiency and the incompetency that we need to eliminate, whether it is in government or in private enterprise. This is a big ask but we need to make a start somewhere. How about the year 2020?
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Reducing the risk of automotive defects is one of the most critical issues facing manufacturers today – to protect the well-being of consumers, as well as their own reputations and financial health. Leading automotive companies are intensifying their efforts toward achieving a “zero defects” goal, an extraordinarily ambitious objective given the rapidly growing diversity and engineering complexity of today’s product lines.

Consider the extreme degree to which the hardware, software, systems and subsystems contained in an autonomous vehicle must work together, seamlessly, to replicate the actions of a human driver. Most new models on the road today have self-driving features to autonomously accelerate, brake or steer – such as adaptive cruise control, lane-centring or hands-free steering. Imagine how this complexity grows when you consider the entire automotive product family, and the variation that exists across the products in that product family, which is astronomical in scale.

Considering these mounting complexity challenges, the traditional product-centric approach to designing, producing, maintaining and evolving an automotive product line becomes untenable. Under this traditional approach, each vehicle is treated as an individual product with engineers working on a specific car model. Taking software as an example, a common practice is for source code to be duplicated and shared across products in a “clone and own” scenario. Copying and reusing engineering assets, such as source code or other artefacts, leads to vast amounts of inefficient, replicated, error-prone work. Within many manufacturing organisations, functions across the product lifecycle – and across the enterprise – are siloed, with each team using its own set of tools and methods. These silos create another layer of inefficiency, complexity, misalignment and potential for human error.

When an organisation operates in a product-centric siloed manner, it’s extremely difficult and costly to not only trace where cloned assets have been used, but also to make the necessary fixes when a defect occurs. The sophisticated, interconnected nature of today’s automobiles demands a new way of managing product variability across functions, tools, artifacts, methods and processes.

Feature-based Product Line Engineering (PLE) has emerged to fill that role. Leading automotive manufacturers are turning to Feature-based PLE, which changes the fundamentals of how their product lines are engineered, produced, maintained and evolved.

PLE allows an organisation to create a “superset” of digital assets that are shared across the product line. These assets are equipped with all the feature options offered in the product line. Product line features are contained in a feature catalogue, which becomes the “single source of feature truth” for the entire organization. The features chosen for each product are specified in a bill-of-features, which is used by the PLE product configurator to assemble and configure the digital assets to create a product instance.

Feature-based PLE changes the way manufacturers address the challenge of finding and fixing defects – and, most of all, avoiding them. Since all products in the product line are created from a single asset superset, defects that occur in one product can be found and fixed once in the superset, and the new product versions can be automatically generated, dramatically improving the defect management process. Additionally, with PLE’s automated approach, human error caused by manual approaches can be avoided.

With the single source of feature truth provided by PLE, organisational functions across the enterprise have a common language for managing a product line, based on features. This removes operational silos.

As manufacturers move away from product-centric approaches – and embrace Feature-based PLE to simplify and streamline the way they find, fix and reduce defects – they will accelerate their progress toward the zero defects goal.

PLE is the engineering of a product line portfolio using a shared set of engineering assets, a managed set of features and an automated means of production. By “engineer,” we mean all of the activities involved in planning, producing, delivering, sustaining and retiring products.
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While many companies invest heavily in CNC machine tools and related equipment, the implementation of new metrology strategies tends to happen more slowly. However, today the call for more accountability when manufacturing large or small components is getting louder. In fact, it is reaching a crescendo because of ISO requirements, traceability, CE marking and many other regulatory rules and standards that are the norm rather than the exception as they were in the 20th century,” explains Bryn Labuschagne, Sales Director of B&R Metrology Solutions.

“While EMO 2019 was ‘Smart technologies driving tomorrow’s production’, there is a paradigm shift in industrial production operations, which are no longer focusing (only) on ‘better, faster, more accurate machines’, but on the development and implementation of new functions within the framework of Industry 4.0. Digitalisation and intelligent networking in conjunction with numerous new developments, from Big Data, data analytics and artificial intelligence, are creating the foundations for new business models, so that customers and suppliers can reach a new level of productivity.”

“The use of appropriate sensor technology in production is a basic prerequisite for the implementation of Industry 4.0. It collects data on process and machine status as it arises and makes it available for various process-relevant information services and workflows. This theme has been an integral requirement of quality and metrology processes for many years and is not a new trend. Precision engineering for many sectors, in particular the medical, aerospace and automotive sectors where very high tolerances and high repeatability are paramount, demands a proactive approach to meet the verification needs and deliver the tolerances and repeatability for part verification.”

“In the future, decision-making will involve a creative mix of data, analytics, and artificial intelligence (AI), with the added input of human judgment. The result is augmented intelligence where the analytical power and speed of AI takes over the majority of data processing, guiding human employees to make more agile and smarter decisions.”

“Augmented intelligence is defined as a design pattern for a human-centred partnership model of people and AI working together to enhance cognitive performance, including learning and decision making.”

“Most companies have mounds of data but few insights to promote it or use it as a positive business outcome. Augmented intelligence unites the strengths of people and machines when prospecting value from data. Namely, you can augment human instinct with smart algorithms that provide fast, data-driven predictive insights. These insights can help people redesign functions, detect patterns, and turn data into action.”

“Intended to extend human cognitive abilities, augmented intelligence is different from straight automation. Most processes in the future will be designed for straight-through processing, where there will be no humans involved in the process. Currently, that is not possible because in 25-30% of
tasks, a human needs to step in. This is where Augmented Intelligence steps in and guides human interventions."

“However, all this wonderful new technology and concepts such as additive procedures, machine learning, artificial intelligence and platform economics that are embraced by the Industrial Internet of Things will be rendered useless without a company and its employees having the tools at its disposal to optimise processes and component production, to boost value creation.”

“With all the media focus these days on smart factories with in-process, fully-integrated and closed-loop measurement systems, without the use of intelligent technology it will ultimately not be possible to achieve the ambitious climate protection targets, the demands for lower energy and material consumption levels and higher process efficiency coupled with higher product quality.”

“With an abundance of solutions that implement and complement these new concepts and services it is no excuse for a company not to invest in its metrology and quality processes. The focus is on industrial production and there has been considerable advances in the enablers – equipment and software – to embrace the requirements of efficiency and waste avoidance.”

“For example, portable metrology equipment has seen a dramatic rise in its role of supporting manufacturing over the past decade with applications including reverse engineering, prototype part inspection, low volume production measurements, tooling and fixture inspection and alignment and interrogation of product quality issues. One significant characteristic of all portable metrology equipment is its ability to be used at the ‘point of manufacture’, on the production floor, providing an almost immediate feedback of measurement data.”

“Today with 3D scanners small parts with complex shapes can be easily and quickly measured, computed and digitised for later analysis or in today’s environment corrective measures can be implemented immediately.”

Since 2015, B&R Metrology has provided a means of accountability and certainty in the production of products for the commercial industry, the testing and designing of automotive components, the functioning of large machinery, and in factories using rotating equipment during the manufacturing of their products.

“We specialise in CMMs, portable inspection, portable scanning, reverse engineering, probing, sheetmetal inspection equipment, shadow graphs, white light scanners, optical measuring equipment, gauging and many other production metrology solutions. Some of the manufacturers equipment that we sell and service include LK Metrology, Nikon, Tomelleri, Metronor, Plannar, Renishaw, Mahr, Starrett, Inspevisión and Inexiv.”

“Manufacturing is changing, and with new applications come new instruments, software and sensors to meet those challenges. The pace of change remains rapid. Accuracy is everything to our business, and we now have the technology we need to deliver it well into the future.”

“Since its inception B&R Metrology Solutions has focused on supplying cost-effective metrology equipment for the manufacturing industry while providing metrology professionals with the knowledge, confidence and support that empowers them to make the critical decisions required in the role of quality management.”

“There are many forms of measuring and metrology equipment, whether it is hand-held, portable or a stand-alone unit. What equipment you purchase will be relevant to the application. Tight tolerances are no longer the domain of the high-tech industry. Accountability has transformed how companies manufacture product. With a fully capable quality inspection system, the inspection results for any characteristic of a part are not only traceable to the measuring equipment used to generate them, but also to the manufacturing processes used to create the characteristic. The success of your company can be measured, literally.”

For further details contact B&R Metrology Solutions on TEL: 082 852 6371 or 072 392 4934 or visit www.brmetrology.co.za
Eez-Wel Pipe Fabrications and Welding Works invests to achieve a perfect bend

Like many fabrication shops, Eez-Wel Pipe Fabrications and Welding Works is the product of a humble origin. A pipe shop that started with four employees in 2011, has now grown to become a specialist pipe fabrication shop processing carbon, stainless steel and steel piping, low and high pressure pipes, chrome, normalised carbon and P235GH piping and piping used in fire systems employing 40 staff. Eez-Wel services clients in the energy, mining, petrochemical, food and beverage and general commercial sectors.

With a big contract won in the energy sector that has hefty penalties incurring for late delivery, Eez-Wel has invested in a new Ercolina CNC mandrel pipe bender that was supplied by PBS Machine Tools.

“Those of us in manufacturing are all too familiar with cost pressure, but in today’s hyper-competitive global economy the squeeze is tighter and the stakes are higher than ever before. For companies doing business in a cutthroat global marketplace that moves at the speed of light, market events ripple through an industry in the blink of an eye, and even the smallest misstep or miscalculation can be catastrophic,” said Alroy Savides from PBS Machine Tools.

“To exacerbate this volatility, market-shifting events that are beyond our control, like natural disasters and political chess moves, are occurring at a dizzying frequency. So how do businesses insulate themselves and stay ahead in a time of inevitable volatility? Low-cost manufacturing is a great place to start, but the market shows no mercy for mistakes perceived to be as a result of corner-cutting,” continued Savides.

“The more sensible option is to invest in your equipment and processes so that you can more than cover a cost-cutting exercise and more importantly, improve product quality and productivity levels with the latest technical systems and machinery at your disposal. An added advantage is you will be well versed with your equipment and ready for a turnaround when it comes.”

“Programmability, speed, accuracy, and of course power, are just some of the many advancements in modern CNC and
NC equipment over the last few decades. However, even with extraordinary gains in these areas, the laws of physics as they pertain to metal forming are unchanged,” explained Savides. “With the countless improvements in today’s bending machines, it seems that many still strive to find that perfect, repeatable setup. However, a common problem is that many fabricators overlook physics. Rather than relying on the tooling set to do its job, many compensate for worn tooling or an improper setup by overusing the machine’s forces or by improperly using the machine’s functions. Trying to substitute force for a proper tooling setup often causes more harm than good.”

The Ercolina GB100CNC Giga Bender CNC mandrel machine is ideal for industrial bending of tube, pipe, square and rectangular profiles to centre line radii as small as 1.5D.
“It could be argued that overuse of a machine means underuse of the tooling. This often is the case in many bending situations. In some cases, the application is difficult. It's as simple as that. However, in many cases, worn and inadequate tooling are the most common causes of setup difficulty, especially with routine bending jobs. Since even the most experienced setup technician struggles without proper tools, this is the main cause of setup challenges. This is no different with rotary draw, mandrel-capable tube bending machines.”

“As the term mandrel bending suggests, a mandrel is vital in tube bending applications where it is required. Because every mandrel is made to fit a specific tube diameter with a specific wall thickness, it must be properly sized and should include the proper number of ball segments to support the tube adequately.”

“Eez-Wel have invested in the new Ercolina CNC mandrel pipe bender because they want to be ahead of the curve. Pressure packed delivery times are a motivating factor but more importantly quality, productivity and capacity had a bigger influence.”

“The Ercolina GB100CNC Giga Bender CNC mandrel machine is ideal for industrial bending of tube, pipe, square and rectangular profiles to centre line radii as small as 1.5D. The machine’s key features include 120mm x 5.3mm capacity on round, 100mm x 100mm x 3.2mm on square tube, a maximum bending radius of 400mm and a maximum material length of 4 000mm (optional 6 000mm table).”

“The machine is operated by an interactive PLC touch screen that offers easy access to auto and manual operating modes, system diagnostics and multiple language capabilities, programmable bend angles with independent material springback setting for each bend, standard hydraulic ports accept Ercolina’s patented (KST) clam shell system and a hand-held remote bending control.”

“Because the new machine is equipped with CNC, the staff can store and recall difficult programmes, meaning that on reordered parts, the first part is either a good part or very close to it.”

CML International Spa-Ercolina acquires Pedrazzoli

“A little-known fact is that CML International Spa, the owner of the Ercolina brand of tube and pipe bending machines, acquired Pedrazzoli IBP, a well-known Italian manufacturer of bending, cutting and end-forming machines for tubes and profiles,” stated Savides.

“Pedrazzoli has its roots dating back to 1948 with many installations worldwide and has a strong recognition in South Africa. Pedrazzoli had been battling to meet customer expectations with machine delivery and spare parts. Eventually the inevitable happened and CML International Spa had the opportunity to purchase Pedrazzoli and its manufacturing facilities in Italy.”

“CML International Spa began manufacturing the Ercolina brand of portable bending machines in 1973 and has developed the range to include a complete line of cold deformation machines for tube and profiles, mandrel and non-mandrel machines, ring rollers, horizontal presses, flanging machines and notchers (manual, NC and CNC up to 13 axis). CML International Spa has now revived the manufacturing of Pedrazzoli equipment, which includes Bend Master CNC tube benders, tube cutting lines, end forming machines, other sawing and cutting machines and integration systems.”

“This is a relatively new development and in time we will be marketing and servicing this equipment.”

PBS Machine Tools moves address

PBS Machine Tools has also announced that it has moved to a new address in Jet Park, Gauteng.

“We have been a little bit ‘out of the way’ in the Boksburg East premises,” explained Savides.

“We were comfortable and settled in the same location for the past 11 years. We have been very successful operating from Boksburg East over the years. But there comes a point where you realise that if you want to grow the business you have to make changes, whether it be the product mix that the company manufactures or markets, the culture of the company or your operational procedures. There are just too many to mention but in general you should be looking at these facets of a company continuously,” continued Savides.

“One of the glaring indicators for us to change was the location of the company. Although not too far from the industrial areas we felt we were missing out. Logistically we were just out of the way that, for example, made it a chore for customers to come and visit. It was not a major obstacle but it added to our frustrations of not being able to offer the service that we wanted to.”

“The new building also has space to incorporate a showroom for demos as well as a dedicated area for refurbishing machines, which we also had at the old building. The biggest change for us is the exposure and ease of accessibility as compared to our previous location.”

“The new address is 10 Asset Road, Cnr. Tudor Road, Jet Park. All other details remain the same and that includes our telephone number of 011 914 3380. We moved at the beginning of December 2019.”

The Ercolina GB100CNC Giga Bender CNC mandrel machine’s key features include 120mm x 5.3mm capacity on round, 100mm x 100mm x 3.2mm on square tube, a maximum bending radius of 400mm and a maximum material length of 4 000mm (optional 6 000mm table)
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OSG Corporation, regarded as a global leader in the manufacture of round cutting tools and a company that is listed on the Tokyo stock exchange, has continued with its investment plan at its South African manufacturing partner Somta Tools.

“Last year OSG Corporation announced a R60 million investment in our factory in Pietermaritzburg, KwaZulu-Natal, which we began implementing in June 2019. The investment in equipment included the introduction of a number of new machines and quality and measurement solutions into Somta’s manufacturing plant,” said Allan Conolly, Managing Director of Somta Tools.

“The equipment installed was a new DMG MORI NLX 1500 universal CNC mill turn machine to prepare a variety of blanks in our blanking preparation department. The DMG MORI combines two operations that previously would have needed to be done on two different machines.”

“Additionally in the blanking preparation department we installed a Haas VF2 SS CNC milling machine. The Haas has been equipped with a trunnion table that will allow us to do 5-axis milling. This means it can combine up to five operations that previously would have needed to be done on up to five different machines making it ideal for its primary purpose, which is to produce blanks for fringe items.”

“An ANCA MX 7 Linear versatile CNC tool grinder was installed in our carbide factory. The machine is equipped with a Fanuc LR Mate 200iD robot that acts as a feeder for the machine and allows for seamless transition from raw stock to finished component without human interference.”

“On the quality side we installed a Zoller Smart Check 420, a 3-axis CNC universal measuring machine that is designed to measure cutting tools, enabling efficient checking before and after the sharpening process to ensure absolute precision and documented results in our carbide department. In the high-speed steel (HSS) factory a new Zoller Genius 3, a measurement machine that fully automates the measurement of tools for in-process and final inspection, was installed.”

“Our Goniometer was upgraded to include cameras and digital readout for in-line measurement of tools and solid-state controllers have been installed in the heat treatment furnaces to replace the manual contactors. This saves on costs and reduces power usage, a more environmentally friendly solution.”

“These investments were additional to the 2018 investments when we installed OSG designed and manufactured CNC equipment in both the HSS and tungsten carbide factories to improve the finish and geometry on the tools and to reduce setup and cycle times.”

Further installations have now taken place in our HSS factory at the end of 2019. These include a TGT Accudress wheel truing and profiling machine complete with a camera system and two 5-axis TGT V2 Advance Maxima CNC tool and cutter grinders that will be used to manufacture HSS tooling.”

“Another addition in the HSS factory is a Micromatic SM40 CNC Cylindrical Grinder. This machine is suitable for grinding medium size components in mass or batch production volumes. It offers a great degree of flexibility and versatility in grinding applications. For example, shaft type components having single or multiple diameters can be ground in one setting or plunge grinding application where profiles have diameters, shoulders and radii all ground in one setting. The grinding wheel approach can be straight or angular, as per the requirement of the grinding process.”

“We have also completed the installation of new

The new TGT Accudress wheel truing and profiling machine complete with a camera system

OSG continues to invest in Somta Tools
microscopic equipment, including software, in our heat treatment laboratory. This will take our analysis of HSS and carbide materials to another level.”

Taking coating seriously
“During the past 10 years, requirements for cutting tools have changed dramatically due to the development of tougher materials and improved capabilities of modern machining centers. The performance of modern cutting tools depends mainly on geometry, carbide grades, edge preparation and coating,” explained Conolly.

“Generally tool makers control geometry and material. Coating-wise, they depend on standard broad-band coatings, which do not provide them with the opportunity to differentiate themselves from their competitors. Improved application-specific solutions can be achieved by the optimised combination of coating composition (structure, morphology, and thickness) and surface finish together, with proper edge preparation.”

Somta Tools have installed two 5-axis TGT V2 Advance Maxima CNC tool and cutter grinders that will be used to manufacture HSS tooling.

Another addition in the Somta Tools HSS factory is a Micromatic SM40 CNC Cylindrical Grinder. This machine is suitable for grinding medium size components in mass or batch production volumes.

Somta Tools have installed two 5-axis TGT V2 Advance Maxima CNC tool and cutter grinders that will be used to manufacture HSS tooling. Another addition in the Somta Tools HSS factory is a Micromatic SM40 CNC Cylindrical Grinder. This machine is suitable for grinding medium size components in mass or batch production volumes.
“We have taken our coating seriously and chosen to differentiate the Somta brand by integrating coatings and edge preparation into our production process.”

“We have invested in a USA-designed and manufactured PerformCoat PfC540 PVD coating machine. The machine has been developed in conjunction with OSG Japan and it will now allow us to implement coating layers with adjustable properties for toughness, hot hardness, wear resistance, oxidation resistance and colour. These include mono, multi, nano and gradient coating structure,” added Conolly.

“This high-performance and innovative thin film coating technology will optimise tooling for machining applications of turning, deep-hole drilling, tapping, hard milling, hobbing and shaping of aluminium components (soft and with up to 12%Si) and machining of titanium and stainless steel.”

“We have complemented our new high-tech developments in our coating by purchasing a PerformDrag PID550 polishing and honing machine. Referred to as drag finishing, this process increases the tool life and component finish quality by up to 80% - real impactful development.”

Conolly went on to say: “In addition to coating our own tooling, Somta coats gear cutting tools, piercing punches, moulds, dies, dental inserts, broaching blades and inserts of all different sizes for customers, in line with our guiding principles of ‘to make manufacturing better in the South African market’. Coating these items can improve their life span by 200% to 300% and when used in certain applications, can increase speeds and feeds by as much as 50%. But it is not just this that entices clients from a broad spectrum of industry and end-users. The aesthetic appeal has resulted in clients approaching us to coat motorbike shocks and more recently, two boat propellers. The success of coating customer components other than our own products provided more reason to install a second coating plant.”

**External promotional development**

“Another development at Somta Tools is that we have designed and manufactured a trailer that can be transported throughout the country. The trailer is suitably Somta Tools branded and carries numerous samples of our tooling.”

“The initiative of the Somta Trailer is to have a vehicle that enhances our external promotional activities whereby we can readily set up our ‘stand’ at the numerous shows and exhibitions that we participate in. Additionally, we are now able to take it on site at customers and our sales representatives are able to easily educate clients the value and performance of our tools.”

“OSG Corporation acquired a majority shareholding in Somta Tools in 2016. These substantial investments in equipment and processes at the local manufacturing facility shows that they are committed to the company, the country and its people.”

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

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*Somta Tools have invested in a USA-designed and manufactured PerformCoat PfC540 PVD coating machine. The machine has been developed in conjunction with OSG Japan and it will now allow Somta Tools to implement coating layers with adjustable properties for toughness, hot hardness, wear resistance, oxidation resistance and colour. These include mono, multi, nano and gradient coating structure.*

*On the metrology side Somta Tools have purchased a Nikon Eclipse MA100N, a compact inverted microscope designated for bright field and simple polarising observations.*
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13 Berne Avenue, Spartan, Kempton Park, South Africa.
For many people in metalworking, the term training evokes an image of a white-haired, pot-bellied old timer showing a young, somewhat attentive apprentice how to run a machine on the production floor. If you are a machine operator, you probably received your training on the job working under the watchful eye of an experienced operator.

That kind of training may have been adequate a few generations ago. However, as machine tools have become more sophisticated (and expensive) and as tolerance for errors of any kind in the machining process approaches zero, more formal training programmes are becoming a more attractive training alternative for small shops as well as large manufacturing concerns.

The founders of Ikusasa CNC Training Centre recognised this fact and launched the company one year ago with a specific aim to train employees in G-Code programming, CNC setting and CNC machine operating. This vision of industry specific training has now expanded to include those that may not have the computer or machine skills required to participate in the above training courses. Training programmes for other areas associated with CNC machining that are necessary for an individual to become a skilled and competent CNC operator are currently being developed.

“The company’s immediate goal and vision was to help the Engineering industry fill the skills development void by offering introductory, intermediate and advanced turning and milling courses allowing unskilled individuals the opportunity to become skilled and qualified machinists,” explained Ryan Scott of Ikusasa CNC Training Centre.

“It soon became apparent to us that there were many that did not even have basic computer skills, which is a prerequisite if you are to be tasked with operating an expensive CNC machine. From a number’s standpoint, the position of CNC machine operator tends to be the most difficult for companies to keep fully staffed. A component producing company that has 10 CNC machines and works two shifts may have one or two programmers, three or four setup people, and as many as 15 to 20 operators. For this reason, and because it is becoming increasingly difficult to find and hire experienced CNC operators, more and more companies are finding it necessary to provide tailor-made training for new employees.”

“A prospective CNC machine operator needs to understand the basics of computer operating, have a grasp of maths, be able to interpret the documentation and be able to identify key dimensions and tolerances prior to CNC machine training and subsequent CNC machine operation.”

“If you expect your CNC operators to make sizing adjustments, they will be performing calculations on a very regular basis. Admittedly, most calculations they make will be simple, involving nothing more than addition and subtraction. But they must be able to make those simple calculations over and over again and understand them, without making mistakes.”

“In almost all companies, documentation includes a blueprint for the workpiece being machined. While they may not be required to visualise a three-dimensional workpiece from a series of two-dimensional views (they will have a finished workpiece to help them), the operators must be able to identify key dimensions and tolerances for the workpieces being machined on the equipment they run.”

“There is also the aspect of tolerance interpretation for the workpiece attributes they will be sizing and machining.”

“We believe that machining “knowledge” consists of a range of general, contextual information. Although the company will be concentrating on upskilling candidates to become skilled in G-Code, CNC setting and machine operating, the company has engaged the services of three cutting tool companies to train delegates on the importance of tooling when machining. This includes the essential machine operations of cutting speed, the role of the toolholder, the purpose of a cutting tool coating and various other machining-related tasks that a machine shop will require. All of which are areas of machining that influence how quickly an employee can assimilate new tasks and respond to new challenges.”

“Through our courses we can now take an unskilled shopfloor employee, train him or her in these introductory skills and, once they have passed the written exam, continue onto the intermediate training before qualifying on the advanced programmes. Again, written tests will have to be done.”

“Only then will the prospective operator have practical training on our CNC milling machine and CNC lathe that have been installed in the training centre.”

1 250 candidates pass through training centre in first year

“We have employed two full time Merseta moderated trainers to run our courses and have had to call on the services of a further two trainers regularly such has been the demand. 1 250 candidates have passed through our training centre in the first year, which clearly indicates the importance that companies in our industry are placing on training.”

Training by the numbers:
Ikusasa CNC Training Centre celebrates successful first year of training

Candidates at Ikusasa CNC Training Centre complete their training courses with practical experience on a CNC machining center and a CNC lathe
“Our courses have been moderated by Merseta and we should receive our accreditation in the first quarter of 2020. Coupled with our Level 2 B-BBEE rating companies are able to claim back their skills levy if they send employees to us to be trained.”

“I must emphasise that once a candidate reaches the advanced stages of training, which is the practical training on the CNC machines, there are only four per class, so as to get maximum attention from the trainer.”

“We have both Fanuc and Siemens CNC machine controls so a candidate is exposed to more than one brand.”

“The individual stages of the courses are held over two or three days, depending at what stage the candidate is at. The basic and introductory courses are held on a Saturday.”

**New courses for 2020 - Measuring devices**

“CNC operators must be able to measure the workpiece attributes being machined by the equipment they run. They must be able to accurately determine the current size of a workpiece attribute before any sizing decisions can be made, and you must ensure that they master the use of the measuring devices involved. Most operators are regularly required to use variable gauges like micrometers, verniers, height and bore diameter gauges and callipers.”

“Currently we are developing the course material for a measuring and metrology course and will offer it as another course early in 2020. Again, we will have equipment on hand so that we can take a candidate through the final stage, which is practical use.”

**CAD and CAD/CAM courses**

“Importing and exporting CAD files is a fundamental function of CAM software. An understanding of this process can help you know what to expect and will aid you when making a CAM purchase. For 2020 we are going to intensify our efforts on CAD and CAD/CAM training as this is another area where the industry is in very short supply.”

The idea of Ikusasa CNC Training Centre – meaning the future in the Zulu language – has been formulated by concerned industry leaders who have vast knowledge in CNC machining, CAD/CAM and the associated software programmes.

Although the courses have been designed and developed by industry personnel, Ikusasa have not neglected the importance of streamlining with the governing requirements and have aligned their courses, which are delivered by industry personnel, with MERSETA and other governing learnership programmes.

For further details contact Ikusasa CNC Training Centre on TEL: 011 663 2600 or visit www.ikusasatraining.co.za

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*Ikusasa CNC Training Centre has three training rooms*
TRM Supplies has announced that the company has been appointed the agent and distributor of SPI Lasers, a UK-based company. SPI Lasers, a wholly owned subsidiary of the Trumpf Group, is a leading designer and manufacturer of fiber lasers for welding, cutting, marking, drilling and micro-machining.

Founded in 1999 as a spin off from the Optoelectronics Research Centre (ORC) at the University of Southampton, where it continues to retain a state-of-the-art R&D laboratory, SPI has been a leading innovator since the early days of active fiber development. Since 2008 the company has been wholly owned by the Trumpf Group and in 2015 it successfully acquired JK Lasers, bringing together two businesses with combined experience of providing effective laser solutions stretching over more than 50 years.

Holding strong positions in the US and Europe, and with an ever-growing presence within Asia, SPI Lasers’ product portfolio covers countless application process areas across a range of critical industries.

“Our key markets are Asia, the United States and Europe, with approximately 95 per cent of our production capacity being exported outside of the UK,” explained SPI’s Chief Executive Officer, Mark Greenwood during an interview with Manufacturing Today.

Machine builders
“Our customers are predominantly machine builders looking to integrate innovative, reliable lasers into their products to supply global manufacturing industries with a high-quality precision product that enhances productivity, while simultaneously reducing costs. Our expert capabilities have resulted in our lasers making their way into a variety of global industries, including the automotive, electronics, aerospace, medical, additive manufacturing, solar and telecoms sectors.”

“It was the Asian, particularly the Chinese, as well as the European market that helped create conditions suitable for very strong growth for SPI in 2017. We secured some big contracts in China within the consumer electronics market over the last 12 months, while also achieving good traction in
Europe, especially in the world of additive manufacturing, and across both regions in the field of 3D printing where our lasers play a key role in metal powder bed fusion systems,” continued Greenwood.

“A great deal of our growth is currently originating from new applications for our lasers, which is helping SPI to gain market share in the industrial lasers sector, which is growing at an average of eight per cent a year. In response to this, we are developing multiple new processes, made up of combinations of laser applications, where we bring the two together in a novel way to solve all manner of processing problems.”

**Own fiber**

“One of the key areas that we are developing is the continued improvement of our manufacturing activities. In addition to making lasers we also make our own fiber, all the fuse components and all other sub-assemblies, and this has meant that we have become highly vertically integrated, which gives us an increased ability to design and ring fence IP, as well as optimise price performance within our core markets.”

SPI Lasers are manufacturers of industrial pulsed and CW (continuous wave) fiber lasers. Pulsed fiber lasers are manufactured from 20W to 250W for marking, welding, engraving, frilling, thin foil cutting, thin film patterning, micro machining and layer removal. The CW fiber lasers range from 300W to 10kW. These particular lasers are used for cutting, drilling, welding, soldering, scribing, material processing, cladding and heating.

Additive Manufacturing works with a range of materials

“SPI Lasers have also been very active in the field of additive manufacturing (AM). AM is one of the most exciting technologies to be unveiled in recent years, with the possibilities for both consumers and in industry almost limitless. There are many different additive processes, each of which has its own different purpose. At the very core of this are the 3D printing machines, with the technology ranging from basic consumer designs to those being used in heavy industry. Fiber lasers are incredibly versatile and capable of many different fiber laser applications, ranging from precision micro-machining operations, to heavy duty industrial processes i.e. welding,” explained Guenter Schmitz of TRM Supplies.

“3D metal additive manufacturing has changed the entire design and manufacturing process, creating possibilities which were hitherto unthinkable from aerospace and medical to automotive. The benefits of additive manufacturing with fiber lasers can’t be underestimated.”

“Here are just a few of the benefits of using this technology:

• Complex and intricate shapes – the most complex, unusual and unique of shapes can be produced. This is why the process is frequently adopted in the jewellery industry
• Lightweight parts – as AM is layer by layer even hollow parts can be produced. This can help massively in reducing the weight of parts, which otherwise would have extra materials increasing the weight. Lighter components are particularly valuable in industries such as aerospace and aviation
• No joins needed – absolutely no welding or joints are needed as the design is printed. This increases the strength and visual appeal of items manufactured
• Prototype production – AM is ideal for rapid prototyping and can significantly cut the time to market for new products
• Small batch production – AM is ideal for small batch production, where even the smallest of batches can cost-justify and require no special tools and setup time (which is not the case with traditional manufacturing processes)
• Tool-less production – parts, components and other items can be produced without the need for additional tools, which can be expensive to manufacture and maintain.”

**Printing the design**

“Regardless of the material being used, the process for additive manufacturing begins, in the same way, each time. First of all, the design for the item needs to be created. When you’re ready to print, you first need to fill the machine with a powdered version of your desired material. This chamber then releases the powder to be laid down, one layer at a time. Each layer is wafer-thin, sometimes taking days to build up to the full-sized model. The powder is solidified by a laser that runs over it gradually layer by layer, starting from the bottom and moving to the top. Two methods are used: Selective Laser Sintering (SLS) and Direct Metal Laser Sintering (DMLS).”

“Just to make things even more confusing there is also Selective Laser Melting (SLM) a slightly different process, achieving a full melt rather than sintering the powder. There is another process often referred to: Laser Cusing. Although there are some very minor technical differences, it’s essentially a type of melting.7

“With other benefits such as rapid prototyping and small batch production, one thing is for certain, AM in all its flavours and different processes is here to stay!”

“SPI Lasers’ continuous wave (CW) fiber lasers are ideal for implementing additive manufacturing processes.”

**variMODE switchable beam delivery feature**

SPI Lasers has recently announced the launch of variMODE, a switchable beam delivery feature now available as an option on all their 3kW to 10kW high power CW fiber lasers.

variMODE allows users to tailor their fiber laser system to optimise the beam characteristics, including spot size and beam profile, specific to their application, whether that be cutting, welding or piercing. TRM Supplies imports a wide variety of new laser and plasma cutters, press brakes, punching machines, guillotines and other metal forming, grinding and cutting tools under its own brand.

For further details contact TRM Supplies on TEL 011 974 774 or visit www.trmsupplies.co.za

Holding strong positions in the US and Europe, and with an ever-growing presence within Asia, SPI Lasers’ product portfolio covers countless application process areas across a range of critical industries
Anticipation builds for Machine Tools Africa 2020

Nasrec Expo Centre, Johannesburg will be the venue for metalworking suppliers and manufacturing companies to exhibit their products from 12 to 15 May 2020.

Anticipation levels are already building despite there still being five months to go before the doors open for Machine Tools Africa 2020, South Africa’s premier metalworking supplier and manufacturing technologies event.

Machine Tools Africa, launched in association with the Machine Tools Merchants’ Association of South Africa (MTMA), is the biggest trade exhibition of its kind in Africa showcasing cutting edge developments across the machine tool and related industries. Exhibitors are mainly the local machine tool suppliers together with their principals.

Enjoying strong industry support, the expo will remain a standalone show as it was in 2017 when 5 900 visitors attended the show to source new products and services and find out about latest industry trends and technologies.

“Quality tools and machinery are the backbone of the South African manufacturing industry and this important sector will take centre stage at Machine Tools Africa 2020,” says Paul Savides, current Chairman of the MTMA.

“Machine tools will not only be displayed but demonstrated. There will be equipment in machining such as turning and milling, grinding and drilling, as well as all types of sheetmetal machinery, laser, plasma cutting, bending and punching and presses. And many more machines will be displayed. Also exhibiting will be various suppliers of tooling and CAD CAM software who are an integral part of the successful machine shop.”

“As previously said it is the intention to make the exhibition an all encompassing exhibition for the niche, but very important, area of industry that we operate in.”

Machine Tools Africa 2020 will be unique in the sense that it will showcase live working machinery including milling, turning, metrology, tooling, laser cutting and other sheet metal and plate operations, to name but a few. The exhibition will also bring together the industry’s finest manufacturers across a range of technologies.

“In a sense, the exhibition will offer visitors the opportunity to view the latest developments in our industry from design concept to finished product. Whether you are planning to purchase capital equipment to manufacture your own components or products or you are interested to source the very same, there will be an exhibitor to help you with your solution,” continued Savides.

The arrival of Industry 4.0 has led the world to gearing up for more automation, with equipment driven and controlled by computers and handheld devices. Machine tool developments never stop and with 3D printing of metal parts, a whole new world in design and manufacture is in full swing.

However, process automation, additive manufacturing and the rise of electric vehicles is having an affect on machine sales in Europe, as witnessed at EMO 2019. Coupled with geopolitical issues, politician squabbling and the ‘hurried’ move towards electric vehicles, which require far less castings
to be machined, the world of the machine tool manufacturers is in turmoil.

This presents opportunities for the local market. Lagging behind in the development, manufacture and promotion of electric vehicles on the whole African continent will see a continued demand for the combustion engine driven vehicles. Added to this is the power supply problems in Africa. At 374,215 vehicles exported in the first 11 months of 2019, the South African automotive industry is already at a new yearly record with 351,139 being achieved in 2018.


Machine Tools Africa 2020 has all the hallmarks of being a fantastic showcase for South Africa’s advanced metalworking manufacturing technologies sectors. With working demonstrations of machinery, a compelling seminar programme and some of the finest names in manufacturing all under one roof, visitors to this edition of the exhibition will need more than one day to experience everything the show has to offer.

For more information email the MTMA on mtma@mtma.co.za or contact Natasha Heiberg of Specialised Exhibitions Montgomery on TEL: 010 003 3083, mobile: 076 168 0762 or email: natashah@specialised.com
A shareholder transaction with the 100% black-controlled Mergence Group will provide the capital necessary for Lasercraft to continually invest in metal laser cutting, bending and welding equipment to maintain the position of the company as a market leader.

“We had been seeking a BEE partner for several years but struggled to find the right fit until we met the Mergence team who share the same passion and structural view of the metal sector. Besides the strategic alignment with Mergence, this transaction has enabled us to obtain a Level 2 BEE grading,” said Paul Dreyer, MD of Lasercraft.

Masimo a Badimo Magerman, MD of Mergence Group, said that he had been introduced to Lasercraft through rail operator Gibela who have dealings with another Mergence industrial subsidiary, composites specialist BFG Africa.

“Mergence now has a majority 60% stake in Lasercraft, and 51% of that stake is owned by black women. Our vision is to partner with sector-leading industrial companies to create entities focused on local content, building South African manufacturing capacity and leaving a legacy for future generations,” said Magerman.

The Lasercraft facility is regarded as one of the most modern process-oriented operations in the Southern Hemisphere. Paul Dreyer has built a reputation as a laser cutting expert over several decades. He worked on the first Bystronic laser that was imported into South Africa more than 30 years ago. In 2004 he established Lasercraft and in 2012, the company moved into a custom-built 9 327 m² facility in Germiston, Gauteng, with a capacity to employ 250 people.

The company is unique in the sector in that it controls the entire process from design, to raw material, through the various processes, to the finished product. Dreyer’s mantra is ‘You imagine it, and we can cut it’.

Bending is a speciality, with even competitors outsourcing this process to Lasercraft. The company can handle the heaviest to the lightest material, across all types of metal, aluminium, plastics, composites, glass and perspex. The same high-quality standards apply to all processes. Safety, housekeeping, precision and minute calibration are hallmarks.

Vast underground vacuum cleaning systems keep the facility dust free and clean – and this sense of order and cleanliness helps to instil pride in employees, many of whom have been personally trained by Dreyer. It is not unusual for staff, including women, to have graduated from floor sweepers to skilled machine operators. He believes strongly in building a legacy through skills development for the industry.

The company has acted as supplier to several major projects, including the Gautrain and stadiums for the World Cup 2010. It services a wide range of industries including those in the motion industry, electrical distribution, shopfitting, automotive, defence, mining, material handling and general engineering sector. A contract with Gibela produces parts needed in the production of a 600 new commuter trains project, and resumption of the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) is likely to lead to increased production by Lasercraft of parts for the solar panel industry.

Lasercraft has various certifications, including AWS for welding, ISO 2015 and is working towards ISA 3834 and an IATF 16949 certification.

“A longer-term aim is for the facility to produce its own products,” says Dreyer.
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WD Hearn appointed South African agent for Bodor Laser cutting systems

Cape Town-headquartered WD Hearn Machine Tools have announced that they have been appointed the agents for Jinan Bodor Laser, a worldwide operating, Chinese manufacturer of flat sheet and tube fiber laser cutting machines.

Based in Jinan, Shandong, China Bodor was established in 2008 and is among the top 10 laser cutting machine manufacturers in China. Initially the company began manufacturing CO2 lasers but has now turned its full attention to the manufacture of fiber laser cutting machines in its 27 000m² facility.

Bodor manufactures machines that are dedicated to cutting sheet and plate, those that are dedicated to cutting tube and others that combine both sheet and tube cutting. Machines manufactured for sheet and plate cutting are configured to have an open bed with a gantry cross beam, as is in the case of plasma or oxy fuel cutting machines, or a fully enclosed machine. The tube cutting machines are fully enclosed in the cutting area.

The E-series of machines for sheet and plate cutting have bed sizes between 3 000mm by 1 500mm right up to the E8025, which has a bed size of 8 100mm by 2 500mm. Laser output on these machine are from 1kW up to 6kW.

The machines manufactured for sheet and tube cutting, the F-T-series, have bed sizes between 3 000mm by 1 500mm right up to the E6020T, which has a bed size of 6 100mm by 2 000mm. Laser output on these machine are from 1kW up to 4kW and pipe cutting capabilities are between 20mm and 200mm and for square tube 20mm by 20mm up to 140mm by 140mm. Rectangular tube dimensions are 20mm and maximum 200mm. Minimum lengths are between 3 000mm and 6 000mm.

The fully covered P-series for sheet cutting has a working area of between 3 000mm by 1 500mm and 8 100mm by 2500mm and laser source of between 1kW and 12kW. The P3015 is the most popular fiber laser machine and features include a cast iron bed that lasts forever, cast aluminum crossbeam, Bodor Pro 2.0 operating system, auto focus laser head, touchscreen with double HD cameras, automatic nozzle changer, full protection cover, wireless remote control handle and two automatic exchange platform systems.

The S-series is a bigger version of the P-series that can be equipped with a 25kW power source.

The T230 is a tube laser cutting machine specialised in cutting various tube shapes and its automatic loading and unloading system makes operation easier and faster. Laser output on these machine is from 1kW up to 4kW and pipe cutting capabilities are between 20mm and 230mm and for square tube 20mm by 20mm up to 160mm by 160mm.

Where possible Bodor manufactures its products with equipment supplied by Precitec, SMC Electric, Beckhoff, Neugart and Rexroth. Automatic nozzle changers are included and the operating system is the Bodor Pro 2.0.

A recipient of a Reddot Design award in 2018 the company’s plate cutting machine was described as: “The overall modeling posture of the product is composed, the lines are simple and tensile, and the design adopts the combination of white plastic sheet metal and black acrylic, and the metal is compared with the glass. It is the first machine tool to use glass reinforced plastic material, which is lightweight, fast, highly efficient, and has a long service life. The z-axis adopts an injection molding process, which greatly improves the efficiency of production. Compared with ordinary CO2 laser cutting machines, it can save more space and gas consumption, the photoelectric conversion rate is high, saves energy and protects the environment.

For further details contact WD Hearn Machine Tools on TEL: 021 5345351 or visit www.wdhearn.co.za
EDM Shop to service and sell
Syntec PC-based CNC controllers

EDM Shop has announced that the company has extended the basket of products it markets to the metalworking engineering industry to include Syntec Technology, a Taiwanese manufacturer of PC-based CNC controllers for turning and milling machines.

“Syntec is a professional PC-based digital controller manufacturer. It has long been immersed in the development of software and hardware technology for machine tool controllers, and is committed to expanding its market worldwide. That includes South Africa where a significant amount of CNC machines have been imported with the Syntec CNC controller and we have retrofitted a number of machines with the latest controls from the company,” said Steven Andrews of EDM Shop.

“Syntec has made efforts in achieving a high-performance, high-efficiency PC-Based CNC controller that is fitted to most manufacturers’ machines. Based on the rapid development of PC technology, Syntec have invested in the research and development of hardware and software technology.”

Focus on machine tool industry
“Syntec’s business covers a variety of controller products in the fields of lathe, milling, and dedicated machines. With innovative skills as well as value added applications and complete services, it has made its mark in the Asian countries and is gaining rapid penetration in the rest of the world,” continued Stevens.

“On performance Syntec provides outstanding high-speed, high-precision functions to satisfy the needs of areas such as moulds and high-speed milling. Multi-axis control and multi-programme applications make the lathe, milling and multi-axis interpolation control very easy to use. With the abundant and complete GM code and the easy-to-learn interface, first-time users can get started quickly.

Thanks to the high-degree of horizontal integration capabilities and scalability of the operating interface, machine tool factories can provide a variety of products to meet customers’ demands,” explained Stevens.

“With the high-performance motherboard, it supports 5-axis motion control using Serial Bus communication. It not only supports the correction of various types of 5-axis mechanisms, but also uses the RTCP tool tip control function to complete high-precision surface processing.”

Extension of product offerings
“Since established in 1995, Syntec has extended its product range to include high-end spindle servo programmes, linear motors, and direct drive motors and other specialty products. In response to the trend of intelligent automation they have actively developed general-purpose automation controllers and robot controllers of various types. They are also developing related integrated value-added products to meet the needs of intelligent and automated production lines, Industry 4.0 and, excitingly for high-precision laser control and marking.”

New retrofitting and automating division
“The Syntec products support EDM’s new division, which is the retrofitting and automating of older machines using Syntec controllers. We have been very busy in this area and expect to expand the division as more demand is thrust on us.”

“We have found that if the accuracy of the machine is still reasonable (we can check with our Renishaw QC20 ballbar test) but the controller is unreliable, replacing the controller, servo drives and motors can give the machine a new lease of life.”

“The pre-configured retrofit package consists of a control-only retrofit, which maintains and integrates a machine’s current motors and drives. A complete CNC package with new motors and drives is also available. Professional installation by a certified machine tool retrofit solution partner makes the retrofit package virtually ‘plug-and-play’ and reduces machine downtime.”

“However, customers must be aware that they do not plan a control retrofit project too narrowly. Proper mechanical alignment is a key part of a comprehensive approach to upgrading a machine’s CNC controls.”

New machines
“Our range of new machines that we market includes CNC mills and machining centers (including 5-axis), CNC lathes, EDM machines and surface and cylindrical grinders. We are now able to offer complete turnkey projects to both toolrooms and production shops.”

“The brands that EDM Shop now represent includes Wele machining centers up to 5-axis and big vertical turning/milling centers and boring mills, Jyoti Huron machining centers up to 3-axis, turning centers and small vertical turning centers, Paragon cylindrical and polygonal grinding machines, Phoenix bed type milling machines and flat-bed CNC lathes, Aristech RAM EDM machines, Accutex and SSG wire EDM machines, as well as Ocean EDM drills.”

“Over and above these machines we also offer plastic injection moulding machines and a range of rubber injection and compression moulding machines.”

“Developing powerful and efficient CNC systems has long been Syntec’s mission. Moreover, their integration capability and flexibility are a great match for machine builders to develop unique applications for specialised products at will in the fast innovating and moving world of PC technology.”

For further details contact EDM Shop on TEL: 011 762 5231 or visit www.edmshop.co.za
Much has changed at Stainless Plate Products since Metalworking News last visited four years ago. For one, owner Freddie Visser has shown his commitment to building a better South Africa despite the numerous challenges the economy faces in the coming years by acquiring Schipper Steel, a Cape Town-based fabricator of a wide range of metal enclosures, and in the process prevented the loss of some 37 jobs.

"Once you commit to staying, you have to put your head down and focus. I’m feeling positive about next year and for 2021. It’s a bit like watching a car accident in slow motion and not doing anything about it. I do believe things will change because you can only tread water for so long. The key has been not to rely on one service offering alone, but to offer a diversity of services. The two businesses complement each other rather than compete against each other," says Visser.

Indeed, government has begun to take steps to attempt to address the disastrous state of some of its state-owned enterprises such as putting SAA into business rescue and placing Prasa under administration. However, it remains to be seen what will happen with the power (or lack thereof) provider, Eskom. One hopes the country’s leadership will see that with simple regulatory changes such as allowing independent power producers to feed more to the national grid, or to simply allow independent power producers to supply local municipalities directly, everyone will benefit and power constraints could be somewhat alleviated. After all, investor confidence is a key requirement to building a better South Africa.

And this speaks to an Africanising economy too – one that directly benefits the local communities in the surrounding areas and obviously creates jobs in the process. While manufacturing as a whole may have contracted for the fifth consecutive quarter locally, there are definitely areas where growth is taking place.

Visser sights growth in areas where development is scheduled to take place like in the Tygerberg vicinity, expansion of the Cape Town International Airport and upgrades taking place there, as well as the expansion of the
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Simon’s Town Harbour. There are also substantial plans in the Western Cape for clinics and hospitals as well as warehousing distribution centres and learning centres.

Products and components that both Schipper Steel and Stainless Plate Products manufacture and service cover a number of industries from automotive, mining, marine and IT enclosures to petrochemical and dairy, with Schipper Steel specialising in the manufacture of various metal enclosures. Materials that Schipper Steel fabricate from include mild steel, 3CR12, stainless steel and aluminium.

The acquisition of Schipper Steel was finalised on the 30th of June 2019 and the decision to relocate the business from Paarden Eiland to premises adjacent to Stainless Plate Products in Busaf Park, Bellville, was made. The move took place in early August 2019 and welding was already underway by the 12th of the month.

“Once I understood the business better, I realised that it had a very good skill base, with good people that over a few decades had been producing quality products with an established blue-chip client base. It already had lasers and various other machines too, so it made sense. Once we had the buy in from the staff, all 37 came on board. As a separate entity, it’s a 66-year-old business with in excess of 400 customers. Only around 10 of those are mutual with Stainless Plate Products.”

One could say the relationship between the two businesses is somewhat symbiotic and the two share various resources in order to grow a more comprehensive sheet metal and general metal fabricating business with a service shop that caters directly to individual client needs.

Schipper Steel is able to offer fully automated CNC punching, bending, welding and professional finishes to the variety of components and products that it manufactures. It is a specialist metal enclosure manufacturer manufacturing multi-purpose enclosures that comprise of floor standing enclosures to consoles and desks, to computer and server enclosures and control desks, to fibre optic distribution boxes and more. The company also manufactures a variety of cable and reticulation management components. The company states that if it can be manufactured of light metal, they will probably be able to make it for you.

There are also plans afoot for the assembly of a powder coating plant and a feasibility study is already underway. This would further enable and extend the offering of turnkey services to clients. Further to this, Schipper Steel is venturing into shop fittings with many customer specific designed products being manufactured.

Growth

“Future growth will come in the efficiency of automation, and we are exploring the options with regard to night shifts in this area. You need to look at the local cost of ownership,” says Visser.

“Since 2010 Stainless Plate Products has experienced a 50% growth in turnover. Ryan Geyer joined us last year as Sales Director, and together with the team of internal and external sales representatives, we are seeing the benefits of sales and marketing. On the Schipper side, we have also employed a salesperson so now the staff complement is 38,” continues Visser.

In late 2018, Stainless Plate Products further invested in its machinery and commissioned WD Hearn Machine Tools to install a Sanco SVW-4222 Double Column Bridge Type CNC. It has three axes with a 2m x 4m bed. The company has also expanded their Leadwell fleet in recent years with the addition of a few new CNC machines similarly supplied by WD Hearn Machine Tools, as well as added some Bystronic Xpert press brakes, with more on order.

While some bigger businesses in the general manufacturing industry are struggling to adapt to the tough economic conditions, other small to medium enterprises such as Stainless Plate Products and Schipper Steel pool their resources from skilled fabricators to marketing knowledge, so as to create a better all-round solution for their clients. The key is to be able to adapt if you want to succeed when the playing conditions are unpredictable.

For further details contact Schipper Steel on

TEL: 021 511 0280 or visit www.schippersteel.co.za

or Stainless Plate Products on

TEL: 021 948 2044 or visit www.sppsa.co.za

When Stainless Plate Products acquired Schipper Steel, various machines and an experienced labour force came as part of the deal, such as this Trumpf TruLaser 1030

Various components manufactured by Schipper Steel. Apart from its specialised metal cabinets, Schipper Steel manufactures a wide range of customer specific products
Mill 4-11″ – One tool for all applications

The Mill 4-11″ Series is specially engineered to achieve excellent performance in regards to surface quality as well as higher metal removal rates in shoulder milling applications. Its unique design allows you to apply the tool in multiple passes (step down) with outstanding results. From roughing to finishing operations, Mill 4-11″ is applicable in a wide range of workpiece materials: steel, cast iron, stainless steel, non-ferrous materials, and high-temp alloys.
Vertical storage and retrieval solutions help you to improve your warehouse productivity and efficiency, recover expensive floor space and keep inventory under control.

“We were in the market for a solution to optimise our factory space, work and warehouse management systems. After an extensive research exercise we engaged Italian manufacturer Modula to install a system for our situation, which they completed in December 2019,” explained Derrick van Niekerk of Ultrafab.

“We were so impressed with the whole experience with Modula – from time of order to the finished installation – that we decided to enter into an agreement with them to supply, install and support their systems in South Africa.”

“Modula, established in 1987, is based in Salvaterra in the Province of Reggio Emilia, Italy and has a further two manufacturing facilities in Lewiston, Maine, USA and Sozhou, China. Modula’s main focus is to reduce the wasted space in manufacturing facilities, factories, warehouses and distribution centres by providing automated storage solutions.”

“They manufacture automated vertical storage systems with a series of trays, which is designed to optimise space, work and warehouse management. It is the ideal solution for issues surrounding the management, picking and retrieval of components, as well as semi-processed and finished products, in a diverse range of industries and applications. By utilising the available height of the building, the Modula vertical automated storage system allows you to revolutionise your internal logistics, reducing the footprint requirements of traditional shelving and racking with the introduction of an automated picking system based on the goods-to-man principal.”

“The Modula automated storage system saves you time and helps reduce personnel required for picking operations. The material is stored inside the trays of the vertical lift system (VLS) and traced automatically. The trays are picked up by an automatic lift and delivered to the picking bays. Utilising quick and easy picking operations, the material is retrieved and brought to the operator automatically. The picking access bays can be customised in four different configurations depending on the needs of each individual automatic warehouse and automated storage system. Depending on the available floor space, you can set up a single or dual, internal or external bay.”

“These vertical warehouses are designed to reduce occupied floor space by up to 90%, increase productivity, speed up picking throughput and improve warehouse efficiency by reducing risks to both people and goods.”

“Modula is also the name of the warehouse that they manufacture, which are used to store various types of product, from small electronic components or pharmaceuticals to heavy and bulky objects like moulds or engine/car parts.”

“They have systems installed at aerospace companies such as Dassault Falcon Jet and Safran, Danieli and Ferramenta Gruppi in the metals sector, Autovega, Ford, Subaru, BMW and Audi in the automotive industry and other companies such as Festo, Kuehne + Nagel, Innomed, Honeywell, Bosch, ThyssenKrupp, GF Machining Solutions and Siemens.”

“Each company has its own individual situation and requirements. Modula’s designers will customise your situation around the five different models that they manufacture.”

“The main advantage you will notice straight away is the optimisation of your available space. Not only that, you also save significant amounts of time, as operators stay near the automatic warehouse and don’t have to move around in order to pick or refill components or products.”

“Amongst the advantages of using Modula’s technology are the increased security of your products and safety of your operators. In fact, access to the warehouse is only permitted to authorised operators via advanced recognition systems and the movement of goods is facilitated by an ergonomic and functional warehouse structure.”

“The Modula software manages your warehouse in real time via a user-friendly PC interface which is simple and intuitive. All you need is a PC as a server and a certain number of clients depending on your needs. All this means is

Ultrafab to market Modula automated vertical storage and retrieval systems
that a full multi-user system is within easy reach.”

“We supply the manufacturers, wholesalers and suppliers with an array of components such as locks, cable trays, cable ladders, power skirting, cantilever arms, wiring channels, brackets, clamps and fasteners who then install them.”

“The amount of components and products is numerous and come in all shapes and sizes. 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 that need to be delivered timeously.

We have invested in manufacturing equipment but storage of product and components was always a problem for us until we found Modula.”

For further details contact Ultrafab on TEL: 011 474 9810, email info@ultrafab.co.za or visit www.modula.com
In an official statement released in December 2019 The Department of Trade, Industry and Competition (DTIC) said it has received expressions of interest by two parties to buy the Saldanha Steel works from ArcelorMittal South Africa (AMSA).

AMSA announced on 11 November 2019 that it would be closing Saldanha Steel following what the company called an operational review of its asset footprint. The Minister of Trade and Industry, Mr Ebrahim Patel, has urged AMSA to continue working with National Government and other social partners to reverse this decision and find solutions which can keep Saldanha Steel in operation, and its workers in employment.

Speaking in response to AMSA’s announcement, Minister Patel remarked: “If no solution is found with ArcelorMittal, they should consider selling the plant to ensure the country does not lose industrial capacity and workers, and to ensure that communities are not displaced.”

The Ministry subsequently met with the AMSA management to request the company to review its decision. The Ministry advised that potential buyers were considering making a bid for the steel-plant and requested that AMSA considers every effort to retain employment in Saldanha, including giving consideration to potential bids by other investors.

“We are encouraged by these early expressions of interest in Saldanha Steel. If AMSA is still intent on closing Saldanha Steel, a decision we do not agree with, then nonetheless we urge the company to engage actively and openly with potential buyers, and to offer them terms that would enable operations at the steel-mill and employment opportunities to the local community,”

“Saldanha Steel plays an important role in South Africa’s industrial footprint. For the Saldanha region specifically, the steel works is an important source of employment and development as well.”

AMSA’s decision to place Saldanha on care and maintenance and retrench almost 1 000 workers comes despite significant efforts by National Government to provide support to AMSA to prevent job losses across the company and the continued operation of Saldanha Steel.

The Department of Trade, Industry and Competition together with the Department of Public Enterprises, Eskom and Transnet, engaged with AMSA management on support which could be provided to reduce energy and logistics costs for the company and at Saldanha, in particular. Government facilitated engagements with iron-ore and coal producers as well as organised labour to come up with solutions to reduce costs in order to avert job losses. The combined support package, offered by government ranged from concessions on iron ore pricing, electricity, water and rail tariffs, providing considerable cost savings. AMSA has asked for support, however, in excess of what was made available through the efforts of Government.

Government has, over the past few years, supported AMSA with tariff protection from imports including safeguard
duties and the designation of steel for state infrastructure projects which directly benefitted the company. To support the entire steel and metals value chain, Government brokered a pricing agreement allowing the upstream steel mills to remain sustainable in the domestic market while providing a competitive fair price for the downstream industry.

South Africa is one of the only major primary steel producing countries on the African continent. The African Continental Free Trade Area (AfCFTA), which will come into effect in July 2020, is expected to open up additional demand for primary steel across the continent, as countries build the required infrastructure and factories needed to take advantage of the expected increase in intra-regional trade.

The steel sector has faced challenges in its operating environment due to global oversupply; however initiatives like the AfCFTA provide opportunities to drive increased regional demand for steel in construction, automotive manufacturing and mining. Ensuring that South Africa maintains its capacity in primary steel production capacity is thus critical to seeing that the country benefits.

“We have embarked on the process to develop a Masterplan for the Steel and Metals value chain in South Africa which will include both demand- and supply-side measures, and bring greater competitiveness and dynamism to the entire steel and metals industry. A number of initiatives are in progress to foster greater demand for steel by both the public and private sector, and to improve the cost base across the industry,” Minister Ebrahim Patel said.

Meanwhile it has been reported that Tami Didiza, ArcelorMittal South Africa’s general manager for stakeholder relations, confirmed that the DTIC referred two expressions of interest in Saldanha to ArcelorMittal South Africa, the first dated 15 November and the second dated 30 November 2019.

“But neither contains sufficient substance to assess commerciality,” said Didiza.
Heavy equipment manufacturer and distributor, Bell Equipment, has concluded a Broad-Based Black Economic Empowerment agreement (B-BBEE), effective 1 January 2020, that will empower the Group’s South African manufacturing subsidiary, Bell Equipment Company South Africa (BECSA) and further empower the South African sales and distribution subsidiary, Bell Equipment Sales South Africa (BESSA), and encourage the drive for greater industrialisation. We estimate BECSA to achieve a Level 3 B-BBEE recognition.”

“This transformation will also be advantageous to Bell customers as BESSA will be a 51% black-owned and 30% black women-owned entity, with an estimated Level 1 B-BBEE recognition, allowing our customers to maximize the benefit of their procurement spend from BESSA. In addition, an improved B-BBEE level, coupled with our local manufacturing, is aligned with the goals of the 2018 Mining Charter and SANRAL’s transformation goals,” explained Goosen.

BECSA became 30% black women-owned in April 2017 when shares were sold to BEE shareholders - 22.5% to SIBI Capital (Pty) Ltd, a 100% black women-owned and managed company, with Sindisiwe Mabaso-Koyana and Bharti Harie as the ultimate shareholders, and 7.5% to a B-BBEE trust, the Bell Equipment Foundation, which benefits black female beneficiaries. Both SIBI Capital and the Foundation will also participate in the current empowerment transaction with a direct shareholding of 7.5% each in BECSA. “Our partnership with SIBI Capital and the Foundation has proven successful as they are aligned to our business and we have a solid foundation on which to build a long-term relationship that can add value to our business,” said Goosen.

A black management company, comprising current Bell executives, Avishkar Goordeen, Dominic Chinnappen, Duncan Mashika, Bruce Ndlela and Niraj Andhee as well as the Bell Foundation will hold an effective 36% share in BECSA and a 21% share in BESSA.

“The Bell management team making up the BEE management company are a well-balanced and highly qualified team with years of institutional knowledge. They bring together the necessary manufacturing expertise, new business development focus, sales and distribution skills and are able to continue to spearhead interactions with the private and public sectors. Provision has also been made through the structure to allow for future managers to participate,” said Goosen.

Restructuring for empowerment

To accommodate the empowerment transaction, it was necessary to restructure the organisation and Bell Equipment SA Holdings has been formed as a holding company through which both BECSA and BESSA will be owned.

All the group functions, and functions associated with being an original equipment manufacturer will reside in a new company known as Bell Equipment Group Services (BEGS), which will be 100% owned by Bell Equipment Limited.

“This B-BBEE transaction reflects our commitment to South Africa and we wish our partners well in their new roles as we begin a new chapter of the Bell legacy together. We are excited about the future of our country and believe that our entities are now optimally positioned to continue to deliver our premium product range and comprehensive support network for the maximum benefit of our customers,” concluded Goosen.

Transnet tells Chinese firm to halt work on order for trains

It has been reported that State-owned logistics company Transnet has ordered Chinese locomotives company CRRC-E Loco to cease activities at its Pretoria Koedoespoort plant, where locomotive manufacturers, contracted as part of a group of companies to assemble locomotives, are based.

Mncedisi Ndlou & Sedumedzi (MNS) Attorneys, representing Transnet, sent letters to lawyers representing the Chinese electric locomotives manufacturers, instructing them to stop manufacturing the locomotives with immediate effect.

The company has been told to stop building pending the outcome of a review application of the notorious R54.5bn procurement contract for 1 064 locomotives. The contracts have been declared irregular and unlawful.

CRRC-E Loco is the merger of China South Rail and China North Rail, which won three tenders worth more than R25 billion to supply Transnet with locomotives. The first was for 95 locomotives, worth R2.7 billion, the second for 100 locomotives, worth R4.4 billion, and the third was to supply 359 locomotives, worth R18.1 billion.

However, lawyers representing the Chinese company are not convinced that they have to stop building. A representative of the company’s law firm said the company had not been instructed to cease manufacturing at Koedoespoort.

“We only received a letter that advises us to do so and we rejected the advice as the agreement that we signed with Transnet doesn’t make a provision for that. In essence, the manufacturing at Koedoespoort is done by the engineering division of Transnet, Transnet Engineering,” he said.

He added that CRRC E-Loco had manufactured more than 85% of its allocated locomotives.
CSIR and TIA collaborate to accelerate technology development in South Africa

The Council for Scientific and Industrial Research (CSIR) and the Technology Innovation Agency (TIA) have announced a five-year partnership that will contribute towards the acceleration of technology development and commercialisation in the country.

The two organisations signed a Memorandum of Agreement (MoA) in Pretoria in December 2019. Both organisations believe that this partnership will drive and enhance research and development (R&D) outputs across all sectors, and build technology development capacities in South Africa.

Through this partnership, the CSIR will be able to access TIA funding programmes that complement and support CSIR R&D programmes and projects, such as, but not limited to, the CSIR’s Industry Innovation Partnership Programme. It will also provide TIA with access to the pipeline of current and future CSIR-developed technologies for use in the development of projects and ventures.

This move also supports the objectives of the new CSIR Strategy that aims to collaborate with public and private sector to develop and localise technologies, in order to advance industries in South Africa. The strategy is built around the vision of accelerating socio-economic prosperity in South Africa through leading innovation.

Speaking at the signing event, CSIR Chief Executive Officer, Dr Thulani Dlamini, hailed the partnership, saying that it is a step in the right direction for conducive effective technology transfer and commercialisation, and adding that it will advance local innovation and industrial development.

“This partnership is timely as it occurs when the CSIR is implementing its new strategy, which aims to leverage its strong science, engineering and technology capabilities to contribute to industrial development in the country. It demonstrates our commitment to innovating and localising technologies, in collaboration with others, while providing knowledge solutions for the inclusive and sustainable advancement of industry, as well as the broader society,” said Dr Dlamini.

Concurring to this, Ms Fuzlin Levy-Hassen, the Interim Chief Executive Officer of TIA, emphasised that, “South Africa boasts a number of Science Councils with strong research capacity and state of the art facilities. The CSIR is one such partner and this will place TIA at the centre of an innovation journey that effectively supports South Africa’s socio-economic development imperatives and competitiveness of our industries. The White Paper on Science, Technology and Innovation clearly emphasises the need to intensify our efforts to commercialise outputs from publicly funded research. Our partnership with the CSIR therefore, sits at the core of this aspiration.”

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With its local production schedule for October 2019, Volkswagen Group South Africa (VWSA) set a new record for the number of vehicles produced in one month.

The company’s plant in Uitenhage produced 16,453 vehicles in October 2019, exceeding the company’s previous record that was set exactly a decade ago in October 2009, when the plant manufactured 15,131 units in one month.

The production schedule for October estimated that 16,179 units would be produced – which would have beaten the record – but the production team managed to achieve an even higher number.

By the end of October, the plant had produced 140,482 vehicles this year, of which 92,029 vehicles were manufactured for export. To date, the company has produced a total of 1,075,923 vehicles for export.

“It is proof of VWSA’s commitment to Excellence that the plant was able to achieve this milestone,” said Thomas Schaefer, Volkswagen Group South Africa Chairman and Managing Director.

“I am proud of each and every employee who contributed to making this new record a reality, and I am confident that together we can achieve many more milestones like this one – to the benefit of the economy of Nelson Mandela Bay. Our plant is on track to achieve its record production volume of 162,000 units by the end of the year.”

South Africa: The continent’s automotive producer of choice

Meanwhile Trade and Industry Minister Ebrahim Patel is hoping that regular meetings between government, labour and representatives from the vehicle assemblers and automotive component suppliers, will create a stable and predictable environment for automotive investment that will make South Africa the continent’s automotive producer of choice.

“The inaugural meeting was an important moment for leaders across the industry to come together with government and look at how we can boost production exports of motor cars made in South Africa. We are already the continent’s biggest producer and we now want to be the producer of choice for the continent,” said Patel.

At 374,215 vehicles exported in the first 11 months of 2019, the industry is already at a new yearly record with 351,139 being achieved in 2018.
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Metal Casting Technology Station accredited as an ISO/IEC 17025 testing and calibration laboratory

Scope of accreditation focusses on metallurgical and mechanical testing of ferrous and non-ferrous metals, including hardness testing (Vickers and Micro-Vickers).

The Metal Casting Technology Station at the University of Johannesburg (UJ) has announced that they have been accredited as an ISO/IEC 17025 testing and calibration laboratory for metallurgical and mechanical testing with a specific emphasis in the foundry industry.

The facility is accredited in accordance with the recognised International Standard ISO/IEC 17025:2005. The accreditation demonstrates technical competency for a defined scope and the operation of a quality management system. While this certificate remains valid, the accredited facility is authorised to use the relevant accreditation symbol to issue facility reports and/or certificates.

“This is a major achievement for the MCTS. The ISO/IEC 17025 general requirements for the competence of testing and calibration laboratories is the main ISO standard used by testing and calibration laboratories. In most countries, ISO/IEC 17025 is the standard for which most labs must hold accreditation in order to be deemed technically competent,” explained Kulani Mageza, Station Manager at the MCTS.

“The scope of our accreditation includes tensile (Room temperature up to 600kN upper yield, 0.2%, proof stress Ultimate Tensile Strength (UTS) elongation and reduction area) testing and hardness testing (Vickers and Micro-Vickers) for both ferrous and non-ferrous metals on the mechanical side. On the metallurgical side we are accredited for cast iron analysis (ASTM A247:2006 and EN ISO 945:2005) and spectrographic analysis (ASTM E350:2012 and ASTM A751:2007), excluding nitrogen.”

ISO/IEC 17025:2005 specifies the general requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods. It is applicable to all organisations performing tests and/or calibrations. These include, for example, first, second and third-party laboratories, and laboratories where testing and/or calibration forms part of inspection and product certification.

ISO/IEC 17025:2005 is applicable to all laboratories regardless of the number of personnel or the extent of the scope of testing and/or calibration activities. When a laboratory does not undertake one or more of the activities covered by ISO/IEC 17025:2005, such as sampling and the design/development of new methods, the requirements of those clauses do not apply.

ISO/IEC 17025:2005 is for use by laboratories in developing their management system for quality, administrative and technical operations. Laboratory customers, regulatory authorities and accreditation bodies may also use it in confirming or recognising the competence of laboratories. ISO/IEC 17025:2005 is not intended to be used as the basis for certification of laboratories.

ISO/IEC 17025 accreditation is the single most important standard for calibration and testing laboratories around the world. ISO 17025 accredited laboratories have demonstrated that they are technically proficient and able to produce precise and accurate test and calibration data. This is a voluntary, third-party-reviewed process that ensures a laboratory’s quality management system is thoroughly evaluated on a regular basis to guarantee continued technical competence and compliance with ISO 17025.

Laboratory accreditation bodies use the ISO 17025 standard specifically to assess factors relevant to a laboratory’s ability to produce precise, accurate test and calibration data including:

- Traceability of measurements and calibrations to national standards
- Technical competence of staff
- Maintenance of test equipment
- Quality assurance of test and calibration data
- Validity and appropriateness of test methods
- Appropriate handling and transportation of test items
• Quality of testing environment and sampling
To ensure continued compliance, accredited laboratories are regularly re-assessed to check that they are maintaining their standard of technical expertise. These laboratories are also required to participate in regular proficiency testing programs as an ongoing demonstration of their competence.

How does this benefit you as the customer?
ISO/IEC 17025 accreditation helps you minimise risk by ensuring that you are choosing a technically competent lab that has a sound quality system in place. This also allows you to avoid expensive retesting, which enhances your confidence in our product by assuring that it has been thoroughly evaluated by an independent, competent testing or calibration laboratory that has been assessed by a third party.

What is the difference between ISO 9001 and ISO 17025?
For instance, the requirements of ISO 9001:2015 on resources and processes are general for any industry, whereas ISO 17025:2005 is more specific and detailed for testing and calibration laboratories.

The Metal Casting Technology Station at the University of Johannesburg (UJ) is an initiative of the Department of Science and Technology (now the Department of Science and Innovation - DSI), and is managed through the Technology Innovation Agency (TIA). The MCTS focuses on the casting of ferrous and non-ferrous metals, sand technology, metallurgical testing and failure analysis, additive manufacturing and mechanical alloy of ultra-hard materials and the station’s primary mandates are technology transfer and capacity building.

The MCTS is hosted in the Research and Innovation division of the University of Johannesburg on the Doornfontein Campus. The MCTS supports and assists the metal casting industry, including foundries, suppliers and related industries, to improve the sectors innovation ability for increased competitiveness and sustainability, with a focus on physical metallurgy, moulding technology, foundry technology and support services.

“By becoming accredited to ISO/IEC 17025, the MCTS automatically became affiliated to the International Laboratory Accreditation Cooperation (ILAC), which means its reports are recognised internationally,” finished Mageza.

For further details contact the Metal Casting Technology Station on TEL: 011 559 6952/011 559 6019 or email address kmageza@uj.ac.za

On the metallurgical side the MCTS are accredited for cast iron analysis and spectrographic analysis

The shape of things to come

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Load shedding (rolling blackouts) and power outages have almost become a way of life in South Africa. Frequent loss of electricity has rippled across South Africa since 2007, but after many groans and moans, South Africans have become resigned to the fact that it is not a case of if, it is now a case of when the next outage will be. Yes, our grim acceptance quickly transformed into justified rage in the beginning. All too frequent the headlines were: Here we go again: Eskom to implement stage 2 load shedding and similar.

But as we resourceful South Africans swiftly fathomed out, because of the poor management and corruption at the SOE, we could be in for a long haul of these disruptions and we needed to put plan B into place.

However, South Africa as a country is not alone in this crisis as the world population grows alarmingly and the demand for more power increases. Across the world, countries are dealing with an average of 5.5 power outages a month, according to World Bank data from 2015 (I can’t find more recent data). These outages, which include both emergency power cuts and planned load shedding, last an average of up to three hours.

A more regional look reveals that high-income countries within the OECD (Organisation for Economic Cooperation and Development), which includes Australia, much of Europe, Canada, the US and the UK, hardly suffer at all, with less than one outage a month, lasting less than half an hour. Even high-income countries outside the OECD only suffer from 1.3 outages a month, for up to an hour.

Nonetheless beyond these rich countries, the performance slides. By far the biggest sufferers are countries in the Middle East and North Africa, which...
Victor takes CNC milling to the next level

Victor Taichung’s family of CNC machines is getting bigger. High performance machining/milling has just been taken to a new plateau with the arrival of the new Vcenter-AX630 vertical machining center for 5-axis machining and the Vcenter P76APC that can be installed with a 4th axis rotary table on each pallet with all connections integrated through the centre of the automatic pallet changer (no more of the cables getting tangled each time the table rotates).

Vcenter AX630 for 5-axis machining
- Roller cam mechanism
- Table diameter 630mm x 500mm mounted on the machine base
- Full 5-axis control equipped
- High rapid feed 48m/min with roller type linear motion guideways
- Trunnion type tilting table (B+C axes) fixed on machine base enhances structure stiffness
- Backlash-less roller cam drive mechanism rotated at higher speed further reduces cycle time
- BIG-PLUS BT-40 (BBT-40) spindle 12 000rpm (15kW)
- Travel XYZ 700mm x 500mm x 500mm
- Load 300kg

Vcenter P76APC vertical machining center
- APC mechanism seated on ground for high rigidity
- Pallet dimension 720mm x 400mm
- Pallet exchange time 15 seconds
- Control panel at right side for easy operation
- Linear scales and 4th axis can be installed
- 12 000rpm spindle output 18.5kW
- BBT-40/30 tools
- Roller guideways
- X travel 760mm
- High rapid feed 48m/min

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Elegen only uses OEM engines from Cummins, Perkins, Tata, John Deere, Deutz and Volvo

Elegen has recently purchased its first laser, an Amada Ensis 6kW fiber laser, the first of this type to be installed in South Africa. It has a bed size of 3 000mm by 1 500mm and can cut mild steel up to 25mm and stainless steel and aluminium up to 15mm

Elegen’s sister company Stegel Engineering, based in the same facility as Elegen, carries out most of the fabrication that is required to manufacture a genset.

Fabrication of fuel holding tanks and generator exhausts

According to the World Bank are hit with an average of 23.5 power outages a month. That’s a power cut six days a week lasting an average of 9.4 hours.

Beyond these areas of unrest, South Asia is the next worst off where countries are hit with an average of 17 power outages a month lasting over an hour. Sub-Saharan Africa by comparison, suffers far less though notably we are still hit by more than the average 5.5 outages a month. We suffer an average of 7.8 power outages a month (2015 data), lasting around five hours each time.

If you think a home without electricity supply is terrible, a business that is hit by load shedding can cause irreparable damage to the livelihood of many. An unstable and unreliable power supply can mean the death of a business, depending on the industry in which that company operates, and at best it will mean loss of valuable time and money.

13 years later we still live with the threat of power outages. However, in the meantime many different businesses supplying alternative energy sources have since opened up. They certainly don’t make up the deficit of the revenue loss to the country because of the no power situation, but at least now you can continue operating to the tune and hum of a generator.

One of these companies is Elegen, one of South Africa’s largest privately-owned generator manufacturers and suppliers. Throughout Africa they deliver a key partnership to many of their customers by providing flexible power solutions through their hire, sales, service and parts divisions. Elegen’s diesel generators (also known as diesel gensets) are both for hire and for sale to private and corporate entities. They also have qualified technicians who provide after-service and maintenance to ensure your generator performs at peak efficiency.

With the threat of load shedding, rolling blackouts and power outages due to poor maintenance looming, early in 2004 Christopher and Anna Hinckley, founding Directors of Elegen, decided that they would venture into the diesel generator market. Christopher’s intuition was correct and came true in 2007 when the power utility Eskom began to inflict its misery on South Africa in earnest.

A generator is not just a modern convenience that minimises disruptions to daily life. Backup solutions help to maintain productivity and comfort. An on-site power source can be a matter of survival. For airports, hospitals, military
bases, emergency workers, businesses and manufacturers, generators provide an indispensable standby power supply. Even when the unpredictable forces of Mother Nature disrupt power supply generators can be used. However, they are not limited to these circumstances. Generators have many varied uses. For example, a television outside broadcasting unit will generally use a generator to power up their equipment or have them on standby in case there is a power cut.

With limited knowledge and resources, Hinckley went about building and selling his first diesel generators. Although not a perfect product, they were functional. A generator is the combination of a diesel engine with an electric generator (often an alternator) to generate electrical energy. They need to be housed in an enclosure manufactured from durable sheet metal and various ancillary devices such as the base, the enclosure, sound attenuation, control systems, circuit breakers, jacket water heaters and a starting system make up the generator. This is referred to as a generating set or genset for short.

The Elegen brand of diesel generators had officially entered the alternative power supply market. Operating from a small premises in Eastleigh, East of Johannesburg, with...
five staff members initially, product was built to a maximum output of 50kVA, which took a production time of five days per generator.

With the first year of business under its belt and the beginning of Eskom’s failing service, Elegen management decided the time had come to push forward in increasing its presence in the diesel genset sector. At the same time a decision was taken to only use OEM engine manufacturers’ equipment and this has been a key component for the rapid growth of the company in the pursuing years. Elegen only uses OEM engines from Cummins, Perkins, Tata, John Deere, Deutz and Volvo. Other OEM engines are available on request.

Orders increased and concurrently manufacturing did too, as did the pressures on the production factory and this began to take its toll. Like many businesses Elegen, had reached a stage, that in order for the business to become a larger player in the market, substantial investment would need to be made in various departments of production to fulfil its genset service offering.

“The way forward was to employ experienced tradesmen and invest in modern machinery. Whilst this may have seemed an easy proposition, it proved more difficult than one would imagine, as it was only then that we, the management, realised the reality of the shortage of experienced and qualified electricians, diesel mechanics, welders and technicians within our country. Trades that we as a country once prided ourselves on,” explained Hinckley.

“This conundrum is still true today but almost a decade later, despite these challenging hurdles, Elegen has become a major player in the genset market with total sales now exceeding 5 000 units.”

“We now have 20 000m² of warehouse and production facilities that we occupy in Wilbart, Germiston, which is five times the size of our first facility in Eastleigh, and we believe that we are one of the largest purchasers of OEM diesel engines on the continent. Our sales reach is the entire African continent, from corporate offices, presidential and embassy residencies, data centres, mining operations and commercial businesses, to name a few. Other sectors where we have installed our generators include the food, beverage, dairy, paper and pulp, petrochemical and pharmaceutical industries.”

“Currently we have a contract to implement a full turnkey operation at numerous Tiger Brands’ sites in South Africa. This includes supplying the equipment and designing the installation site, plinths, civils, cable racking, walls and fencing.”

“Our gensets that we manufacture range from 5kVA to 3MVA/20 000kVA and where possible we manufacture and fabricate all the components and products that make up a genset. This even includes the diesel storage tanks and containers, which vary in size, depending on the situation where the generator is deployed.”

“All our enclosures are powder coated and fully weather proof. All switch gears supplied are SABS approved. All alternators are imported from Stamford, and we are one of only six companies worldwide that are certified as their authorised OEMs, Marelli, Mecc Alte and Leroy Somer.”

“Available voltages range from 400V and 525V and all generator sets are supplied standard with base tank, mains breaker, AMF generator controller and exhaust system. Our teams of technical staff deliver and install throughout Africa and installations are done for low to medium, and to high voltage. Generating sets are selected based on the electrical load required by the company. The expected duty of the generator, such as emergency, prime or continuous power, as well as environmental conditions such as altitude, temperature and exhaust emissions regulations must also be considered.”
Fabrication and jobbing

“Sister company Stegel Engineering, based in the same facility as Elegen, carries out most of the fabrication that is required to manufacture a genset. They specialise in cutting, forming, machining, rolling, welding, and finishing of austenitic and high alloy stainless steel metals in relation to manufacturing, repairs and upgrading of products, equipment and buildings.”

“It is in this company where we have made some capital equipment investments recently. Pride of place has been the purchase of our first laser, which is an Amada Ensis 6kW fiber laser, the first to be installed in South Africa. It has a bed size of 3 000mm by 1 500mm and can cut mild steel up to 25mm and stainless steel and aluminium up to 25mm. It is supplied with Amada’s latest VPSS 3i programming software.”

“At the same time we also invested in an Amada HG1303 CNC press brake. This 7-axis controlled bender has a bending width of 3 000mm and offers up to 130 tons in bending force with automatic crowning. Here too, we use the Amada VPSS 3i Bend programming software, which allows for all bending programming, sequencing and tool fitting to happen in the design office, thus eliminating scrap and drastically speeding up production on the floor.”

“In conjunction with the latest Amada Sheetworks software we utilise other software including Autocad and Solidworks. This allows us to offer a full design service as well.”

“This equipment will make us much more efficient and complement our existing Amada turret punch press and 240 ton press brake. Sheet metal for our panel boxes, exhausts, canopies and enclosures, air vents, louvres, besides other components, will all be processed on these new machines.”

“We will now have excess capacity in this department but this does not worry us as we are looking for productivity and quality in our metal manipulation. However, we will look for contract sheet metal processing operations to keep the machines busy.”

Currently, between Elegen and Stegel, the companies employ 230 staff and manufacture between 10 and 15 generators a day.

For further details contact Elegen on TEL: 011 455 4900 or visit www.elegen.co.za

Manufacturing and jobbing operations are performed at Stegel Engineering. Claire Reardon photo
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 enabling modulation of the laser beam as a function of sheet thickness, changing the beam shape to suit material/thickness utilizing 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 piece 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.
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.
These days consumer industry product manufacturers and retailers that distribute their products move carefully so as to not transgress stricter rules and sociable conceptions. But sometimes they need the guidance of an engineer to eliminate costly mistakes and time wasting. A typical scenario is that they may work for months to determine how a certain product introduction will roll out. After months of discussion, they finally decide to work on the promotional aspects. This will include packaging, advertising, launch functions, how products will be displayed at the store and many others.

And of course there are all the social media activities these days too. So, the advertising agency or design studio gets to work, and true to their artistic inclination they want their design to stand out and be noticed. Sometimes it is more a case of their own indulgence and ego and less of the client’s ambitions. Finally, they call the fabricator or mould manufacturer to discuss the technical aspects of the packaging, point-of-purchase (POP) and point-of-sale (POS) displays. By this time, it is too far down the line to reverse previous decisions where all sorts of technical and engineering aspects have not been taken into account. Fix it is the demand and fix it is what the fabricator or mould manufacturer will do, shaking his head.

Fortunately, today the fabricator and mould manufacturer are very creative and have the engineering acumen and tools to come up with a solution.

“Back in the 1970s, displays were designed to last in a certain retail environment for 10 to 15 years, with just a slight change in graphics. This has all changed now. Retailers need to excite and rejuvenate the consumer, who wants to go into a store and see a fresh look,” explains Geneva AD’s Managing Director Ignace van Goethem.

“No longer do retail displays have long life cycles. Many don’t have a life cycle at all. Instead, retailers use the display to promote new products for a few months at most. A retail
McDonald’s has just opened its 300th store in South Africa and Geneva AD Display Systems were extensively involved with implementing the new design. Geneva AD Display Systems have also participated in revamping a further 34 of their stores.

TRM Supplies supplied Geneva AD Display Systems with a specialised plastic laser cutter and marker. The CNC machine is critical for high-speed laser etching production of acrylic panels used on light driven display panels. Geneva AD Display Systems have developed a dot matrix etching system on the acrylic cover on frameless LED edge-lit light panels. The panels feature the latest in LED technology that delivers the brightest slimline display with a perfectly even distribution of light across the entire panel, eliminating hot spots or shadows. All of this is done in a super-slim panel that is only 22mm thick.

The machining department has two Johnford CNC machining centers and a Weiler CNC lathe to machine the many different components that are used in the various displays.

space must constantly change. If shoppers see products displayed the same way for months on end, eventually they stop seeing the products at all.”

“We are a manufacturer that has to know how to work effectively with our customers’ marketing people. Product marketers come to us for custom solutions to their creative display needs, so we’ve got to be creative ourselves. We don’t have a catalogue, everything is generally custom made for an individual company or product.”

“We are very much focussed on the manufacture of merchandising display systems for the indoor advertising market. We don’t get involved in signage or outdoor billboards, although our displays can be used in outdoor situations and the current Nando’s menu boards are a good example. We work closely with the digital printing industry and we are very strong in lighting displays, whether it be the light box type with Perspex displaying the message or light boxes with tension fabric.”

“We are one of the biggest manufacturers and suppliers of non-illuminated menu systems to high-end backlit and edge-lit systems for restaurants and fast food eateries. We only use LED lighting now. This is for both our menu boards and other merchandising display units. In the old days fluorescent lamps were used and still are if used in a ceiling display, but LED lighting has taken over because of the trend to have super-slim panels. This range is known as our Moonlight Frameless LED Panel range.”

“Few areas of commerce are as volatile as the ever-changing product mix that retailers are required to navigate. Having a unique UPC (Universal Product Code) is all important and some industry experts say that tens of thousands of new products come across the retailers’ landscape each year. Many of these products are merchandised in POP or POS displays of varying types and marketers want these displays to be unique to them. These types of displays are often referred to as the silent salesman.”

“But it goes further. Many retailers – fast food outlets, supermarkets and clothing stores – are constantly changing their store designs and displays. This then entails everything from furniture down to the display racks or hooks. One sports and leisure goods manufacturer that is a client of ours even sent out a team from Germany to inspect our manufacturing process so that they are confident that when they revamp an existing store or open a new store every single display

One of the three press brakes that Geneva AD Display Systems has is a Durma AD-R3035

The machining department has two Johnford CNC machining centers and a Weiler CNC lathe to machine the many different components that are used in the various displays.

MD
element, including display walls, is exactly the same down to the last millimetre."

"We have had to adapt to this changing environment and now can offer the industry virtually a one-stop experience. An example of this is the same sports and leisure goods manufacturer had us manufacturing the tiling displays that they used on the walls in their shops. It was more of a creative visual feature than a practical bricks and mortar facet. We came up with a solution and they now want us to send our product to Germany but unfortunately there are too many administrative complications to consider that."

"Other products that we manufacture include our click frame range that composes of slimline frames, limpet frames, security frames and tamperproof frames. The tamperproof frame does not open like other frames, but rather holds the poster behind a magnetised cover. The magnetised cover is recessed and can only be opened using a suction cup (which is provided). This ensures that the poster is well protected from vandalism and other interference."

"The hybrid displays include A-frame, H-frame, swing star, lollipop stands and an intra-system. The banner displays that we manufacture include rolla-graphic and hanging graphic displays. These are our mainline items but these days we have many custom designs that we manufacture. The result is that we have a five-man design department working constantly with Solidworks."

Surprisingly Belgium-born van Goethem is not from an advertising or creative background. A mechanical engineer with an MBA, van Goethem spent time with a multinational in Europe and Singapore before being transferred to South Africa. Here he met up with German-born Guenther Schmitz and they developed a scrolling advert display unit, which did not have the traction as they believed it would have. Nonetheless, van Goethem hung up his corporate shoes and began Geneva AD Display Systems. His mechanical qualifications have certainly been an asset in the development of the unique designs that the company offers, and the various processes that are required to manufacture a wide range of retail and POS solutions to satisfy the demanding industry that Geneva AD Display Systems services.

Geneva AD Display Systems, a privately-owned business, was established in 1997 to focus on the manufacture of merchandising display systems for the indoor advertising market. Over the years, innovation and product development have seen Geneva AD Display Systems expand its product offering to include a wide range of retail and POS solutions.

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The company operates from City Deep Production Park, Johannesburg. Within the same facility there are two affiliated companies – Geneva AD Woodworking and Geneva AD Powder Coating. These two companies have been set up to operate as separate entities, mainly supplying Geneva AD Display Systems but also to act as job shop entities.

"These companies evolved because of our frustration with dealing with sub-contractors. We work in a high-energy and vibrant environment and our suppliers did not seem to understand this. We have to constantly innovate and guarantee service delivery at very competitive pricing."

High performance coatings for aluminium and steel

"Geneva AD Powder Coating was established in 2009 and initially 80% of its turnover was generated from Geneva AD Display Systems. We had purposely built a bigger plant so that we could explore job shop opportunities, including our competitors. Today the ratio has swung dramatically and Geneva AD Display Systems only accounts for 30% of the turnover."

"Using sound powder application processes, a no-compromise attitude to pretreatment, and world class
F-T SERIES
DUAL USE LASER CUTTING MACHINE
Multiple Functions in one machine. Auto focus Laser Head, free your hands.
Working Area: 3000*1524-6100*2000mm
Laser: 4000/3000/2000/1500/1000W

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ALL COVER EXCHANGE PLATFORM LASER CUTTING MACHINE
All-cover protection, safer operation. Auto nozzle changer, replacement, cleaning and calibration.
Working Area: 3000*1500-8100*2500mm
Laser: 8000/4000/3000/2000/1500/1000W

T230
TUBE LASER CUTTING MACHINE
Automatic electric chuck. Supports various tube shapes (round, square). Wider range of adaption
Pipe Cutting Length 6500mm
Pipe Cutting Diameter Φ20-230mm
Square Tube Cutting Diameter 20-150mm

Auto Focus Laser
User-friendly Touch Control
Rigid Cast Iron Bed
Automatic Nozzle Changer
Wireless Control Remote Handle
Fully Automatic Electric Chuck

IPG LASER SOURCES FROM 1KW TO 30KW
application equipment, we are able to ensure consistent finishes on both metal and aluminium. With a 9-stage aluminium pretreatment facility and an 8-stage metal pretreatment facility we are able to successfully pass some of the most stringent corrosion tests available today. Given the benefits of our two stripping tanks and our sandblasting booth, we are able to manage and rework any rejects off the line in a timeous manner.

“The plant is ISO 9001 certified. Three months ago we installed a new line and we refurbished the dipping tanks. As a result, we have doubled our capacity. This plant can process both sheet metal and castings.”

“Materials used by Geneva AD Display Systems include steel, aluminium, perspex, wood and textiles. Although its forte is the manipulation of light in innovative display systems, Geneva AD Display Systems’ manufacturing plant has expanded to include processing of all the components necessary for a display system as well as many other units or systems required to display merchandise.”

“We don’t do shelving or shopfitting. We leave that to the companies that are involved in that area of business. We rather work with the shopfitters and around the shelving. 95% of our product manufactured is used indoors and we have five installation teams here in the Gauteng area and two at our branch in Cape Town and one in Durban. These branches are involved in sales, warehousing and installation.”

“We are now able to do a whole store installation, combining materials with the various display units. Important to our customers is that we can replicate a theme across all new stores as well as those that are going through a revamp, renovation or upgrade. For example, McDonald’s has just opened its 300th store in South Africa and we were extensively involved and have also participated in revamping 34 of their stores. This is the fourth new store where we have implemented their new design.”

Expanded sheet metal plant
“With have to be very adaptable over the years,
especially with our policy of becoming a one-stop shop so as not to rely on sub-contractors. A substantial portion of our products are made up of sheet metal – both aluminium and steel. It has been natural that we have paid attention to this area of manufacturing and have expanded our sheet metal plant to include full CNC processes, including form cutting, punching, bending, machining, and welding of metal components."

“We have had two recent machine additions to this department. The first was a Mercury Fiber laser cutting system manufactured by Italian company SEI Laser. The 1kW machine is ideal for thin metals and metal alloys processing. We are only processing metal between 1.6mm and 2mm so it suits our operation. The flatbed laser has a bed size of
Many retailers – fast food outlets, supermarkets and clothing stores – are constantly changing their store designs and displays. This then entails everything from furniture down to the display racks or hooks. Geneva AD Display Systems are able to manufacture a varied range of display units to suite the client’s request.

Geneva AD Display Systems are also able to etch messages on fabric.

Geneva AD Display Systems has recently installed a tube and pipe bending machine that is equipped with an automatic material handling unit.

1.500mm x 3.080mm and is powered by a SPI Lasers source and equipped with European linear guides and motors. Additionally, it is Industry 4.0 compliant and has a dual table for easy loading and unloading.

“The second machine is an HS5 TS 65 fiber laser with a 3D head for processing square, round, hexagon and elliptic tube, pipe and profiles. With the help of Guenther Schmitz of TRM Supplies, we have equipped this machine with a SPI Lasers source and with European linear guides and motors such as Rexroth and Siemens. The machine also has an auto-loader for loading and unloading.”

Specialised plastic laser etcher and cutter

“TRM Supplies also supplied the SEI fiber laser as they did with our specialised plastic laser cutter and marker. The CNC machine is critical for high-speed laser etching production of our acrylic panels used on our light driven display panels. We developed a dot matrix etching system on the acrylic cover on our frameless LED edge-lit light panels. The panels feature the latest in LED technology that deliver the brightest slimline display with a perfectly even distribution of light across the entire panel, eliminating hot spots or shadows. All of this is done in a super-slim panel that is only 22mm thick.”

“Besides these machines we also have two press brakes, a Durma press brake, a CO2 laser, three CNC lathes that process the various small components, a welding department because we often have to weld components together, mitre saws for cutting profiles, a Caxton press and others that aid us being productive in the manufacturing department.”

Geneva AD Woodworking

“Because we often have to mix materials when equipping a store, we developed our woodworking business as a separate entity as well, also to supply Geneva AD Display Systems and to be a job shop offering services to external clients.”

“The plant is fitted with the best machinery. We have three machines in this company and they include a flatbed CNC router that can handle a full size board. We are capable of creating rounded edging with our automated industrial edging machine, which can run straight from CAD and DXF files, as do all the other machines within the three companies. The third machine is a CNC sanding machine.”

TexFlex fabric lightbox range

“The one range that we have not mentioned yet is our TexFlex range of fabric tensioning systems, which includes single-side and double-side systems, as well as free-standing screens and partitions, which has now been expanded to address the growing need for fabric lightboxes. The TexFlex Fabric Lightbox is a high-quality display that allows fabric panels of any size to be fitted and tensioned into a light box. The even light delivery ensures that no shadows are seen, even along the edge where the fabric meets the frame.”

“Fabric lightboxes are a powerful display tool for retail and office indoor branding, as they combine the luxury feel of fabrics with the proven attention-grabbing appeal of light.”

“We are always looking for creative, new ways to put things together and to make our processes simpler and faster. Likewise, we are always looking to design and manufacture creative new products. We have come a long way with the introduction of new equipment and systems. We like to be involved and we have project management teams, not just sales people. It is our duty to make the customer king.”

For further details contact Geneva AD Display Systems on 011 613 6858 or visit www.geneva-ad.com.
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MACHINES
General Cutting
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Mining in South Africa was once the main driving force behind the history and development of Africa’s most advanced and richest economy. Its decline is illustrated by the fact that gold is currently only the fourth biggest selling commodity in South Africa right now, with coal, platinum group metals (PGMs) and iron ore all bringing in more money than gold. There are many reasons for mining’s decline, both in terms of South Africa’s GDP and its position as being regarded as the number one mining country in the world a couple of decades ago, and we don’t have to elaborate.

The dominant sentiment towards South African mining over the past decade has been overwhelmingly negative, with phrases like “a sunset industry” bandied about. This was largely informed by South Africa’s larger mining houses facing multiple challenges, including ageing infrastructure, the inherent difficulties of deep-level mining, escalating costs and falling commodity prices. Many mines have closed due to the unsustainable losses they incurred.

The situation was worsened by the fact that meaningful exploration had not taken place for decades, despite South Africa having such rich mineral endowments. Mining exploration is widely credited with being a catalyst for future economic growth and business opportunities. With the right support from the government, investors and the miners themselves, the South African mining sector could again materially boost South Africa’s economic growth as it once did in the past.

Mining still contributes

However, mining still contributes large numbers to the South African economy and will continue to do so as long as there are reserves of the various commodities mined, to exploit.

There are many engineering and manufacturing companies that feed off the mining industry, as well as the numerous that are employed in the industry. One such company is boosting productivity at Epiroc

The pipe processing department at Epiroc faced a major capacity crunch about seven years ago. Robotic handling of exploration drilling pipes expedites product processing.

Epiroc introduced a Yaskawa Motoman automatic handling cell to process their pipes they supply to the mining exploration drilling industry

The Yaskawa Motoman automatic handling cell improves productivity by efficiently processing pipes supplied to the mining exploration drilling industry.
the division of Epiroc that is a manufacturer and distributor of drilling consumables for mining exploration.

Jason Lotter established Renegade Drilling Supplies in 2005. It was Lotter’s second venture into the mining industry, having previously had a manufacturing company that he sold to multinational Atlas Copco, a global industrial supplier based in Sweden, in 2003.

“Atlas Copco decided to disinvest from the exploration drilling supplies industry in South Africa. This gave me the opportunity to get back into the mining exploration industry, supplying consumables such as drill bits and reamer heads as well as manufacture the pipes and pipes used for exploration drilling for core extraction.”

“Exploration diamond drilling is used in the mining industry to probe the contents of known ore deposits and potential sites. By withdrawing a small diameter core of rock from the ore body, geologists can analyse the core by chemical assay and conduct petrologic, structural and mineralogical studies of the rock at the surface with reduced environmental impact and lower costs,” explained Lotter.

“Before the invention of the portable diamond drill, most mineral prospecting was limited to finding outcrops at the surface and hand digging. Early drilling opened up many new areas for mineral mining, and was related to a boom in mineral exploration in remote locations.”

Core extraction

“Merely advancing the drill by rotary action (and washing) causes a core to be extracted inside the barrel. However, at a depth of perhaps 300m, there must be a way to retrieve the core and take it to the surface. Constantly withdrawing the entire heavy drill pipe is impractical, so methods were developed to pull up the core inside the barrel. If the rock would always be solid granite, and the core would always break at the drill bit, then it would be a simple matter to stop the drilling, and lower a simple grabbing device by a wire and pull up the core. Unfortunately, many applications require an undisturbed core in fractured rock, which calls for elaborate wire-line devices.”

Pipe sizes

“There are five major pipe sizes typically used in the mining exploration drilling industry. Larger pipes produce larger diameter rock cores and require more drill power to drive them. The choice of pipe size is a trade-off between the rock core diameter desired and the depth that can be drilled with a particular drilling rig motor.”

The introduction of the Yaskawa Motoman automatic handling cell has resulted in the company now processing pipe at a fraction of the time as compared to manual handling. Alignment challenges when coupling pipes are now non-existent because of the consistency of the tolerances and accuracy of the cell and the company is saving heaps of costly floor space because the robot turns the pipes in the air where there are no obstructions.

Manufacturing Manager Anthony Jansen Van Vuuren and shopfloor team leader Ephraen Letsoalo

Epiroc processes various sizes of pipe for the mining exploration drilling industry.
"Key dimensions used for exploration drilling all over the world are pipes with an outside diameter from 40mm to 140mm. Other sizes are available on request. The most common that we manufacture is a 100 OD that weighs about 55kg."

"Lengths vary according to client but we do process pipe up to six metres in length, which could weigh 120kg. Depending on the angle of the drill hole, exploration can take place between two and 2.5 kilometres here in South Africa because South Africa’s deposits lie at these distances underground. This involves many pipes being used."

**Processing of pipes**

“The material we use is generally cold drawn pipes supplied by Arcelor Mittal South Africa in grades EN19 and EN9, both high-quality, high-tensile steel usually supplied readily machinable in ‘T’ condition, giving good ductility and shock resisting properties combined with resistance to wear.”

“Awareness of the hazards associated with press brakes and stamping presses have improved dramatically. The same cannot be said for the tube and pipe industry. Operational hazards similar to those in general fabricating can be found in the manufacturing of tube and pipe, yet safeguarding devices are not always in use, or they are bypassed and circumvented. For those working in an environment where tube and pipe is produced or fabricated, the dangers have not been made so apparent, and operators are regularly required to put themselves in harm’s way, relying on company-established administrative safety measures and their own skills to prevent injury.”

“Unlike flat metal, pipe and tube are round and they don’t have burrs and sharp edges. When straight, their shape allows gravity, a very affordable energy source, to be used regularly to move them around the shop. On the downside, these parts are tough to stack and, once formed, become a handling and storage problem.”

“Tube and pipe operators tend to work with long lengths. During the forming process, operators are exposed to parts whipping around on a bending machine. As parts grow in size, so does the working area. Unsuspecting..."
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workers that are not prevented from entering the working area during a job could be in extreme danger of being hit by the tube or pipe as it is being formed. Additionally, each piece must be placed into a clamp, exposing the operator to a pinch point every time."

“As in any manufacturing scenario, safety enhancements can turn an operation with frequent exposure to potential harm into an operation with significantly less exposure to these hazards. The round shape of tube and pipe makes it an easy to move material, but it can also present a danger if the right controls are not being used. It’s just a matter of making the right choices."

Adding a Yaskawa robotic cell

“We had these issues and decided to address them. There were a few other motivating factors besides health and safety that led us to add a Yaskawa robotic driven material handling cell - productivity and floor space.”

“Besides cutting to length where required because the pipes are generally supplied in six metre lengths, the only other operation we are doing is threading on each end of the pipe. In some instances, slotting and marking is required.”

“If you consider the weight of each pipe it needs two staff to position the pipe in the Haas CNC lathe that we use. You also need the floor space to turn the pipe around because both ends are threaded and of course during this handling procedure you introduce all sorts of other unwanted variables.”

“The challenge to Yaskawa South Africa was to come up with an automated handling solution, while also taking into account that not every pipe is straight.”

“Their engineers introduced a Yaskawa Motoman ES165-DX200 robot that feeds, removes and turns pipe for two Haas CNC lathes. Feeding tables, steadies and safety devices to protect the boundaries were added.”

“The result is we are processing pipe at a fraction of the time as compared to manual handling, and alignment challenges when coupling pipes are now non-existent because of the consistency of the tolerances and accuracy. And of course we are saving heaps of costly floor space because the robot turns the pipes in the air where there are no obstructions.”

“It has been a very satisfying solution to our challenge and as a result we are busy designing a second robotic material handling cell that will introduce even more features and reduce production times, as compared to our first installation.”

Job shop machining

The company is more than a pipe processing business. Besides the two Haas CNC lathes that process the pipes the company also has three other Haas CNC lathes and three
Haas CNC mills to process numerous components that make up the other drilling consumables, such as drill rods, in-the-hole tools, couplings, adaptors, recovery tools and diamond drill bits that the company markets.

Close to 1,500 different components are machined in the CNC machining department. For example, the company manufactures its own drill head that comprises between 65 and 88 different components to be machined and then assembled.

“This department has also had major productivity improvements,” said Manufacturing Manager Anthony Jansen Van Vuuren.

“We have implemented many training programmes for the operators and to give you an example a component that used to take one hour and 43 minutes to machine now only takes 27 minutes. It was not about the CNC machine improving times. It was more about improving the skills of the operators.”

“However, we are in the future going to look for more time savings when we introduce the latest CNC machines. Our machines are seven years and older and a bit tired. We plan to sell four of them and purchase two modern CNC machines that incorporates the latest technology.”

“We like to think of this department as a job shop because we do machining work for other companies besides fulfilling our own requirements. We run the machines on Mastercam and we have Solidworks in our design department so we can offer design and re-engineering services.”

Joining the Epiroc Group

At the end of 2017 it was announced that Atlas Copco had purchased Renegade Drilling Supplies, effective January 2018, Lotter’s second venture into the mining industry. Atlas Copco was then subsequently split into two entities and Lotter’s company joined the new group Epiroc.

“The business is now part of the Rock Drilling Tools division in Epiroc. The acquisition expanded our exposure to other Group companies and further established our regional footprint for manufacturing of mining exploration consumables,” concluded Lotter.

For further details contact Epiroc on TEL: 011 793 6365 or visit www.epiroc.com
Chamfering is perhaps the most common operation in metal cutting. It may be found in practically every machining process. Chamfers and to a lesser degree fillets, feature on almost all external and internal corners of parts. Chamfers are simpler to manufacture than fillets, which explains why they prevail. We are so accustomed to the presence of chamfers at the edges of various products that we sometimes do not think about the importance of these relatively small sloped surfaces. Chamfers prevent hand injuries, make assembly easy, reduce stress concentration, and constitute necessary elements of a product design.

Traditionally, chamfering is considered as a simple operation. Usually, it is performed by different cutting tools, which are not very sophisticated. A straight-turning tool or a milling cutter featuring a 45° cutting edge angle or a drill with a 90° point angle are typical representatives of such tools. At the same time, the application field of rotating chamfering tools is not limited by typical chamfering operations but also includes deburring and bevelling, countersinking and undercutting, back chamfering in holes and along edges, undercutting and V-cutting, spot drilling and centre drilling. A rotating chamfering tool is extremely versatile and, in an ideal scenario, should be capable of performing all the mentioned machining operations effectively and efficiently.

However, various objective limitations, primarily dimensional, place serious obstacles in creating this perfect tool and the existing solutions tend to be far from ideal. Understanding the most preferable features of the tool from the customer’s point of view is critical for designing advanced intelligent tools. Iscar’s Multi-Master family of assembled tools with exchangeable cutting heads, provides several chamfering options. The economical two-flute MM H heads and fully ground multi-flute MM E heads ensure effective chamfering and removing burrs, particularly when applied to cutting relatively small-size areas or workpieces.

One of the heads, multi-functional MM HCD (Fig. 1) is suitable for efficient machining external and internal chamfers, burrs, centre and spot drilling, and countersinking. The secret of the head success is an ultimate cutting geometry that features combining negative and positive axial rakes. Together with a positive radial rake, the design principle results in a strong cutting edge and excellent chip former to guarantee a smooth and light cut, even in hard machining conditions, and reliable chip flow.

The dovetail-shape heads (Fig. 2), another Multi-Master product, are available with 45°, 60° and 75° entering angles. They are capable of both generating dovetail groove or slots and perform back chamfering. The multi-tooth design of the heads ensures high productivity when performing this operation.

Drilling a hole with a chamfer by one single pass, for example in pre-thread drilling, is a preferable option for every manufacturer. The operation can be performed by applying a combined hole making tool that combines drilling and countersinking features (Fig. 3). However, an almost endless number of hole depths significantly limits tool capabilities and technically necessitates the manufacture of many special tool versions, each adapted to a specific hole size. This problem is overcome by mounting a chamfering ring in the body of a standard Iscar Chamdrill drill, in the desired position according to the drill tip, and thus configure a tool that can perform drilling and chamfering in one operation.

One chamfering tool design is intended especially for small manufacturers and maintenance departments. This is a versatile chamfering endmill with an adjustable cutting edge angle. The endmill features a rotatable cartridge that carries an indexable insert. Due to adjustability of the cutting edge, the tool enables milling chamfers with various angles and eliminates the need for different tools for different chamfer angles. The angle scale, engraved on the cartridge, makes adjusting simple and friendly. Nevertheless, the cost of high versatility is a single chamfering edge – the multi-functional...
adjustable design provides only one cutting tooth.

Iscar’s recently launched Chamfmill family of indexable milling cutters is designed for front and back chamfering (Fig. 4), with applications including machining small outer and inner chamfers and removing burrs. The key element of the family is a pentagonal insert carried by the cutters. The star-like shape features 10 cutting edges: five for front and five for back chamfering.

Although seemingly simple, the design of effective chamfering tools needs to take into consideration various factors, including whether the chamfers are external or internal, breaking sharp edges and removing burrs, chamfers in holes, productivity, versatility, and more. To the question of which tool would be considered as a five-star product, one could answer that the best chamfering tool is the one that the customer has chosen according to their needs.

This article was supplied by Iscar South Africa. For further details contact Iscar South Africa on TEL: 011 997 2700 or visit www.iscar.com.
Nikon Corporation and DMG MORI have concluded a memorandum of understanding for a comprehensive business alliance.

This business alliance will boost the establishment of Nikon’s material processing business by utilising the knowledge of DMG MORI as a leading machine tool company. The two companies will also cooperate to develop more advanced DMG MORI machine tools by applying Nikon’s measurement and camera related technologies. In addition, effectively using the global sales network of DMG MORI, Nikon will conduct sales of its proprietary optical processing machines that perform various metal processing with high precision using laser.

This agreement will achieve synergy by effectively combining the mutual resources of the two companies. Nikon is a company that has advanced technological capabilities centring on opto-electronics and precision technologies, and DMG MORI, is a leading machine tool manufacturing company.

As a theme to address during its Medium-Term Management Plan from fiscal year 2019 to 2021, Nikon will realise acceleration in the business field of material processing, including sales of optical processing machines.

In recent years, machine tool users have been increasing investments in high-accuracy machines, digitalisation and automation to realise high-mix/low-volume production at their factories. This trend is accompanied by a growing demand for non-contact measurement technology due to advancement in integration of mechanical machining and measurement. Under such circumstances, DMG MORI will be able to take advantage of Nikon’s technologies to develop products that facilitate high-accuracy and digitalisation.
Audi plans to eliminate roughly 15% of its German workforce to lift earnings by €6 billion as Volkswagen AG’s largest profit maker pushes ahead with a restructuring plan to help adapt to the costly transition to electric cars.

Carmaker Audi is to cut 9,500 of its 61,000 jobs in Germany between now and 2025 to make more money available for electric vehicles and digital working. The cuts, which aim to save €6bn, will be achieved through an early retirement programme. But the Volkswagen-owned firm also said its move into electric cars would mean the creation of up to 2,000 jobs. The announcement comes less than a fortnight after Daimler said it would cut more than 1,000 jobs by the end of 2022.

The car industry is facing a downturn in key markets, including China, as well as increased costs as it meets tougher European Union emissions regulations and the costly switch to electric vehicles. Audi saw falling sales, revenues and operating profits in the first nine months of 2019.

In a statement, the carmaker said the job cuts would take place along the demographic curve - in particular through employee turnover and a new, attractive early retirement programme. The company must become lean and fit for the future, which means that some job profiles will no longer be needed and new ones will be created. The carmaker said it would guarantee the jobs of operational workers until 2029.

It added that it would continue to train young people and maintain its number of apprentices and student trainees over the next three years.

Speaking about the extension of the job guarantee for the workforce, spokesman Peter Mosch said: “We have reached an important milestone. The jobs of our core workforce are secure. The extension of the employment guarantee is a great success in difficult times. In addition, the upcoming electrification of the Ingolstadt and Neckarsulm plants underscores the long-term success of both German sites.”

Like its rivals, Audi is spending billions of euros on new technologies, including battery-electric and hybrid vehicles, connectivity and autonomous driving. But the firm last year also had to pay an €800 million fine over its role in the ‘dieselgate’ emissions scandal that started at parent company VW.

It is not just German carmakers that are facing sluggish growth. Car parts suppliers Bosch and Continental have announced thousands of job cuts. And it comes against the wider backdrop of a slowing German economy, which has narrowly avoided a recession.
There has been a great deal of hype surrounding the benefits of additive manufacturing for several years now. Numerous companies have invested in machines and have been trying out the innovative manufacturing process. Such trials often represent a cost-intensive learning process, but the focus is now increasingly on achieving verifiable successes. The following practical applications show that the technology is gaining more and more ground in the machining production environment. Trade visitors can expect to encounter the entire spectrum of 3D printing processes in the Additive Manufacturing Area at METAV from 10 to 13 March 2020.

Additive manufacturing can be used in a wide variety of ways. In metal cutting, it is above all the flexibility of the coolant lubricant (CL) feed that is attracting attention. “Here, turning processes involving a coolant attachment or with narrow tools are deployed in cases where conventional internal cooling cannot be used,” said Dr. Matthias Luik, Head of Research and Development at Paul Horn GmbH.

The latest product with a 3D printing component from the Tübingen-based tool specialists is the CL distributor disc for a reaming tool. A number of special aspects must be taken into account in additive manufacturing (AM).

“The subsequent machining of the functional surfaces means that appropriate structures must be created for clamping the workpieces. Internal stress, which leads to distortion of the components, must also be taken into account. In this case, the position of the components in the workspace is a decisive factor,” said Dr. Luik.

The wide range of potential AM applications will make it economically viable to produce more and more parts in this way in the future to meet demand. In many cases, hybrid construction methods in which conventionally manufactured elements are combined with additive components will prove advantageous as means of reducing the machining work to a minimum. The Tübingen tool specialists will be showcasing their products at METAV and taking part in expert discussions.

New materials opening up unlimited possibilities

Scarcely any other manufacturing technology has undergone such rapid development in the past five years as AM. Development has been seen not only in the process itself but also in the related design skills, calculation models and analysis tools. In the past, the surfaces had to be extensively reworked, but today this can be minimised or dispensed with entirely. The METAV exhibitor Iscar has been providing additively manufactured tools for its customers for many years. 3D printing techniques are used when manufacturing with traditional methods is difficult or impossible.

“Our new product campaign features a number of tools that have never been available on the market before,” reports Erich Timons, CTO and Member of the Executive Board of Iscar Germany GmbH in Ettingen.

“These include tools with very small diameters. When insert-based tools with internal coolant channels have to be produced, conventional methods quickly reach the limits of what is feasible.” He believes that 3D printing is still in its infancy.

“The focus in the future will be on using new additive materials. This includes the additive production of hard metals and hybrid materials. There is enormous potential right now, as it is possible to combine completely different material properties,” says Timons.

METAV 2020 in Düsseldorf

METAV 2020 – The 21st International Trade Fair for Metalworking Technologies displays the full spectrum of manufacturing technology. The focus is on machine tools, manufacturing systems, precision tools, automated material flows, computer technology, industrial electronics and accessories. Added to this are new topics such as moulding, medical, additive manufacturing and quality. They are firmly established in so-called areas in the METAV exhibition programme, each with its own nomenclature.

The target group of METAV visitors includes all branches of industry that process metals, in particular mechanical and plant engineering, the automotive and supply industry, the aerospace sector, the electrical industry, energy and medical technology, tool and mould making as well as metalworking and trades.

For further details visit www.metav.com
Kennametal has formed a 3D printing materials and production business unit, Kennametal Additive Manufacturing, as part of its Infrastructure segment. The new business unit, which is already shipping production parts to customers, combines the company’s experience in materials science and wear-resistant solutions with additive manufacturing capabilities to supply high-performance metal additive powders and fully finished 3D printed parts for wear, erosion, corrosion, and high temperature applications.

“Kennametal Additive Manufacturing combines our recognised expertise in wear materials, such as tungsten carbide and Kennametal Stellite, with the advantages of 3D printing, design flexibility, shorter development cycles and reduced lead times,” said Ron Port, Vice President of Kennametal Inc. and President, Infrastructure Business Segment.

“We are focused on high-growth potential additive solutions, and this new business unit is advancing both what we make and how we make it, so we can produce better parts, faster and more efficiently, for our customers.”

According to Kennametal, it has been leveraging 3D printing materials and processes within its existing businesses for some time to manufacture prototype components and cutting tools. In a statement, it said the new Kennametal Additive Manufacturing business builds on these capabilities to offer comprehensive 3D printing solutions, from raw material to finished part. The company’s gas atomisation powder production capabilities supply cobalt, nickel, and iron powders optimised for specific additive manufacturing processes. At its R&D, pilot production and prototyping centre in Latrobe, USA the business utilises laser powder bed and binder jet printing technologies, combined with post-print processing capabilities, including sintering, hot isostatic pressing and machining, to produce fully finished components.

Kennametal Additive Manufacturing has already shipped its first production parts to customers in the oil and gas and power industries. These high-performance wear components include parts printed with powders specifically designed and optimised for 3D printing, including Kennametal KAC89 tungsten carbide and Stellite 6 AM, a wear resistant cobalt-chrome alloy.

For more information contact Kennametal South Africa on TEL: 011 748 9300 or visit www.kennametal.com
SIMTOS 2020 (Seoul International Manufacturing Technology Show 2020), Korea’s biggest manufacturing technology exhibition hosted by the Korea Machine Tool Manufacturers’ Association (KOMMA), will be held at KINTEX (Korea International Exhibition Centre) in Korea from March 31 to April 4 in 2020 under the slogan of “Capture the Future: 4th Industrial Revolution”.

About 1,300 companies from 35 countries will exhibit some 7,000 products. Visitors to SIMTOS 2020 can find emerging manufacturing technologies fitting the trends of smart manufacturing and digital processing, such as CAD/CAM, 3D printers, automation solutions and robotics, in addition to traditional manufacturing technologies centred on metal processing, such as cutting tools, parts, measuring instruments, laser and cutting machines.

Launched in 1984, it has grown into the biggest manufacturing technology exhibition in Korea attracting more than 100,000 visitors. The Korea International Exhibition Centre is located in Ilsanseo-gu, Goyang, Gyeonggi Province, approximately 23 kilometres from Seoul, South Korea.

All about manufacturing technology will be on display on the total area of 102,431 square metres of 10 halls in KINTEX 1 and 2. The exhibition space is divided into six major pavilions for metal cutting and die mould working, manufacturing automation, CAD/CAM, measuring systems and robotics, metal cutting and pressing, welding, cutting tools and related equipment, parts, materials and motion controls, 3D printing and related equipment.

Visitors to SIMTOS 2020 can find emerging manufacturing technologies fitting the trends of smart manufacturing and digital processing, such as CAD/CAM, 3D printers, automation solutions and robotics, in addition to traditional manufacturing technologies of metal processing, such as cutting tools, parts, measuring instruments, laser and cutting machines.

During the exhibition, conferences on the future of manufacturing technology will take place for the exchange of information on the latest trends of smart manufacturing industry and business in the age of the 4th Industrial Revolution.

About 70 programmes will progress as part of the International Manufacturing Innovation Conference. Those interested in the International Manufacturing Innovation Conference register for attendance at http://conference-simtos.org. Foreigners can attend the conference free. Also, all programmes of the conference are normally held in Korean, but they are translated simultaneously into English.

SIMTOS 2020 will also hold Matchmaking4U, a business meeting programme under the motto of ‘Open Korea’ to help companies find new buyers at home and abroad and have business meetings with exhibitors. It will offer participants a chance to establish global networks needed to open up markets and make deals. It is noteworthy that the secretariat of SIMTOS plans to invite many Indian buyers in a bid to help exhibitors enter the Indian market. Those interested in Matchmaking4U must apply for participation at http://b2b.simtos.org.

SIMTOS 2020 is hosted by the Korea Machine Tool Manufacturers’ Association (http://www.komma.org), and supported by Ministry of Trade, Industry and Energy (MOTIE), Gyeonggi Provincial Government, Goyang City Government, the Korea Trade-Investment Promotion Agency (KOTRA), the Korea Chamber of Commerce and Industry (KCCI), the Korea International Trade Association (KITA), and the Korea Federation of SMEs (K-BIZ). For more information, visit www.simtos.org.
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Hurco partners with BMO Automation

Hurco has announced it is partnering with BMO Automation to provide manufacturers with a tested automation solution that requires minimal integration and increased productivity without disruption. BMO has been in the automation and digitisation business for the machining industry since 2008.

“Our customers tell us that finding qualified machinists is the primary impediment to their company’s growth. The formation of this preferred partnership with BMO is another way we can help our customers identify meaningful technologies and automation packages to solve the problems they face on a daily basis,” said Paul Gray, Hurco Vice President, R&D and product development.

Based in the Netherlands, BMO Automation focuses on high-mix/high-volume production to help manufacturers deal with the skills gap and labour shortage and increase productivity of their CNC machines.

“We are excited to partner with Hurco to bring automation to their customers. BMO Automation engineers collaborated extensively with the Hurco engineering team to ensure customers experience a seamless integration with the interactive operation of the robot and CNC machine. Our goal is to ensure customers are up and running as soon as it hits their floor,” said Frank Biemans, Managing Director of BMO Automation.

Gray added: “Together, Hurco and BMO are dedicated to helping bring our customers the latest Industry 4.0 automation technology to safeguard their competitiveness and elevate their productivity and profitability.”

For further details contact TH Machine Tools on TEL: 012 259 1375/0122 or visit www.thmachinetools.co.za or www.hurco.com
CNC Software, Inc., developers of Mastercam, has announced a new partnership with TITANS of CNC, Inc. to help train the next generation of highly skilled CNC machinists and eliminate the widening skills gap. The organisations have entered into a three-year partnership to develop media that advocates for CNC education and high-level aerospace manufacturing processes.

Mastercam is one of the world’s leading CAD/CAM software. It is a widely used CAM in industry and education worldwide. The software is popularly used in companies requiring precision machining, such as shops in the automotive and aerospace industries.

TITANS of CNC is a free educational platform, consisting of more than 3 000 online courses, that guides students and teachers through CNC machine operation and programming. The Academy consists of online courses in fundamentals, learning CAD, CAM, advanced work holding, 5-axis, and more. The organisation has an expansive following among students and professionals in manufacturing and are preparing the release of TITANS of CNC: Aerospace Academy – a tutorial-based platform teaching high-level manufacturers the skills necessary to produce complex aerospace parts using the most difficult materials.

“We are proud to partner with such an inspirational team. From the beginning of our existence, CNC Software has made a concerted effort to address the educational market. We have always recognised the importance of recruiting young minds into our field. TITANS of CNC has made it their mission to do just that. We are proud and humbled to be working with such a wonderful group of people that have the same mission,” said Meghan West, President, CNC Software, Inc.

As a result of this partnership, TITANS of CNC will feature Mastercam in the production of videos for education and social media purposes. As a champion of the Mastercam brand, TITANS of CNC will engage more than 70 000 users.

“TITANS of CNC is proud to partner with Mastercam, a leader in CAM systems globally. As our Academy continues to grow, we believe it is necessary to teach with the latest, most-advanced CAM software and machining technology available. Knowledge is power, and what we teach has a direct effect on manufacturing companies’ ability to outperform their competitors,” says Titan Gilroy, CEO, TITANS of CNC, Inc.

Gilroy continues, “We are stepping up to the pinnacle of CNC machining education, introducing our new Aerospace Academy in early 2020. With the presence of ITAR regulations and restrictions, utilising Mastercam as our advanced CAM solution makes perfect sense.”

“We will be utilising Mastercam to produce the majority of our upcoming aerospace tutorials, which will live on our free Aerospace Academy website. In addition to these extremely detailed and difficult projects, we will be recreating our Rocket Series, Building Blocks Series and The Art of Fixturing Series in Mastercam.”

Mitutoyo partners with Titans of CNC

Mitutoyo Corporation has also announced a sponsorship agreement with Titans of CNC (Rocklin, CA). Titan Gilroy started the company as a CNC machine shop in Northern California focused on making the most difficult parts in aerospace. The company transitioned into a massive reality TV series as a world-first CNC educational platform recognised by a global network of engineers, machinists, hobbyists, students and educators.

Mitutoyo metrology products will be featured in the show airing on Titan TV, and will be utilised in Titan CNC Academy videos for demonstration purposes. They will highlight their products through video tutorials in Gilroy’s personal manufacturing facility located in Rocklin, CA. These videos, along with other content, will be featured on Titans of CNC social media platforms including YouTube, Facebook, Twitter and Instagram.

“As a leader in the field of precision metrology, our company is excited to partner with them. We look forward to supporting skill development in US manufacturing by providing metrology experience and leading technology to the Titans team,” said Matt Dye, the president of Mitutoyo America.

Some of the equipment featured will include a MiSTAR shop floor CMM, a Quick Image vision system, a SJ-200/400 surface roughness tester, a LH-600 linear height gauge, QuantuMike/QuickMike coolant proof micrometers and coolant proof callipers, a U-Wave T and a U-Wave FIT, a MeasurLink® 9 data management system, and other metrology instruments and software.

For further details contact Mecad Manufacturing on TEL: 012 645 4300 or visit www.mecadmfg.co.za
Hypertherm announces successful raid of counterfeiting operation in Vietnam

Hypertherm, a manufacturer of industrial cutting systems and software, has announced a successful raid of a counterfeiting operation in Vietnam leading to the seizure and destruction of dozens of counterfeit Powermax electrodes, nozzles, and shields.

The raid, conducted in partnership with Vietnamese enforcement authorities at the Market Management Bureau, took place in a Hanoi facility operated by Vietmec Import Export Equipment Technology Co., also known as Vinamec Machines. Vietnamese authorities acted quickly following the discovery of the fake Powermax product, finding Vietmec guilty of selling counterfeit goods, issuing a fine, destroying the illicit product, and putting Vietmec on a regular monitoring list.

This most recent action follows an enforcement operation conducted late last year in China’s Changzhou province involving two of the world’s largest manufacturers of counterfeit product and their principle distributors. That raid, the largest in Hypertherm’s history, followed more than a year of investigative work and the involvement of law enforcement from two Chinese provinces.

"Hypertherm devotes an enormous amount of resources to bringing innovative products and technologies to market and is committed to ensuring those products are protected," said Brett Hansen, Hypertherm’s Intellectual Property Manager.

"This is done to not only protect our business, but to protect our customers who at best will not enjoy the performance characteristics of genuine product and at worst, greatly increases the risk of personal injury and permanent equipment damage by using fake product not manufactured to our exacting tolerances."

To ensure you do not fall victim to counterfeiting, Hypertherm recommends customers only buy product from approved and authorised distributors, and exercise caution when coming across abnormally low prices for “genuine” consumables and software. In addition, carefully check the appearance of consumables and packaging for discrepancies. Though counterfeiters are often very good at mimicking the exact appearance of original products, mistakes are sometimes made. Another warning sign is poor or inconsistent consumable performance compared to what you are used to.

A list of the authorised distribution partners is available on Hypertherm’s website at www.hypertherm.com. If you suspect you are a victim and need help verifying whether your consumables are genuine, please visit www.hypertherm.com/reportcounterfeit.

For further details visit www.hypertherm.com
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SPECTRUM MACHINE TOOLS
Continuing collaborative efforts for the technological advancement of manufacturing processes, Mazak Corporation and Oak Ridge National Laboratory’s (ORNL) manufacturing demonstration centre in Oak Ridge, TN, USA have entered into a cooperative research and development agreement (CRADA). Working on behalf of the US Department of Energy, ORNL and Mazak will further develop the use of Hot Wire Deposition (HWD) in additive manufacturing (AM) part production operations. The project addresses Mazak’s HYBRID Multi-

“As a pioneer in multi-tasking machine tool technology, Mazak recently advanced the concept with the development of its hybrid multi-tasking machines that combine additive technologies, such as direct metal laser sintering and multi-laser HWD, with subtractive manufacturing operations,” said the spokesperson.

Other hybrid systems combine conventional machining with joining capabilities such as friction stir welding and specialty operations like gear cutting. These hybrid systems are designed to advance Mazak’s multi-tasking Done-In-One part processing concept to the next level for increased single-machine production.

Through their collaborative research, Mazak and ORNL plan to generate an HWD process guide that will provide parameters for not only the process itself, but also for different metals.

Tasking HWD technologies as a commercially viable solution which, upon completion, will result in a closed-loop control system featuring the ability to make on-the-fly adjustments according to sensor feedback during the HWD builds.

“Such in-process adjustability will further ensure the consistency, quality and reliability of HWD additive technology, especially for those manufacturers in the aerospace, automotive and die/mould industries, among others,” said a spokesperson.

Specific applications include the repair of turbine blades and other high-wear parts such as engine blocks, cylinder heads and moulds and dies. With the ability to build up worn or damaged parts and re-finish them on the same machine, manufacturers can increase the working lives of those parts and avoid the cost of producing new ones.

In operation, the closed-loop system will monitor and control the HWD melt pool temperature. As new layers are formed/built, temperatures of the initial layers cool as more layers are built above them. Conversely, as the HWD build continues, overall process heat levels also gradually increase as compared with those at the start of the build. For both scenarios, the control system will vary the laser intensity - higher or lower - to maintain consistent temperatures.

Through their collaborative research, Mazak and ORNL plan to generate an HWD process guide that will provide parameters for not only the process itself, but also for different metals. Mazak will then incorporate these parameters as a database into the control of the machine tool to automate the HWD process.

Mazak developed its initial hybrid HWD technology in partnership with Lincoln Electric. The two companies collaborated to combine Lincoln’s HWD process to that of Mazak’s multi-tasking subtractive (conventional machining) manufacturing technology.

“While Lincoln Electric can grow parts, their system is unable to finish the part,” said the spokesperson.

Mazak’s VC 500A/5X HWD (hot wire deposition machine) uses a laser head to grow part features, then exchanges that head for a milling one to finish machine the feature to specifications and generate a smooth surface finish to complete the part.

The machine’s hot wire laser cladding head incorporates an automatic wire feeder system that feeds welding wire to an Argon gas nozzle. The head delivers a deposition rate of three to four pounds per hour with a 98% material utilisation rate.

The VC-500A/5X HWD has a trunnion-style rotary/tilt table for the processing of small complex parts via full 5-axis machining. The machine also features the Mazatrol SmoothX CNC and MCTConnect capability that allow for easier programming and faster part cycle times - in either EIA or Mazatrol conversational language - along with digital connectivity.

Mazak’s VC-500A/5X AM HWD multi-tasking machine reduces lead times and part costs, increases machining accuracy and part quality, and improves productivity, according to the company.

For more information contact Hi-Tech Machine Tools on TEL: 011 608 0088 or visit www.hitech.co.za
Chiron Group opens digital machine tool plant

Greenfield investment was the largest from Chiron in more than 100 years.

Chiron Group has officially opened its new Precision Factory, constructed specifically for the assembly of new machine series which combine productivity and precision. Optimised assembly and logistics processes in the plant will also ensure shorter delivery times.

With a maximum annual production capacity of 400 high-precision machining centers, the nearly 14 000 m² Chiron Precision Factory in Neuhausen, Germany, is currently the most modern machine factory in Europe. Costing more than €34.5 million and completed in just 15 months, the greenfield building is the largest single investment in almost 100 years of Chiron’s corporate history.

In planning and equipping the new factory, IT experts and production planners sought to maximise digitalisation of the machine production process in order to achieve high productivity and traceable assembly quality. The plant layout is designed for optimal material flow with logistics spine for all flows of people and materials, centralised final assemblies, technical offices and logistics areas and central order picking for machines and systems.

The plant operation was also designed to be paperless. A pick-by-light system helps the order picker to access stored parts quickly and securely.

“The digital assembly folders and logistics bookings are important milestones on the road to a paperless factory,” a company spokesman says.

For testing and quality assurance purposes and as a reference point, the delivery state of the machines is documented through what the company refers to as a digital fingerprint which contains all data related to each machine.

Also, the Chiron Precision Factory makes an important contribution towards climate protection: Waste heat produced by the machines during test runs is used to heat the factory. In fact, the plant environment is controlled through a smart factory cockpit for managing air-conditioning, lighting, and camera systems.

For further details contact Elkana CNC Services on mobile 083 8811 280 or visit www.elkana.co.za

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KEW FOUNDRIES focuses on continuous product development and improvement in order to deliver a range of small to large quality castings. Specialising in all grades of Grey Cast Iron and SG Iron between 1 kg and 10 500 kg, KEW services a variety of markets from its central location in South Africa.

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The organising team of BIEMH, Spain’s international machine tool exhibition, has presented the new campaign image for the event, which will be held from the 25th to the 29th of May 2020. The content of the image, both graphic and written, focuses on the value of BIEMH as an advanced manufacturing fair that can showcase ‘the technology that will change the world’, as their claim affirms. A large metal sphere in the centre summarises this concept, which is completed with a pun ‘Know/now the future’ revolving around time, knowledge and the highest level of innovation that characterises the fair’s exhibiting companies.

BIEMH 2020 is the 31st edition of the biennial international machine tool exhibition that is held in Spain and promoted by the association AFM (Advanced Manufacturing Technologies). On display are products offered by manufacturers and distributors in the fields of machinery, tools, components and accessories, automation, metrology, quality control and other equipment.

The main exhibition areas will include machine tools, other machinery, tools, parts, components and accessories, production system, automation, manufacturing software, metrology and quality control, services, composites and digital factory.

At the same time as the BIEMH fair, Hall 4 of the Bilbao Exhibition Centre will turn into ‘Hall 4.0’ to give live demonstrations of the technologies required to successfully tackle the path from innovation to industry 4.0. With a change in the distribution of stands compared to the previous edition, this area will host a new edition of BeDIGITAL, a forum exclusively dedicated to the industrial application of digital technologies; ADDIT3D, the International Trade Show on Additive and 3D Manufacturing, and the IMIC-Industrial Maintenance Innovation Conference. The three meetings will share their exhibition area and live demonstrations with an interesting conference programme in which the highest level international professionals will take part. In addition, after four successful previous editions, WORKINN will return this year in search of talent to address the new Industry 4.0 recruitment needs.

Over 42 000 people from 61 countries took part BIEMH in 2018, where orders were closed in all sectors. 1 751 exhibiting companies took part. BIEMH is organised by AFM-Advanced Manufacturing Technologies and Bilbao Exhibition Centre (BEC), with the collaboration of the Basque Government and the Spanish Machine Tool Importers Association (AIMHE).

The Bilbao Exhibition Centre is the organiser of BIEMH 2020.

For further details visit www.biemh.bilbaoexhibitioncentre.com/en/

Lantek signs a worldwide collaboration agreement with HSG Laser Group

Lantek has signed a collaboration agreement with the HSG Laser Group. This agreement will involve the use of Lantek software in HSG’s high-end sheet metal fiber laser cutting machines, a segment in which the company is growing significantly worldwide.

“The agreement reached by the companies will allow HSG customers worldwide to use powerful, scalable and open software to get the most out of their investments in machinery and software,” said a spokesperson.

As Alberto López de Biñaspre, CEO of Lantek, explained, “The agreement reached with HSG is part of our policy of partnerships with sheet metal cutting technology manufacturers worldwide. Thanks to this partnership, we will integrate our software into the broad base of fiber laser sheet cutting machines that HSG has all over the world, making our market knowledge and experience available to its customers.”

Through these solid product integrations, the company seeks to boost and strengthen both its relationship with partners and customers and generate greater synergies with them. It also aims to maximise and simplify implementations and improve interoperability, increasing the capability and productivity of users. Lantek currently has more than 100 cutting machine manufacturing partners worldwide.

Under this agreement, HSG and Lantek will be able to better address the opportunities and growth of the sector, as well as to satisfy the demands of the global market in terms of productivity and competitiveness. This collaborative agreement with HSG will make it possible to integrate the Lantek Expert CAD/CAM solution with its different fiber laser cutting machines, which are available in power levels up to 12 kW.

For more information contact Metal Chip Machinery on TEL: 011 476 7509 or 072 834 3164 or visit www.metalchipmachinery.co.za
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Prima Power’s new eP Genius 1030 press brake system and Laser Genius 1530 fiber laser machine with 10kW laser source

Prima Power exhibited at the eP Genius 1030 bending solution, the Laser Genius 1530 fiber laser machine, the Combi Genius 1530 and the servo-electric technology of BCe Smart bending cell at the Blechexpo 2019, held in Germany.

Prima Power’s eP Genius 1030 press brake system includes automatic tool change storage

At the show, Prima Power made heads turn with its stunning display of solutions. These included the firm’s new bending solution, the eP Genius 1030, which comprised a servo-electric press brake eP 1030 along with an automatic tool change storage. Ideal for minimum batches, the reliable solution offers precision and accuracy in its performance. Manual setup of the machine is not required when using this bending solution.

The eP Genius 1030 solution also comprises of an eP Genius press brake with 15 axes. With a maximum tool capacity up to 32 metres, the press brake is claimed to be the most versatile machine in the eP servo-electric range and offers automatic CNC crowning, 5-axis back gauge and IRIS Plus angle control system on CNC-controlled motorised arms. All in all, it is a perfect combination of tonnage and work capacity (105 tons with a bending length of 3060mm).

The eP Genius 1030 solution is also equipped with an innovative tool storage which is capable of accommodating a total of 32 metres of tools to be placed on eight tool holder supports that move on 3 axes. It also ensures that tools with a minimum length of 20mm up to 515mm can be handled with ease.

Laser Genius 1530 fiber laser machine

The company also introduced the Laser Genius 1530 fiber laser machine with 10kW laser source. With a piercing time of less than one second, and new cutting nozzles granting a reduction of gas consumptions, the machine is highly accurate and productive. The laser machine is also equipped with linear motors, carbon fiber carriage and intelligent process sensors, and can be used across all industrial fields. The Laser Genius can easily be integrated with other modules such as the automatic sorting system LST.

In addition to these solutions, the company also exhibited the integrated laser-punch technology - the Combi Genius 1530 and the servo-electric technology of BCe Smart bending cell.

Prima Power specialises in the production of machines and systems for sheet metal working. Right from applications such as laser processing, punching, shearing, bending, and automation, the machines have it all. With a presence in 80 plus countries, the firm boasts of manufacturing facilities in USA, Italy, Finland and China.

For more information contact Francesco Tallarico of Talmac Machine Tools on 072 265 1323 or visit www.talmac.co.za
Hexagon’s Manufacturing Intelligence division has launched HxGN SFx | Asset Management, a cloud-ready software solution that helps manufacturers achieve operational excellence by offering easy access to real-time machine status and utilisation reporting.

The software unlocks the data typically stored in individual coordinate measuring machines (CMM) to provide real-time insight into the performance, use and status of multiple CMMs across one or several sites. A web- and mobile-enabled dashboard provides real-time visibility of the health, availability and performance status of CMMs, in single or multiple locations. Manufacturers can shift from managing assets as a cost centre to optimising equipment profitability and value creation. And the data aggregated by SFx Asset Management can be used to pre-emptively schedule maintenance and identify sources of downtime.

With HxGN SFx | Asset Management it is also possible to quickly identify which site has spare capacity and gain insight into how systems are used. And because SFx Asset Management is cloud-based, information can be accessed anywhere from a PC, smartphone or tablet.

Asset performance management software plays a crucial role in optimising Overall Equipment Effectiveness (OEE). As its name suggests, OEE is a measure of how effective machines are. It can be calculated either for a single coordinate measuring machine (CMM) or for a set of CMMs, over various periods of time. An understanding of a CMM’s OEE can help reduce spending on maintenance while achieving better overall machine performance and efficiency.

“SFx Asset Management moves manufacturers towards the smart factory by giving them the real-time data that makes them more flexible, effective, responsive and competitive. Smart manufacturing is based on the most accurate and actionable information, and the first step is to reach a deeper knowledge of your machinery’s operational fitness,” says Scott Mahrle, SFx Asset Management Product Manager.

The Lite and PRO versions are now available online. They are currently compatible with PULSE, PC-DMIS and any Hexagon CMM that uses DC, RC, or H3C controllers and will support an expanding range of industrial equipment.

For more information contact Retecon on TEL: 011 976 8600 or visit www.retecon.co.za
Mahr has announced the expansion of its proven Precimar® ICM 100 Dial and Digital Indicator Calibrator with image processing, designed for the automated testing of measuring equipment. Existing Precimar Optimar 100 devices can also be upgraded with the new vision capabilities.

The ICM 100 is a proven solution for testing dial and digital indicators, test indicators, and dial comparators. The new image processing upgrade now makes working with the measuring instrument safer and faster. A camera automatically records the indicated values of the test indicators and forwards them to a software for processing. The automated procedure saves time and eliminates error-prone readings by the operator. The user also benefits by eliminating eyestrain and muscle fatigue since no interaction is required once the automated calibration process begins.

The hardware and software add-on package provide a cost-efficient way to equip new or existing ICM 100 measuring stations for automated testing. The measuring system including image processing is also available as a complete package under the name Precimar ICM 100 IP.

The new vision capabilities incorporate the fast image processing of a USB 3.0 camera and stable daylight-independent LED illumination, along with secure digital identification and reading of digits. Mahr’s Precimar Software for Gage Calibration controls the measuring device, evaluates the camera image of the scale or number display of the test object, compares the values with the high accuracy internal reference scale and automatically completes the process of calibrating the product under test. The software also makes it possible to create and store test certificates.

The easy operation of the ICM 100 with image processing speeds up and facilitates the monitoring of the indicator’s under test. With auto-recognition of the vision system, more test items and data points will be recorded faster than conventional manual methods. The completely automated inspection system enables the operator to be more productive, completing additional operations while the ICM 100 IP automatically completes the calibration process. This makes indicator inspection much more economical.

Precimar software is preloaded with many standard indicator calibration routines as defined by various national standards including American ASME/ANSI, British, German, French, Japanese and Russian. Simply choose the indicator type to be calibrated and the appropriate standard, and the system is ready to automatically perform a detailed calibration of the test piece.

For further details contact WD Hearn Machine Tools on TEL: 021 5345351 or visit www.wdhearn.co.za

Doosan introduces compact entry-level 3-axis, 8 000rpm VMC – DEM 4000

The compact DEM 4000 machine is the latest addition to Doosan’s impressive range of vertical machining centers – a range that includes the best-selling and ever-popular DNM- and Mynx-series. And, as one might expect from a new Doosan machine range, quality, reliability and a cost-competitiveness, are amongst the new DEM 4000s key selling points.

Despite its relatively small footprint the DEM 4000 boasts 550mm x 400mm x 450mm XYZ axis travels with 24m/min rapid rates on all three axes, a 650mm x 400mm table (with 400kg maximum table load) and features a 7.5kW/8 000rpm (BT 40) high-performance spindle that delivers fast and accurate cutting performance.

The machine’s rigid design and build also ensures high (and consistent) part accuracies and repeatability’s, as well as good surface finishes.

The DEM 4000 is equipped with the Doosan Fanuc i control and can be supplied with a choice of automatic tool changer configurations (the Armless ATC option has a 16-position capacity; The Cam-type ATC option has a 20-position capacity).

For further details contact Puma Machine Tools on TEL: 011 976 8600 or visit www.pumamachinetools.co.za
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This system allows customers to determine the position of parts within just a few centimetres, enabling them to reduce throughput times on the shop floor and significantly increase their productivity,” says Thomas Schneider, Managing Director Research & Development at Trumpf.

The solution accurately locates sheet metal parts in real time and also tracks and documents the routes they take. That effectively eliminates the annoying and costly task of searching for parts on the shop floor, and it makes it easier to pinpoint express jobs in the production facility and prioritise their fabrication as required. The positioning system works not only for parts, but also for tools.

Track & Trace can also be used with thick walls and metal parts

Conventional positioning systems cannot be used in metal-rich environments such as between machines or in sheet metal storage areas because the signals emitted by the transmitters get corrupted or even completely lost. Trumpf’s Track & Trace solution sidesteps this problem by utilising a robust frequency and by placing tracking devices, referred to as satellites, on the ceiling. These miniature satellites communicate with devices known as markers, which can simply be placed on, or attached to, stacks of parts or load carriers, much like a paper batch of job documents. That enables production workers to track down parts to within just a few centimeters.

“Metal and radio waves are not really very compatible. That’s why it always seemed impossible to achieve this kind of positioning accuracy in sheet metal fabrication. But our ultra-wideband technology can track objects effectively even in environments that contain lots of metal,” says Schneider.

Trumpf has already successfully deployed Track & Trace at customer sites as well as in its own production facilities. The solution is quick to install, simple to use, and easy to integrate in existing manufacturing processes.

Small computer chip in marker holds the key

Track & Trace works using a computer chip installed inside each marker. This chip transmits data to an industrial computer via the satellites, allowing users to access clear information on the part and its location on the computer screen. They can also transmit data back to control the marker, for example displaying the job number or any other information required for the production process on a small ink display.

All the data can also be transferred to smartphones and tablets. Select a job on the screen, and the corresponding marker will respond by emitting a series of light signals, making it quick and easy to identify. This makes Track & Trace one of the first steps in the paperless manufacturing systems of the future.

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

Kennametal expands ER range

Kennametal has expanded its range of turret-adapted clamping units (TACU), which are now ER-ready driven units, and introduced a line of solid ER collets that are threaded to accept screw-on milling cutters.

“Together, the newly developed TACU ER units and solid ER collets are a great marriage of technology,” states Ronald West, manager - tooling systems. “Available in sizes ER25 through ER40, with thread sizes ranging from M8 to M16, this innovation provides machining center-like capabilities to live-tool lathes. These new products offer the flexibility to use standard ER collets with solid end mills, or the new solid ER collets together with screw-on indexable milling cutters.”

Sealed for through-the-tool coolant, there is a 1mm stand-off for additional clearance on larger end mills with a precision-ground locating boss for minimal runout. The system is of compact design, reducing the chance of interference on smaller machines. Compared with a standard spring-style ER collet, the system is designed to be very rigid, allowing users to take heavier cuts.

The TACU offer can be used on seven leading brands of CNC lathes, both VDI and bolt-mounted turrets, with a variety of static and driven blocks. TACUs are equipped for internal and external coolant, with up to 12 000 rpm possible on specified driven tools.

For more information contact Kennametal South Africa on TEL: 011 748 9300 or visit www.kennametal.com
Hypertherm introduces subscription pricing model for ProNest LT nesting software for use on smaller CNC cutting tables

Hypertherm, manufacturer of industrial cutting systems and software, recently announced low-cost subscription pricing for its ProNest® LT CAD/CAM nesting software for light industrial cutting applications. Rather than purchasing the software outright, as is typically required, smaller companies and individuals who have air or conventional plasma and oxyfuel cutting machines can now subscribe to ProNest LT on a monthly, annual, or three-year basis.

Monthly pricing begins at $29.99 (US dollars) and subscribers have the freedom to start a subscription, add or remove users or features when needed, and cancel anytime. Hypertherm is currently offering a free 7-day trial subscription for anyone interested in trying ProNest LT. To learn more please visit www.hypertherm.com/ProNestLT.

In the past, small businesses including general fabricators, artistic metal workers, sign-makers, and HVAC duct shops, often had to rely on software that didn’t fully meet their needs. Technical support was often limited to self-help online. Achieving optimal cutting outcomes right from the first cut wasn’t easily possible. However, with ProNest LT, subscribers get access to one-on-one live support from knowledgeable professionals, in addition to online resources such as video tutorials. Also, expert-level cutting parameters based on the specific material type and thickness are included with the software setup providing optimal part separations, leads, and kerf compensation for the job. Advanced automatic nesting is also available to ensure good material yield for those larger jobs.

“ProNest LT provides a single software solution for businesses running smaller CNC tables. And though the software is designed to support any brand of plasma or oxyfuel, users will find the software delivers the ultimate performance when used with Hypertherm Powermax and Maxpro systems giving the best possible cut quality, productivity, and efficiency. It gives them access to professional grade cut quality at an affordable price in an easy to learn package that comes with unlimited technical support,” said Derek Weston, product marketing manager for Hypertherm CAM software and controls.

For more information contact Craig Sterly of Hypertherm on email craig.sterly@hypertherm.com or visit www.hypertherm.com

Hyundai Wia’s HS6300 high-speed horizontal machining center plus PLS (Pallet Load System)

The Hyundai Wia HS6300 horizontal machining center (630mm pallet) features a ‘T’ all-in-one structure bed designed with ample bed height and casting thickness to ensure the optimal level of rigidity. The double wall structure of the column is designed to prevent heat transformation, proving excellent in cutting performance and accuracy. The Hyundai Wia high-speed horizontal machining center has a maximum work area of 1,000mm high x 930mm diameter. Combined with long axis travels (XYZ travels are 1,050mm by 875mm by 875mm), machining of larger size parts is achieved. Its rapid traverse and cutting feed rates of 50 metres per minute in all axes reduces both non-cutting, and cutting times to achieve high productivity. The HS6300’s standard 2-step gear-head spindle has 8,000rpm with 22kW power, producing 781NM of torque, with a built-in 12,000rpm and 30kW spindle as an option.

By using ultra precision class angular ball bearings, fast acceleration and deceleration of the main spindle is achieved. The spindle head is designed to minimise heat displacement, and with the use of a hydraulic tool lock system the machining stability has been increased, therefore reducing growth in the spindle and making it possible to maintain high accuracies. Increased rigidity and stiffness of the spindle is accomplished through the use of angular contact bearings.

The HS6300 has two pallets of 630mm by 630mm and a maximum load capacity of 1,200kg. The HS Series machines are equipped with a rotary shuttle APC (Automatic Pallet Changer) as standard. The pallet can be rotated in the load station for quick and easy load/unload of machined parts. The setup station rotates freely with lock positions at 90 degree increments for easy loading and unloading of work.

Automatic tool changer
The double arm ATC provides fast and reliable tool changes to help reduce machining cycle times.

The tool magazine holds 40 tools as standard with up to 120 tools as an option depending on machine model. Random access allows for pre-staging of tools for faster tool changes and increased productivity.

The Fanuc System 31i-A is the standard controller. The HS6300’s base structure was designed through the use of finite element analysis method, incorporating a rugged single piece cast bed. It was also designed with a wide and rigid roller guide way system on each axis which helps to improve high speed traverse with low friction.

For further details contact Spectrum Machine Tools South Africa on TEL: 011 865 4090 or visit www.spectrumafrica.co.za
Wire EDM from GF Machining Solutions designed for metal AM applications

The newly developed AgieCharmilles Cut AM 500 wire EDM (WEDM) from GF Machining Solutions has been purpose-designed for use in the metal additive manufacturing (AM) market. WEDM is a mature technology, but GF Machining Solutions says it continues to push the boundaries with its latest horizontal Cut AM 500, which has been designed to be fast, accurate and automation-ready. The machine is specifically intended for the metal AM market and simplifies the way that additive manufactured parts are separated from build plates.

Martin Spencer, GF Machining Solutions UK’s managing director, says: “The machine makes a significant and valuable contribution to the AM process, and provides a more accurate and reliable solution than using standard EDM machines or bandsaws for these operations.”

The Cut AM 500 complements (and can be integrated with) GF Machining Solutions’ and 3D Systems’ DMP Factory 500, DMP Flex 350 and DMP Factory 350 3D metal printing machines. Notably, the machine is said to address and resolve a number of quality issues encountered by manufacturers that use a bandsaw to separate the workpiece from the build plate. Such issues include geometrical inaccuracy, loss of workpiece material (kerf) and damage to the part. The Cut AM 500 maintains the integrity of the part by avoiding part contamination and damage, advantages that are particularly crucial in risk-averse sectors such as aerospace and medical.

Accommodating parts up to 510mm by 510mm by 510 mm (including the base plate), and up to 500kg in weight, the Cut AM 500 uses 0.2mm diameter wire to separate parts at cutting speeds up to 300mm2/m. The machine delivers ±0.1mm accuracy and a surface roughness of less than six micron.

This solution brings together horizontal wire orientation, an integrated basket to catch separated parts, and a rotary axis to create a robust process that supports the component, improves part handling, prevents damage and can be fully automated for increased productivity.

The Cut AM 500’s fast-wire technology, in combination with the machine’s generator, ensures that the process is quick – at least three times faster than when using a standard EDM machine, says the company. In addition, fast-wire technology and the double wire spool concept ensure low running costs.

From a design perspective, the layout of the Cut AM 500 accommodates the integration of a clamping system for easier clamping and referencing, and the facility to move AM parts through different processes before being removed from the build plate.

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

hyperMILL CADCAM software: The Open Mind Additive Manufacturing suite

Open Mind Technologies hyperMILL CADCAM software’s - The Open Mind Additive Manufacturing suite - is designed to satisfy the requirements of industrial 3D printing processes. As a universal software solution, hyperMILL, together with this option, will provide efficient hybrid processing with simultaneous additive and subtractive processing on a single machine platform.

Open Mind’s hyperMILL Additive Manufacturing opens up an array of flexible options for DED (directed energy deposition) and WAAM (wire arc additive manufacturing) processes in terms of 5-axis simultaneous processing. Both laser-based powder nozzle machining heads and wire arc additive manufacturing can be controlled using the software for selective material deposition, as well as conveniently programmed and automatically simulated for collision avoidance.

The hyperMILL suite now allows the potential of additive manufacturing to be exploited using powder-bed fusion (PBF). If 3D printed parts do not offer the desired precision, or support structures have to be removed, the components can be machined afterwards by means of 5-axis machining. Even hard-to-reach areas can be machined in a secure manner using hyperMILL, says Open Mind. As an integral part of the process chain, the CADCAM system supports reworking of this nature. The printed components are analysed, milled to size and examined.

Increasingly, additive and subtractive manufacturing processes are being combined in a single machine tool for hybrid manufacturing. With this in mind, hyperMILL now enables users to programme the cladding and the milling routines together. True-to-detail application and removal simulation, as well as stock tracking between individual machining steps, assure process reliability.

“Our early work on industrial additive manufacturing processes is now bearing fruit. hyperMILL Additive Manufacturing allows us to boost the efficiency, precision and process reliability of additive and hybrid manufacturing. We want to integrate these procedures in established process chains, thereby increasing their efficiency and opening up potential applications,” says Volker Nesenhöner, CEO at Open Mind Technologies AG.

Important applications include repairing damaged components, such as in mould making and tool making, or repairing turbine blades in the aerospace industry.

For further details contact Hi-Tech Machine Tools on TEL: 011 608 0088 or visit www.hitech.co.za
JFY now offers Trumpf owned SPI fiber laser source in 1kW and 2kW. For all your thin gauge production needs.

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www.pumamachinetools.co.za
To meet market demand, smaller double-sided four corner designed BLMP 04 inserts have been launched for small and high feed machining applications.

The smaller size inserts mean more inserts can be mounted to the same diameter cutters, which will greatly improve productivity over the existing BLMP 06 type under similar conditions. Available in Ø8(1z) and Ø10(2z) sizes, these inserts are an alternative to solid end mills for roughing operations.

While both the BLMP 11 and BLMP 13 cover a similar machining range, the BLMP 11 inserts give an advantage as they make it a finer pitch same diameter cutter for better productivity. The cutters come in all types – face mill, end mill and modular types.

The features are that they are double-sided four corners
BySort is the new extension module for the ByTrans Cross loading and unloading automation system. The upgrade sorts the completed cut parts and thus accelerates the automation cycle of all the processes related to fiber laser cutting.

With the newly developed BySort upgrade, the ByTrans Cross is now an even more versatile unloading solution. An additional bridge is installed on the ByTrans Cross system, which can accommodate up to two sorting heads. These heads are automatically tooled using the available gripper modules.

The BySort is designed to deposit the completed parts on an additional unloading position next to the laser cutting system, which offers ByTrans Cross users an even higher degree of flexibility. Amongst other things, this supports users with the processing of large series where the individual cut parts need to be unloaded and sorted separately according to jobs. The repetition accuracy with which the BySort deposits the parts is a great advantage. Particularly with large cut parts, this is difficult to achieve manually. The accurate positioning of parts on palettes facilitates the automation of subsequent processes, because it allows the precise position detection of the parts to be further processed.

Moreover, BySort increases the speed of the entire unloading process. Bystronic achieves this thanks to the efficient design of the system unloading routes. In a first step, BySort unloads and sorts the cut parts. Subsequently, using a different route, the ByTrans unloads the residual sheet. This ensures that the laser cutting system’s shuttle table is more quickly available for the loading of the next sheet, which the ByTrans Cross fetches from its own stock or from the connected warehouse.

Integrated control on the touch screen
Both the BySort and the ByTrans Cross are controlled using the laser cutting system’s touch screen. To achieve this, Bystronic developed the ByVision Cutting user interface, which is already being used with the latest generation of Bystronic’s fiber lasers. ByVision Cutting integrates all the cutting processes and the connected automation solutions. During everyday production this allows laser cutting and the automated material feeding and removal process to be closely interlinked. Nowadays, no user should waste time, walk long distances, and carry out unnecessary procedures, just because the laser cutting system and the connected automation solution have to be operated using separate terminals. After all, for the operator, automation also means convenience.

For further details contact Bystronic South Africa on TEL: 010 410 0200 or visit www.bystronic.co.za

Bystronic's BySort add-on adds flexibility to unloading, sorting of laser-cut parts

Increase your level of automation with Bystronic's BySort.

In November 2019 TaeguTec South Africa held its traditional ‘End of Year’ get together for clients, suppliers and friends. Featured below are a selection of the over 350 attendees.

For more information contact TaeguTec SA on TEL: 011 362 1500 or visit www.taegutec.com
Yaskawa’s lightweight 6-axis robot

Yaskawa Motoman Robotics division has unveiled what is believed to be the smallest, lightest, 6-axis industrial robot specifically designed for small handling and assembly applications.

The MotoMINI 7kg lightweight, portable robot is easy to carry and install close to workpieces and other machinery in existing production lines or cells, providing a payload of 500 grams, a maximum horizontal reach of 350mm, vertical reach of 495mm and repeatability of 0.02mm.

MotoMINI offers the highest acceleration times claimed to be 20% faster over comparable small robots and is ideal for table-top, floor, ceiling, tilt or wall-mount installations. A compact footprint of 191mm by 124mm, combined with 6-axis operation, makes it ideal for handling smaller workpieces and components, also for assembly work in small production machines.

The cables and air lines are routed through the base to upper arm helping to increase cable life, enhancing safety and reducing teaching time. Also, a single robot to controller cable connection enables fast setup while the powerful and precise ultra-compact YRC1000 micro controller minimises installation space and optimises performance.

MotoMINI is ideally suited to a wide of applications such as pick and place for small fittings, connectors and components in assembly, parts feeding, packaging, sorting and materials handling.

For further details contact Yaskawa Southern Africa on TEL: 011 608 3186 or visit www.yaskawa.eu.com

Guhring adds to hole-making portfolio

Guhring has developed the latest addition to its hole-making portfolio – the RT100XF. Created to reduce cycle times for difficult-to-machine materials and special applications in series production, the hard drilling line is said to be extremely resilient to potential breakages.

This bold claim is based upon the carbide grade developed by Guhring for the RT100XF, which performs a balancing act between hardness and toughness. The special structure of the grade has a re-sharpening effect, so breakages that normally accelerate tool wear no longer occur. This effect is supplemented by the company’s existing nanoFire coating system, which has been created by a specially designed pre and post-treatment that smooths the coating and makes it significantly more robust.

The design and geometry of the RT100XF supports the robust performance of the carbide grade and surface treatment with an early double margin support that enhances coaxiality to deliver the desired bore size and roundness. Guhring’s RT100XF is suitable for holes from 5xD upwards.

Support chamfers are included that ensure running smoothness, while polished flutes serve to reduce the heat input into the component and support the fast evacuation of chips. Additionally, the point geometry is protected by a negative chamfer, which makes the cutting edge robust and durable.

Rounded edge preparation on the RT100XF produces a stable and efficient cutting edge; this rounding is produced with micron precision, something made possible by Guhring’s manufacturing competence.

With regard to workpiece materials, the through-coolant drills are suitable for structural and case-hardened steels, free-cutting and heat-treated steels, titanium, Inconel, Nimonic, and Hastelloy.

Available in 5xD and 7xD, the drills can be purchased in diameters from 3mm to 20mm diameter, in 0.1mm increments. The series is also offered in all common imperial dimensions.

For further details contact Guhring Cutting Tools South Africa on TEL: 087 015 0200 or 041 372 2047 or visit www.guhring.com
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