

# METALWORKING NEWS

VOLUME 13.5

November 2014



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You can't spin everything



The month of September 2015 was very busy with both the Machine Tools Africa 2014 exhibition and the Africa Aerospace and Defence 2014 exhibition and airshow running simultaneously, at two different venues. Both exhibitions are very popular which makes the logistics of gaining entry into the exhibition grounds somewhat trying, in particular AAD 2014, which was held at the Waterkloof Airbase just outside Pretoria. I think 90% of the visitors, and there are plenty of them, are there to see the airshow rather than find out any information regarding the exhibitors.

The stress levels are reduced when you are engulfed with the news from clients and exhibitors. As a result, there are a number of positive stories in the Industry News section in this issue, and it is not just me putting my spin on them. The positive news theme is continued in the Shopfront Focus section with millions of rands being invested by the companies that appear in this issue.

Then I read a report on the authoritative A.T. Kearney Foreign Direct Investment Confidence Index® for 2014, now in its 16<sup>th</sup> year, which takes an in-depth view of forward-looking investment sentiment among senior executives surveyed from 300 of the world's leading corporations.

According to the report, economic recovery is taking much longer than anticipated and continues to be fragile. Yet the business executives they surveyed for the 2014 A.T. Kearney Foreign Direct Investment Confidence Index® are more optimistic about the global economy than they were a year ago, and signs of renewed confidence are increasingly evident.

The United States once again tops the list of countries where corporate executives say they are most likely to direct their foreign investment dollars. A full 49 percent of respondents have a positive view of the United States, the highest number recorded in the index's 16-year history.

In broader terms, OECD member states account for 17 of the top 25 likely FDI destinations (including 11 European countries), in what appears to be a flight to quality. Even so, a core group of developing economies – China, Brazil, and India among them—continue to enjoy widespread confidence among business leaders. Many other emerging markets also make this year's cut.

The US maintains its first place position from last year, followed by China and Canada. While the findings bode well for the US, the encouraging news was that South Africa climbed two spots to become the 13th most attractive destination. We are ahead of countries like, and I have listed them in order as they appear after South Africa, Switzerland, Malaysia, Sweden, Chile, Spain, Japan, Italy, Belgium, Netherlands, Denmark, Turkey and Indonesia in 25<sup>th</sup> position. Of the BRICS countries only Russia does not feature well, so we are keeping good company.

Based on this year's FDI Confidence Index, we can affirm that foreign direct investment appears once again to be ready for takeoff. However, South Africa's aim should be to be listed in the top 10 because, according to the report, these are the countries that attract most of the investment funds.



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# What's in a (brand) name?

Perception - the way in which something is regarded, understood, or interpreted.

I spend a fair amount of my free time catching up on worldwide trends in the machine tool industry, using overseas magazines, the University of Google and some internet forums.

I came across a thread on an American forum, where a well-known factory manager, from a well-known company was asking advice on which mid-range machine tool he should buy. He had narrowed the list down to six machines. When I read the list I was surprised at the brand names he considered mid-range. Five of the names on his shortlist, I perceived to be high-end and there was only one brand name I perceived as mid-range. What also struck me was there was one brand name missing from his list of what I considered to be the peers of my high end range (his mid-range).

Interestingly enough I wasn't the only one whose perceptions were misguided and someone asked about the missing brand name. His reply, I consider that a low-range machine!

Turns out that one can't choose a machine by its brand name anymore, you have to choose it by its series.

Let's use cars as an example. We can buy a low-end, mid-range and high end car from the same manufacturer, but it would be a mistake to think that the low-end car

(read cheaper) from that manufacturer would be the same as a mid-range car from another manufacturer that doesn't have the same high end car (and hence luxury brand name), as the first manufacturer. The mid-range car from the perceived lesser manufacturer would be much better than the low-end car from the perceived high end brand name.



It's a little more complicated with machine tools as many high end brand names are manufacturing machines in lesser factories and using their branding to keep prices high.

So back to the original story, this manager chose a VX series from a high end Japanese brand name, well aware that the machine was made in a factory in Taiwan and the only part that came from the Japanese factory was the spindle. He was also aware that if he wanted the exact same machine, with better linear rails, couplings, castings, etc., he needed to order (at triple the cost) the VPlus from Japan. He had no perceptions of the brand name, he understood exactly what he was buying and from where. He's also well aware he could have bought exactly the same machine from the same Taiwanese factory for 10% less, but he knew the spindle was worth the 10% premium. He didn't pay 10% more for the brand name he paid 10% more for the spindle. His words to me, "I would have been fired for spending 10% more on a brand name, when I know the machines are identical"

In South Africa we are too focused on brand names and we let this cloud our judgment. We need to understand exactly what we are buying, where it is made and what it offers over similarly priced units. Don't immediately say "XYZ" is a high-end brand, as this is not true anymore. Look into what components (especially the moving ones) are used in the machine, where these components are manufactured, where the machine is assembled and tested. Look at application support, spare parts availability and service support. These are far more important than saying I own an "XYZ".

We need to become savvy buyers, not fashionistas. In our industry, there's very little in a name anymore.

**This is the viewpoint of Steven Andrews, Technical and Sales Director at EDM Shop, who holds a Mechanical Engineering degree from Wits University.**

"The Dickinson Group has added its second CNC wire bending machine, now able to offer wire bending in 4mm to 12mm diameter wire."

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 **LASERCRAFT**

cover story

# Puma Machine Tools

Optimal solutions for the future.

**P**uma Machine Tools was established in 2001 when the company acquired the sole agency for the Machine Tool Division of Daewoo Heavy Industries & Machinery Ltd. Daewoo Heavy Industries & Machinery subsequently went through a name change to Doosan Infracore in 2005.

Doosan Infracore is one of the leading manufacturers of CNC lathes, machining centers and horizontal boring (milling) machines including machines for tool rooms, machines for small to medium batch size production, as well as highly specialised production machinery. From small gantry type CNC lathes up to multi-tasking CNC turning centers, their machines stand out as being cost effective and highly productive.

Their vertical and horizontal machining centers are well constructed strong machines. Their reliability in accuracy as well as performance is without doubt a great benefit to any user.

Doosan has been manufacturing machine tools for over 30 years and recently reached a production of close to 15 000 machines built in a year. Doosan Infracore is part of the Doosan Group (established 1896), which is one of the largest in South Korea, and its activities range from construction and engineering, power generation and power plants



**The FM200/5AX Linear machining center is built on a bridge-type base formed in a mineral composite material. The X, Y and Z axes are driven by linear motors, boosting acceleration/deceleration feed rates, with very little backlash. The fourth and fifth axes rotary tables are equipped with direct drive motors**



**By integrating the capabilities of multiple machines into one system, the Puma SMX Series puts into use milling and turning capabilities that reduce machining time overall, and the number of machining operations a shop must handle**

to chemical process equipment and multiple other related fields.

## Doosan debuts “true five-axis” and multi-tasking machines

Doosan Infracore Machine Tool grabbed some of the spotlight with two CNC machine premieres at the recent IMTS 2014, a “true five-axis” machine and a new multi-tasking machine.

With advanced linear motor and direct drive technology, Doosan’s new FM 200/5AX linear full 5-axis machining center was developed for projects that involve simultaneous 5-axis contouring. According to the supplier, the FM 200/5AX linear offers manufacturers a reliable platform for machining numerous types of complex parts, including medical devices, and automotive turbo chargers - any component design with a high emphasis on precision.

The FM200/5AX linear machining center is built on a rigid bridge-type base formed in a high-stability mineral composite material. Because mineral castings absorb vibration at ten times the rate of iron castings, and provide much more thermal stability, parts are finished with exceptional surface finishes and tool life increases significantly.

The X, Y and Z axes on the FM200/5AX Linear are driven by high-precision linear motors, providing top-level acceleration/deceleration feed rates, with as good as no backlash. The fourth and fifth axes rotary tables are equipped with direct drive motors.

The table size is 200mm diameter with a capacity load of 15 kilograms. Travels on the FM 200/5AX linear are X-axis 200mm, Y-axis 340mm and Z-axis 300mm. Rapid traverse rates on all axes are 50 mpm, with a cutting feed rate of 20 mpm.

The 14 kW, 45 000-RPM spindle on the FM200/5AX Linear has an HSK E40 taper. As a result, vibration is minimized and stability is maximized. With 24-tool stations as the standard, productivity is improved with the reliability of a direct drive, servo-driven Automatic Tool Changer. Maximum tool diameter is 50,8mm, maximum tool length is 180mm and maximum tool weight is one kilogram.

According to Doosan, experienced machinists will appreciate the benefits provided by Heidenhain CNC control, especially when approaching a complex part with full five-axis

## Doosan Infracore Machine Tool grabbed some of the spotlight with two CNC machine premieres at the recent IMTS 2014, a “true five-axis” machine and a new multi-tasking machine

contouring. The FM200/5AX Linear also offers Heidenhain TNC control with an ergonomic swivel pendant and user friendly 19-in. screen.

### 3G mill-turn machine

Doosan’s second premiere was the Puma SMX 3100 S multi-tasking machine (MTM), its third generation milling-turning MTM, integrating the capabilities of a vertical machining center and horizontal turning center. The Puma SMX Series is distinguished by a rigid 90° vertical axis and forward positioned automatic tool changer, to improve milling capabilities as well as enhanced operator ergonomics.

The Puma SMX Series will initially be made available in two sizes, the Puma SMX2600, with a 10” chuck and 78mm bar capacity, and the Puma SMX3100, featuring a larger 12” chuck with 102mm of bar capacity. Both Puma SMX models have the capacity to machine parts up to 1525mm in length and 660mm in diameter. The X1-axis travel is 630mm, Z1-axis travel is 1585mm and the Y-axis is 230mm. Rapid Traverse, X1, Z1 & Y: 50/50/36 m/min.

The machines’ multi-tasking functions decrease the total processing time and number of machining operations by using a single setup, which results in exceptional high-speed performance for manufacturing processes that require accuracy and complex machining capabilities for turning, milling, and secondary operations. Using the SMX sub-spindle is an available option.

The Puma SMX Series executes high-precision machining thanks to high-rigidity construction using finite element analysis (FEA) in structural design and minimizing thermal deformation via an oil cooler, and an accuracy-control feature based on multiple thermal compensation functions. The Y-axis machining area has been maximized through orthogonal design.

Ergonomic design also enhances the operators’ convenience in set-up and operation, as well as maintenance - all of which contribute to the customer’s satisfaction.



**The Puma GT2100 turning centers occupy a smaller footprint and represent improved accuracy and reliability**

High-accuracy control functions maintain precision during long-term machining processes by minimizing the thermal deformation of the spindle and the feed axis, and by maximizing the precision through the 0.0001° B-axis and C-axis. The oil cooler minimizes thermal deformation of the spindle and feed axis, and high rigidity and high precision are achieved with roller-type linear motion guides on all carriages.

The design of the Puma SMX Series machines promote easy access for maintenance and optimise operator convenience by including customized functions — including front-located tool magazine (80 tools max), side-to-side movable, 85° swiveling Fanuc 31i control panel with adjustable height, and ATC operation panel (tool-to-tool change: 1.8 sec.).

### Compact turning centers improve accuracy, reliability

The Puma GT2100 8" and 10" turning centers from Doosan are based on the company’s Puma 240 machines, with compact footprints and improved accuracy and reliability. According to Doosan, the machines are 14 to 25 percent more compact than previous models.

The turning centers feature a 30-degree, single-piece slant-bed design said to reduce the center of gravity of both the spindle and cross-slide. Features such as wide ribs and a box-type slideway reinforce bed rigidity. The swing over the bed is 600mm, while the swing over the saddle is 390mm. Maximum turning diameter is 390mm, and maximum bar working diameter is 81mm. Maximum turning length is 560mm.

The 18,6 kW spindle provides speeds ranging to 4,500 rpm, and its overhang design minimizes the rotational inertial load. The spindle is equipped with three angular ball bearings in the front and cylindrical ball bearings in the rear. According to Doosan, this arrangement minimizes thermal growth and increases precision. Rapid traverse rates are 24 mpm in the X axis and 30 mpm in the Z axis.

The 12-station turret accommodates OD tool sizes ranging to 25,4 x 25,4mm and maximum boring bar size ranging to 40,6mm. Indexing time is 0.3 sec., the company says. BMT55P turret tooling, available on the Puma GT 2100M, is fixed to the turret with four bolts and keys for high efficiency and rigidity. Rotary tool speed ranges to 5,000 rpm with a 5,6 kW rotary tool motor.

The Puma GT2100 turning centers feature energy-saving features such as an efficient hydraulic unit, LED worklight and automatic power-off functions. They are also equipped with a Doosan-FANUC i control and a 10.4" color TFT LCD monitor. Doosan EZ Guide i is included for conversational programming of roughing, finishing, castings, grooving, threading, peck drilling and more.

### Other machines

Puma Machine Tools also markets Chevalier surface grinders, VTEC-Vision Wide Tech double column machining centers and the CSM tube bending machines.

For further details contact Puma Machine Tools on TEL: 011 976 8600 or visit [www.pumamachinetools.co.za](http://www.pumamachinetools.co.za)



## Efficient Engineering awarded contract for MeerKAT antennas

Antennas integral to Square Kilometre Array (SKA) telescope.

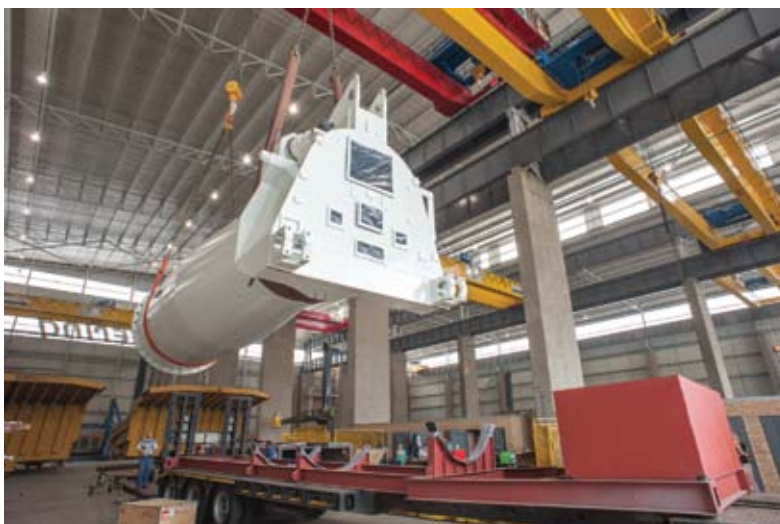
The design for the MeerKAT antenna positioner was finalised after a year of technical collaboration between Stratosat Datacom (SD) / General Dynamics Satcom Technologies and SKA South Africa.

The vendor selection process came to an end after months of intense vendor and fabricator vetting, which resulted in Stratosat Datacom issuing contracts to major subcontractors for the multitude of components and fabricated items that will make up the 41-ton, five story high precision telescope.

The antenna positioner will be a truly South African-built initiative. Due to the unique 13.5 metre offset Gregorian design, careful consideration was taken in selecting South African fabricators that would not only be able to deliver high quality parts and components, but also sustain a production schedule that will allow the project to maintain the required delivery and installation schedule.

At least 75% of the components making up the MeerKAT antennas

will be manufactured in South Africa, but several industries in SKA Organisation partner countries around the world are also making crucial contributions. The global technology collaborations are bringing cutting-edge know-how and many years of antenna experience to the MeerKAT project, and are designed to transfer expertise to the South African industry partners. For example, the first set of reflector panels, as well as the first receiver indexer and sub-reflector were manufactured abroad, but the remainder of these will be made locally.



The full MeerKAT array will consist of 64 identical receptors (antennas with receivers, digitisers and other electronics installed). Connected by 170 km of underground fibre optic cable, the 64 receptors will operate as a single, highly sensitive astronomical instrument, controlled and monitored remotely from the MeerKAT control room in Cape Town.

## The global technology collaborations are bringing cutting-edge know-how and many years of antenna experience to the MeerKAT project, and are designed to transfer expertise to the South African industry partners

MeerKAT's 64 antenna foundations, consisting of close to 5 000 m<sup>3</sup> of concrete and more than 570 tons of steel, were completed over a period of seven months, with the final foundation poured on 11 February 2014.

TSR were contracted to supply the majority of the slew rings for the antennas. Initially the SKA Organisation contracted a company in Germany and TSW to supply one slew ring each. You could say they were 'testing the waters' with TSW, but after viewing what TSW could manufacture, with the quality and precision that they needed, TSW were awarded the rest of the contract. This consists of the remaining 62 slew rings and the associated engineering components.

The backbone of the antenna positioner is a 25-ton backup structure that consists of 6 000 different components that have to be perfectly aligned to ensure the structure can accommodate the highly accurate and sensitive reflector panels for MeerKAT. Tricom Structures was selected as the fabricator and after months of

design meetings, the trial assembly of the first backup structure was successfully completed in Pretoria.

The pedestal and yoke are connected by the high precision, low tolerance azimuth bearings (slew rings). Considering the lifetime requirements of the antenna positioners and the amount of slew and tracking movements the telescope will perform on a daily basis, SD engaged with a bearing supplier that can deliver a slew ring that meets these stringent requirements.



### Efficient Engineering awarded contract

The pedestal and yoke section of the antenna positioner was awarded to Efficient Engineering. Their extensive experience in heavy steel fabrication combined with their ability to provide the integration services of the pedestal, made Efficient Engineering the perfect subcontractor for these complex structures.

The company has been contracted to manufacture all 64 pedestal and yoke sections which is estimated to take a period of 36 months and needs to be completed by the end of 2016.

Predominantly S355 (300WA) plate material and some 304 stainless steel was used in the construction of the structures. Sub-arc welding of pedestal sections using column and boom, as well as GMAW (hand) and a large amount of CNC machining with very tight tolerances was needed.

Each pedestal and yoke section is eight metres tall and 2.5 metres wide at the base, and they weigh approximately 12 tons without the backup structure.

Astronomy teams from around the world have signed up to start using MeerKAT as soon as 16 of its receptors have been commissioned (around June 2015). The full array should be doing routine science observations by the end of 2017.

For further details contact Efficient Engineering on TEL: 011 928 4800 or visit [www.efficient.co.za](http://www.efficient.co.za)

# Celebrating the life of Mario Ostacchini

It is with great sadness that I have to report on the sudden and untimely passing of Mario Ostacchini on 24th September, a few days before Mario would have celebrated his 68th birthday. A larger than life character, Mario was one of the most well respected and liked personalities in the machine tool industry in South Africa, having worked in the industry for over 40 years.

But more importantly he was a very proud man with a great sense of humour, a devoted husband and father to Gina and his stepchildren Kevin and Wanda. He lived a fulfilled life with the motto of the first to give and the last to take uppermost in his mind, and was happiest when he had the opportunity to entertain clients and friends.

Born in London, UK on the 30th September 1946 to a Welsh mother and Italian father, Mario was the eldest son of three boys. Mario is survived by his wife of 23 years Marietjie, his children and brothers John and Peter, who both reside in the UK.

Not known to many, Mario was an accomplished drummer and played in a band in the UK for a number of years before



immigrating to South Africa in the early 1970s. Mario's love for music is reflected in his collection although he did mellow to the jazz sounds later on in life.

Prior to his arrival in Johannesburg, Mario had already joined the metalworking engineering industry having taken up a position with B. Elliott and Co, a UK manufacturer and sales organisation of machine tools. During this time with the company Mario would drive a company truck loaded with machines around Europe, and give demonstrations to prospective buyers.

Mario took up a position with this company in South Africa, before moving on to other machine tool sales companies such as Production Machine

Tools (PMT) and Koppel Gilbert, both of which had ties to B. Elliott and Co, The Marwin Group and Yamazaki Mazak Corporation when the company had its own office in South Africa.

It was during this time that Mario met long time friend and business partner Alan Meredith and they decided to open their own company Victor Machine Tools, which later

## Marking solutions help to reduce pump part counterfeiting

The instability in the mining industry over the past few years has led to an increase in the theft of tools, minerals and assets, which poses problems for pump manufacturers supplying the mines with equipment and accessories. In addition, there has also been a marked increase in the theft and counterfeiting of related quality parts.

Pump manufacturers typically secure data or rating plates to the casing of a pump to assist with identification, but Johannesburg-based Traceability Solutions general manager Kyle Parker believes it is not sufficient anymore, as the rating plates are easily copied or removed, resulting in compromised quality.

Rating plates typically contain information such as the product or serial number, component number, date of manufacture and company logo. They are used to assist with identification when replacements are done under warranty and to ensure that worn parts are replaced with quality ones from the original manufacturer.



Parker says that despite this, there is an increase in the use of non-original parts, which may lead to higher costs owing to more maintenance during the life cycle of the pump.

He states that some manufacturers are now going beyond the legal requirements for data plates by using a two-dimensional (2D) Data-Matrix barcode to identify their components. The 2D code consists of a series of dots, which are only readable using specialised scanners and thereby assists in eliminating the need for human readable text on the parts. These codes are generated using computerised Dot Peen technology or a laser marking system and can

became Victor Fortune South Africa, in 1986. The pair made a great success of the company selling high precision CNC lathes, machining centers and plastic injection moulding machines manufactured by Victor Taichung in Taiwan. Mario continued to represent the company and service the clients in the coastal areas during his retirement.

Mario remained with the company until he retired to the North Coast of Kwa-Zulu Natal with Marietjie. They owned a B&B for a couple of years before finally moving to Simbithi Country Club Estate in Shakas Rock.

Forever the entertainer, Mario was well known for his love of fine wine and good food. His passion became a way of life for him, and those that were lucky enough to experience his cooking would comment that he should have been a cordon bleu chef rather than the best dressed machine tool salesman in South Africa.

Mario's other passion in life was golf and for a long time he was a member of The Nomads and Springs Golf Club. He was no mean golfer as well, getting down to three handicap at one stage. While strolling the fairways he took to bird watching and as a result could hold an authoritative conversation on most bird species.

Rest in peace Mario. We will all miss you, especially your cheerful greetings and ability to make us laugh, no matter what the situation. His lifetime of dedication and self-sacrifice serves as a monument to the exemplary man he was. His humility, integrity, and hard work continue to inspire those who knew him. And there are many in the metalworking industry. ■

contain up to 1 000 characters, depending on the size of the code.

“These codes have historically been used for ‘track and trace’ applications, inventory control, resolving service-related issues and implementing stock control measures in the pump industry, but are now also being used for quality control and production management in the pump industry.”

Manufacturers are using the technology to save a large amount of data into these codes, such as batch numbers, serial numbers, part numbers and date codes, among others.

“Due to the fact that these 2D codes are not easy to duplicate without the aid of a computerised marking system, these codes are successfully preventing the counterfeiting of parts and reducing the implications of damage caused by identification plates being removed, and manufacturers losing all identification and traceability of the part,” says Parker.

Traceability Solutions provides a number of products that are able to mark the various materials found in the pump industry, ranging from soft plastics through to hardened materials. Many pump and pump-part manufacturers are using Traceability Solutions’ products in order to help their customers to easily identify the correct and original replacement parts for their installed pumps.

“These marking solutions assist in reducing the frequency of repairs by ensuring that the client uses the correct replacement parts, thus increasing uptime and saving on long-term costs,” Parker states.

For further details contact Kyle Parker of Traceability Solutions on TEL: 011 704 4744 or visit [www.tracesol.co.za](http://www.tracesol.co.za) ■

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*The port of Ngqura is the heart of the Coega industrial development zone*

## CDC plans decade of investment in metals beneficiation at Coega industrial development zone

The Coega Development Corporation (CDC) has announced ambitious plans for the expansion of metals beneficiation initiatives and metals sector investments in South Africa through its newly unveiled 2014-2024 metals cluster strategy, which it hopes will attract R28 billion in local and foreign investment to the Coega industrial development zone (IDZ) over the next ten years.

According to Dr Ayanda Vilakazi, CDC's head of marketing and communication, beneficiation initiatives presents one of the rarest opportunities for South Africa to continue sustainable growth of its economy beyond mining.

"Our metals clusters strategy is aligned to Department of Trade and Industry (DTI's) Industrial Policy Action Plan (IPAP), the Beneficiation Bill and government's long term National Development Plan (NDP) that provides focus and clarity for the country's minerals industry to develop mineral value chains and the expansion of beneficiation initiatives in the country," Vilakazi said.

Approximately 2 000 hectares, or 20 % of the IDZ's total land surface, have been earmarked for ferrous and non-ferrous metal industrial activity. The CDC also estimates that 8 198 direct and 19 853 indirect jobs can potentially be created for the South African economy.

According to Sadick Davids, CDC metallurgy business development manager, several metal sector and mineral beneficiation projects are progressing well in the Coega IDZ with a "healthy investment pipeline".

"The manganese smelter, electro-mechanical component manufacturing plant, composite manufacturing and steel manufacturing of rail components will be converted in feasibility study stages in the next year, and these projects

are valued at US\$ 1.2 billion."

"Several projects worth US\$ 118 million are currently in funding stages, and include an iron ore plant, steel rolling mill and steel tube manufacturing plant."

"We have also received letters of intent from investors for a steel manufacturing plant and a manganese smelter collectively valued at US\$ 712 million."

Davids also said Agni Steels SA, a high-tech US\$ 36 million smelting facility went into pilot production and will be moving towards full production later this year.

"We will intensify investor relation activities and are eager to pursue steel, stainless steel, rolling-mills, manufacturing, ferro-chrome, ferro-nickel and ferro-manganese smelting projects over the next 10 years," he said.

Davids believes the inbound and outbound value adding logistics infrastructure remains an important strategic enabling support area.

"Partnerships and engagement between government, private sector and the community is crucial to further improve South Africa's competitive position as a world-class location for sustainable manufacturing, metal sector investments and mineral beneficiation," Davids said.

Earlier this year CDC made history as South Africa's first IDZ which attracted double digit investments to South Africa in one year, and plans to maintain the pace through metals beneficiation, and it remains bullish over investment attraction to the Coega IDZ.

"The South African government's Special Economic Zones Act (2014) has introduced a host of new tax incentives, reduction in red tape and labour productivity-enhancing mechanisms that will drive metals sector investment and investor interest for the country," said Dr. Vilakazi. ■

# New scrap metals policy criticised

Fresh amendments to the policy on scrap metals will not remedy long-standing viability issues in the sector since the Department of Economic Development introduced measures a year ago to curb the exports of waste metal, according to a report in Business Day. This is the view of industry players commenting on new amendments published in September.

Non-Ferrous Metal Industries Association chairman Bob Stone said the amendments did not improve the operations of firms in the sector. "In fact, they have the potential of making the situation worse for the beneficiation industry," he said.

Existing policy allows local buyers of scrap metal such as foundries, mills, minimills and secondary scrap processors to get it at a preferential price of 20% below the international spot price that South African exporters can get for ferrous and nonferrous waste metal.

The policy will remain in place for the next five years and will be reviewed again in a year's time.

However scrap merchants have blamed foundries for not making valid offers to purchase scrap in an effort to frustrate their exports. Foundries have meanwhile blamed merchants for finding ways to inflate the preference price.

The International Trade Administration Commission (Itac) said the new amendments "consolidate" all the amendments made to the initial policy guidelines published in August last year.

Certain definitions were added to clarify concepts such as

what a valid offer entails. "As the price preference system has only been in force for one year, it is a bit early to make any conclusive judgment on its impact," Itac said in response to questions. "The intention of the commission is to conduct an impact study a year from the latest amendment to the guidelines." ■



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# ArcelorMittal South Africa upgrading plate mill to expand role in wind energy sector

The South African branch of multinational steel manufacturer ArcelorMittal has plans to increase its presence in the wind energy sector by expanding production of the heavy plates needed for wind towers.

**A**rcelorMittal South Africa has over the last few years fulfilled a pivotal role in the wind energy sector by providing high-strength structural steel for wind towers and concrete-reinforcing bars for foundations. The company is now preparing to grow this part of the business by working in partnership with all tower manufacturing facilities in South Africa.

These facilities include DCD Wind who commissioned their facility in Coega industrial development zone recently which has the capacity to produce 110 towers per year, and Gestamp Renewable Industries (GRI) who is in the process of constructing a wind tower manufacturing facility in Atlantis in the Western Cape. This facility will have the capacity to produce 150 wind towers per annum.

As part of ArcelorMittal South Africa's strategy to increase supply of the very heavy plates required by wind towers,

the company is also in the process of finalising the upgrade of its Plate Mill to produce plates of up to 11 tons of steel. This upgrade is planned for the fourth quarter of 2014 and the production of heavier plates will commence from January 2015.

This project will not only enable the company to increase throughput, but also to increase market share by reducing the need to import these heavy plates.

"At the same time ArcelorMittal South Africa is undergoing discussions with some of the major international wind tower OEM's like Nordex, Siemens and Vestas to supply steel for more wind farms in rounds two and three of government's renewable energy initiative," adds Jan Kotzé, Product Manager for Plate & Renewable Energy Projects at ArcelorMittal South Africa.

Round one of the wind energy programme to supply 634 megawatts (MW) of wind energy was initiated in 2013 and will reach completion in 2015.

This round involves building eight wind energy farms across the Eastern and Western Cape.

These include Dassieklip Wind Energy, Metrowind; Van Stadens, Hopefield Wind Farm (Saldanha); Noblesfontein; Red Cap Kouga Wind Farm; Oyster Bay, Dorper Wind Farm; Queenstown, Jeffrey's Bay Project and the Cookhouse Wind Farm.

Round two of the wind energy programme, comprising of seven wind energy projects, is currently underway and will see 565 MW of wind energy generated upon completion of the project.

"ArcelorMittal South Africa's role in round two of the wind energy programme is to supply steel for 20 wind towers to a Vestas Wind Farm called the Grassridge Wind Energy facility situated in the Eastern Cape. The total requirement for these towers was 3,000 tons of steel where ArcelorMittal South Africa have provided 2,200 tons and the remaining 800 tons have been imported from Gigon in Spain," adds Kotzé.

Round three of the wind energy project to produce 787 MW of wind energy, targets seven projects and will reach completion post 2016.

The provision of wind energy projects forms part of the Government's Integrated Resource Plan (IRP) which aims to supply a total of 3,725 MW of renewable energy by 2016 and 17,800 MW by 2030. South Africa has fair wind potential, especially along the coastal areas of the Western and Eastern Cape, and is a prime location to implement wind energy which forms part of the government's renewable energy strategy to manage electricity usage and reduce the use of coal as an energy source.

"Steel is used to create more than 80% of the components required to build wind turbines. Valued for its strength, flexibility and durability in the field, steel is also 100% recyclable, making wind energy truly renewable," concludes Kotzé. ■



**Existing wind towers can use up to 180 tons of heavy plate per tower**

# Copper theft: Government looks to tackle problem

**W**hile the ongoing theft of copper cable continues to cost the economy billions of rands a year, government says it has placed tightening laws to deal with the problem high on its agenda.

"The high prevalence of cable theft, in particular copper theft, and its consequences, has become a major concern throughout the metros and towns," said Cooperative Governance Minister Pravin Gordhan.

In a written reply to a parliamentary question, he said theft of the metal from public infrastructure "costs the economy billions of rands".

Reports suggest copper cable theft is costing the country between R5 billion and R16 billion a year, with tens of thousands of instances of the crime taking place in South Africa's economic heartland, Gauteng.

In his reply, Gordhan did not put any figure on the extent of

the problem.


"The state security department would provide the extent of the problem in due course, not only in metros, but throughout the country."

He said his ministry, together with justice and correctional services, state security, and public enterprises, as well as the SA Police Service, had formed a working group to identify and make proposals to deal with the matter. Current legislation did not adequately address the problem.


"It only imposes obligations on dealers in second hand goods and provides for various prohibitions. The discussion of the working group has placed the issue of the legislation dealing with cable theft high on the agenda."

Gordhan said particular attention was being paid to the Second Hand Goods Act as an instrument, which deals with the possession of the cable once it has been stolen, to also deal with the actual stealing. ■






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## Aerosud Holdings and Industrial Development Corporation announce strategic alliance

**Aerosud Holdings are involved in the development of the South African designed AHRLAC (Advanced High-performance Reconnaissance Light Aircraft). The prototype recently completed its maiden test flight**

Leading South African aerospace company Aerosud Holdings has announced that it has formed a strategic alliance with the Industrial Development Corporation (IDC), which sees the IDC take a 26% shareholding in Aerosud Holdings. The IDC was not previously a shareholder of Aerosud. It had previously only financed industrial development for the company since 1997.

At the same time, Aerosud Holdings also announced that South African private-sector defence group Paramount had increased its shareholding in the aerospace company to 27%. The existing shareholders have about 29% and 6% has been allocated to the current and new management. The remaining 12% of shares will be allocated to an employee trust, defined as a BEE trust. This will enable the company to be a BEE level four by next year.

Aerosud Holdings has two subsidiary companies, the wholly-owned Aerosud Aviation, and the African NDT Centre, in which the South African enterprise holds 50%. The other 50% is owned by a subsidiary of European airliner manufacturer Airbus.

Following an international tender process, in November 2013 Aerosud Holdings was awarded a contract for the manufacture of a variety of parts and assemblies for the new Airbus A400M Military Transport Aircraft. The company was successful despite the tough competition from established aerospace suppliers.

This achievement was on the back of its earlier selection for two production packages for the new Airbus A350

commercial airliner, the rapid growth of production volumes for its existing single-source contracts for parts manufacture for the Airbus A320 family, and having just been awarded the fourth contract renewal for the manufacture of parts and

assemblies for the similarly successful Boeing 737 aircraft. Aerosud is now well positioned for substantial growth of its production capacity, skills profile and associated facilities. Aerosud is heading towards producing in excess of 1.4 million parts and assemblies per annum for Airbus, Boeing, and their Super Tier One Suppliers Spirit Aerosystems (Europe and USA) and Labinal, which even by International standards is considered substantial.

Aerosud is now heading towards a turnover of R1 billion per annum within the next two years, and with an order book of around R5 billion, will be increasing its employment beyond the current number of 850 engineers, technicians, aerospace artisans and skilled machine and process operators. It has already embarked on further expansion of its production facility, which includes further investment in machine equipment and facilities for its specialised aerospace manufacturing processes.

Aerosud will continue to strengthen its long term sustainability and its relevance to a growing client base by further investment in new technologies and manufacturing processes.

For further details visit [www.aerosud.co.za](http://www.aerosud.co.za)



*Inside the Aerosud factory*

# MJH Machine Tools opens Gauteng branch

**A**fter years of operating 'long' distance New Germany, KwaZulu Natal machine tool sales company MJH Machine Tools has decided to open a branch office in the Gauteng area.

"Our client base is stretched throughout South Africa, with agents representing us in Johannesburg, Port Elizabeth and Cape Town. We have decided to build stronger relationships with our customers in Gauteng, North West and Limpopo, as well as neighbouring African countries. To do this you need to be in a position to react quickly," said founder and owner Martin Haslam.

"This is one of the main reasons for extending our reach. In the future we will be able to respond to existing and potential clients needs more quickly especially in the area of servicing and maintaining their machines. The office will be operational from October 2014 and is situated at Unit E11 Gensec Park, Herman Street, Route 24, Meadowvale."

"The long term plan is to have a showroom where we can demonstrate the latest technology, employ an experienced sales staff team and service technicians."

MJH Machine Tools was established in 1986 as a supplier of CNC machine tools and offer a wide range of CNC machining centers, lathes, surface grinders, wire cut EDMs. More recently

the company has added plastic injection moulding machines to the portfolio of products that they offer.

Some of the brand names that MJH Machine Tools represents includes Akira Seiki CNC machining centres, CTek CNC milling machines, Excetek wire eroding or wire cut machines, Microcut CNC flatbed lathes and machining centres as well as Haixing HXF plastic injection moulding machines.

"Whether it's general engineering or mass production MJH will have the right machine to suit your needs. Our prices are competitive and machines are normally available ex stock," said Martin.

For further details contact MJH Machine Tools on the Johannesburg number 0100050633 or KZN number 031 705 7514 or visit [www.mjhmachinetools.com](http://www.mjhmachinetools.com)



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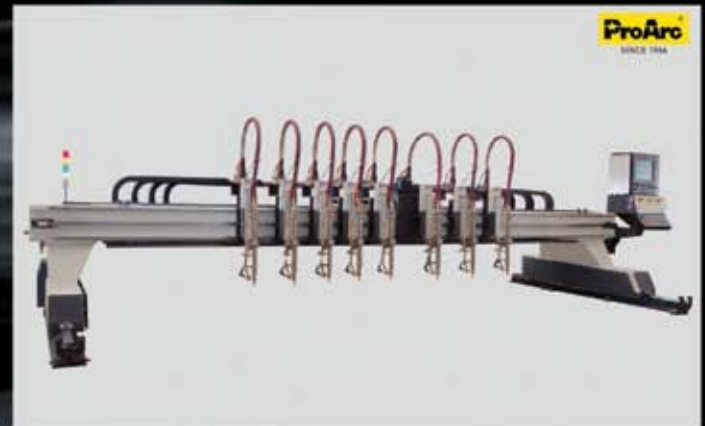
### Welding positioning

- Turning rolls
- Column and boom
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- Etc.



### Plasma cutting machines

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- 2D or 3D Bevel
- Pipe cutting
- Plasma and oxyfuel combination
- Hypertherm consumables



### Oxyfuel cutting machines

- CNC cutting
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**LIND SA Automation** has its roots deeply set in the Southern Africa steel industry. We proudly boast with a team of experts having CNC cutting machine, welding automation experience and much valued and respected longterm customer relationships dating back to the 1980's.

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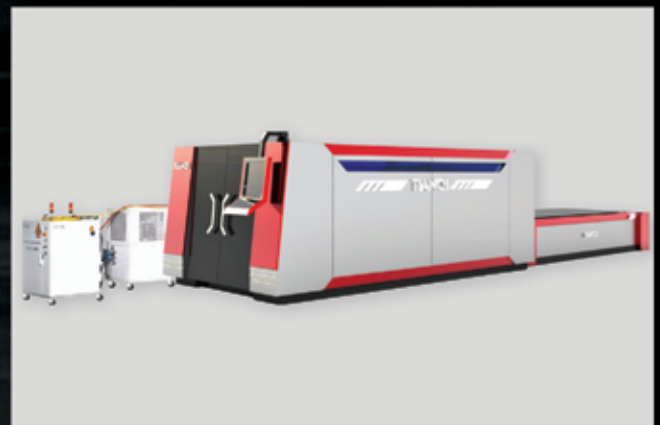
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# W.D. Hearn diversifies product line

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CNC machine tools are the benchmark for the industry. Renishaw help you to better understand the benefits that probing can bring to your business, and in most cases reduce set up times by up to 90%. Time spent manually setting work piece positions and inspecting finished product is better invested in machining and Renishaw's probing systems eliminate costly machine down-time and the scrapping of components associated with manual setting and inspection. Your machines are only profitable when they are producing good components."

"In future we will be stocking the full range of Renishaw OMP40, OMI-2T and OTS systems and TS-27R tool setters along with spare pins and spare styli."

"We sent our sales staff and technicians for training at the Renishaw headquarters in Wotton-under-Edge, Gloucestershire, UK in May so that they are better equipped to understand the technology and offer solutions to our clients."

"Renishaw probes are used by companies worldwide to increase productivity and improve component quality. They can be specified as standard equipment from most leading manufacturers, or a simple installation allows probes to be retrofitted to machines already installed," said Renishaw's Sales Manager Nick Penfold, who is responsible for South Africa.

"W.D. Hearn is very active in the South African market and represents a number of leading manufacturers with whom we have meaningful relationships. We look forward to supporting them in this market," continued Penfold.

W.D. Hearn has offices in Cape Town, Port Elizabeth, East London, Durban and Johannesburg. The company represents Siemens, Nikon Metrology, MAG USA, FFG Group (Rambaudi, Jobs, Sigma, Hessapp, Huller, Boeringer), Flow Waterjet, Leadwell, Starrett and Sanco, selling and servicing a range of CNC machine tools, measuring equipment, engineering accessories, and woodworking machines and accessories. More recently the company has been appointed to represent the Swiss manufacturer of high end CNC equipment, Tornos. W.D. Hearn was established in 1937.

Renishaw is a global leader in metrology with core skills in measurement, motion control, spectroscopy and precision machining. They develop innovative products that significantly advance customers' operational performance - from improving manufacturing efficiencies and raising product quality, to maximising research capabilities and improving the efficacy of medical procedures.

Renishaw's products are used for applications as diverse as machine tool automation, co-ordinate measurement, metal 3D printing, gauging, Raman spectroscopy, machine calibration, position feedback, CAD/CAM dentistry, stereotactic neurosurgery and medical diagnostics. In all of these areas they aim to be a long-term partner, offering superior products that meet customer needs both today and into the future, backed up by responsive, expert technical and commercial support.

For further details contact W.D. Hearn on  
TEL: 021 534 5351 or visit [www.wdhearn.co.za](http://www.wdhearn.co.za)

**W**estern Cape based machine tool and related equipment supplier has diversified their product line with the signing of a approved distributor agreement for the machine tool product division of Renishaw PLC, at the recent Machine Tools Africa 2014 exhibition.

"Our focus is on sharing ownership of the installation of equipment and technology into metalworking and general engineering companies in both application and through the expertise of our skilled technicians. Over the years we have built extensive product knowledge within the W.D. Hearn group in application, service and repair," said WD Hearn MD Ray Cooper.

"As a result we have carefully chosen hi-tech suppliers from Europe, America, Taiwan and Korea to cover virtually all job shop and production requirements. We are continually evolving our product line to match the lightning fast evolution of technology in today's competitive world."

"This includes a range of CNC machines, metrology and measurement equipment, accessories, tooling, conventional machines and related equipment. As inventors of the technology the Renishaw machine tool probe systems for

# Interim court order preventing metals industry wage settlement extension

The Labour Court in Johannesburg has granted an interim court order preventing the Metal and Engineering Industries Bargaining Council (MEIBC) from requesting Labour Minister Mildred Oliphant to extend the wage settlement agreed to by the Steel and Engineering Industries Federation of Southern Africa (Seifsa) and trade unions, in July, to non-parties.

The National Union of Metalworkers of South Africa (Numsa) and five other unions had accepted Seifsa's offer of a 10% wage increase for the lowest grades for three years; however, the National Employers' Association of South Africa (Neasa) had not signed the agreement, arguing that the increase was at an "unsustainable level" and would cause the metals and engineering industry to decline even further.

Neasa had, subsequently, initiated a still-ongoing lockout of workers who had participated in the strike.


"The court's decision is a major victory for Neasa's bid to stop the parties from having the Minister extend this detrimental agreement to the whole industry," Neasa CE Gerhard Papenfus said.


In its Labour Court application, Neasa had asked for the MEIBC management committee to be declared invalid, as well as for all decisions taken by this committee relating to the request to the Minister of Labour to extend the wage settlement agreement to be declared invalid.

"At the time of signing this agreement, Seifsa's CEO admitted that Seifsa reluctantly agreed to the agreement and agreed that it will lead to heavy job losses. Seifsa, with the help of primarily Numsa, the MEIBC and the Department of Labour, now attempts to extend this agreement to

the rest of the Industry. This is simply ludicrous. We owe it to the metal industry to prevent this from happening," Papenfus said.


The date to hear arguments to enable the court to make a final decision was set for November 4. ■



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# BAE Systems Land Systems South Africa launches new armoured vehicle



**B**AE Systems Land Systems South Africa (LSSA) has launched the latest addition to its RG series of mine protected vehicles, the RG21. The new RG21 combines the battle proven protection of the RG series – in service in many theatres around the world – with the maturity of a commercially available host vehicle driveline, running gear, and electronics.

Starting from a commercial vehicle, the host vehicle has been evaluated and customised with the support and experience of Iveco Defence Vehicles, resulting in a cost-effective vehicle with enhanced maintainability and reliability.

"It's about affordability, supportability and protection," explained LSSA business development and communications director Natasha Pheiffer. "We saw a gap in the market. MRAP (mine-resistant ambush protected) vehicles are often big and heavy. This is lighter (it weighs 14 tons) with a less aggressive look, useful in peacekeeping. Unlike our other vehicles, it does not have a monocoque hull. It is based on a full Iveco truck chassis."

The RG21 will cost less than half the price of a standard 4 x 4 MRAP. The use of the Iveco chassis will mean that there will be no need for specialised support for the vehicle. The global Iveco network can be used instead.

"Iveco is widely represented in Africa, South America and other regions that we are interested in," said Pheiffer.

The company undertook a lot of market intelligence studies before launching the project. Concept studies were launched some 18 months ago and the computer-aided



*Inside the vehicle*

layout due to the interchangeable mounting rail system. The wide range of mission interfaces available in the vehicle allows end users the opportunity to reconfigure the base vehicle for different roles with kits. The RG21 also features superior protection levels of 21kg under any wheel and 14kg under the hull.

Designed for cost, manufacturability, and supportability, the RG21 will provide the optimum level of off-the-shelf capabilities of proven mine protected vehicles. The vehicle incorporates a high level of design maturity due to the large amount of commercial off-the-shelf (COTS) items used in the driveline and powertrain. The COTS equipment in the RG21 also allows for the use of a wide range of commercial service centres around the globe.

The RG21 will come in armoured personnel carrier (APC),

**“Protecting soldiers is the top priority for any force and doing so cost effectively provides a great benefit to our customers. The design concept used means this new vehicle can be manufactured and supported by local partners in any country,” said Johan Steyn, managing director of LSSA**

design process commenced at the start of this year. The first prototype was on display at AAD 2014 where it was launched to the media. The vehicle has been tested at South Africa's Gerotek vehicle test complex and has passed all its safety tests.

“Protecting soldiers is the top priority for any force and doing so cost effectively provides a great benefit to our customers. The design concept used means this new vehicle can be manufactured and supported by local partners in any country,” said Johan Steyn, managing director of LSSA.

The RG21 provides users with a wide range of configuration options including availability in left or right hand variants. The vehicle provides users with a modular interior

***Pictured left: BAE Systems Land Systems South Africa (LSSA) has launched the latest addition to its RG series of mine protected vehicles, the RG21***

ambulance and command versions. The first prototype is an APC, but it will be converted into an ambulance. The second prototype will be a command vehicle, which requires greater electrical power and will have a different seating layout.

"We're not aiming at Stanag (North Atlantic Treaty Organisation standards) certification, because that will drive up costs. But if a client wants it, we can do it," said Pheiffer.

Currently, the RG21 can be fitted with remote weapons stations carrying machine guns of up to and including 12.7 mm calibre. The recoil forces from larger calibres have not been tested yet.

"I do really believe that this could go global, but certainly our markets would include Africa and South America," said Pheiffer.

For further details contact Natasha Pheiffer, BAE Systems on TEL: 011 747 3381

# Denel announces launch of indigenous South African regional aircraft SARA

Denel's plans for local passenger aircraft receive high-level support.

**D**enel Aerostructures' CEO Ismail Dockrat has unveiled a model of the company's SARA (South African Regional Aircraft) project at the recent AAD 2014. SARA has been initiated to provide an aircraft that can be used on short, low-density routes, in particular to link destinations in areas where the road and rail infrastructure is poor.

The seeds of the project were planted around two years ago, as Denel looked for projects that could harness the expertise residing in the company and its suppliers, while at the same time ensuring that new skills were developed. SARA is seen not just as a Denel project, but as a wider scheme to develop South African infrastructure and technical capability as part of the national objective. Following market analysis, Denel identified the point-to-point small aircraft niche as being underserved, with a gap in the market for a modern 15- to 24-seat aircraft.

Denel has begun an 18-month feasibility study, which could lead to the funding required to initiate the development phase. The latter is expected to last from five to seven years, and the aircraft could enter service in around 2020-21. The company has stressed the need for input from other South African stakeholders.

Denel's research showed that while a lot of the world with major hubs will be using larger Aircraft, the rapid growth in air travel on the African continent will create a demand for a new generation aircraft that can fly point-to-point.

"There is a clear need to link regional centres that are not currently accessible for passenger flights. There is proven capacity within the local aerospace industry to deliver on an indigenous South African aircraft, as demonstrated with the success we achieved in the development of the Rooivalk helicopter," said Ismail Dockrat

Dockrat stressed that SARA is not a Denel airplane. "It is not a Denel project, it is just Denel led," he said. "We will work with others and will be looking for risk sharing or financial investment from international companies. Perhaps even other OEMs, from around the world."

Denel says that supporting their view for a new regional airliner is that current aircraft on the market utilise 20 year old technology, cannot fly above the weather (due to being unpressurised) and are limited by certification category constraints.

"We want something well designed, fuel efficient, economically viable and safe for passengers," Dockrat explained. "We believe there is space in the market, perhaps competing with road taxis."



*A model of the SARA which was unveiled at AAD 2014*

Initial indications are that SARA, with a four-abreast seating configuration, would be pressurised, have a maximum take-off weight of 8,400 kg and a range of 2,600 km.

SARA has emerged as a twin-turboprop aircraft with a range of approximately 1,500 nautical miles and maximum take-off weight of 8,400kg. A high-wing configuration has been adopted, with the wing mounted above the fuselage so that the cabin remains unobstructed. The fuselage has a 'wide-body' look that allows four-abreast seating in a 2+2 layout.

The wide fuselage also helps the natural laminar flow around the aircraft, making it very fuel-efficient. In addition to the passenger version, Denel envisages a cargo version that can carry three LD2 pallets, and a Combi version that can carry one pallet and 12 passengers.

Three different configurations are presently being considered: full passenger (maximum of 24 passengers), combi (12 seats and one LD2 container) and full cargo (three LD2 containers). No consideration has yet been made to military configurations or uses.

Among the challenges will be to design a 15-passenger aircraft that will be able to take off and land on short airfields in regional centres that are currently not served by scheduled flights.

As well as filling a niche in the market, SARA is also important to South Africa's human resource development. Many of the country's leading technical institutions and government agencies are in the SARA team, including universities. Around 10 post-graduate students are already focusing their efforts on the project, and ultimately it is expected to contribute greatly to the number of new engineers and technicians in the South African aerospace sector. ■

# UK wants African SMEs to bid for UK defence work

South Africans could see a boost to opportunities to sell to the UK defence industry, and UK small and medium size businesses are also being encouraged to look to Africa, according to the regional director of the UK's Trade & Investment department, (UKTI).

Sophie Lane, the regional director covering Africa, Europe and the Middle East for the Defence and Security Organisation (DSO) was at AAD and said the UK was keen to develop two-way partnerships.

"The idea is getting a lot of ministerial support. We have opened up the information so that African companies can get accredited to access the bulletins that list the tenders. This is now free of charge to those companies. Accreditation can be requested online at [www.contracts.mod.uk](http://www.contracts.mod.uk)," said Lane.

"Ideally we would hope that we can link South African companies to UK SMEs as well. Industrial cooperation means that lessons can be learned and different competencies can be explored."

"There are things that the UK firms are doing that can have direct applications to African operations – and at the same time there are lots of things happening in South Africa that would benefit the knowledge and markets in the UK."

At a government to government level, greater cooperation is also on the cards.

"We went through a strategic defence review and now South Africa has its review. There are lessons to be learned. I think there are many ways we can build capability and also each grow our businesses."

Lane said her organisation was looking for a couple of things: to build the UK's understanding and relationship with the South African military and government, and get an understanding of the capability requirements of the 2014 Defence Review so the UK defence industry can work out what it can offer towards that.

"There's opportunity for British industry at a time when South Africa is talking about increasing defence spending. We are looking for partnerships with South African industry regionally and locally. We want South Africa to be a partner, not just a supplier."

Lane emphasised that the UK is interested in both the defence and security sectors. UK companies with specialities in border and maritime security, cyber security and counter poaching have a lot to offer South Africa, as some of their capabilities are unique and can be integrated into South African products, she said. She noted that some of these are big growth areas for the United Kingdom, which is putting a lot of energy and effort into developing them.

For further details visit [www.contracts.mod.uk](http://www.contracts.mod.uk)



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# Paramount Group announces further acquisitions and launches robotics initiative

South African defence company Paramount has announced the acquisition of the military business of Aerosud and the creation of a new corporate division called Paramount Robotic Systems.

**A**erosud Aerospace was part of the South African private sector Aerosud Holdings group and comprises the group's military aerospace operations and activities, except for the manufacture of components for the Airbus A400M military airlift aircraft and the Eurofighter Typhoon fighter. The business will now be called Paramount Aerospace.

The two companies are familiar with each other, with Paramount holding a 27% shareholding in Aerosud Holdings. Aerosud will continue as a separate company designing, developing and manufacturing parts, components and fittings for Airbus, Boeing and other aircraft manufacturers.

Paramount previously acquired another local aerospace and defence company, Advanced Technologies & Engineering (ATE), now Paramount Advanced Technologies. Paramount and Aerosud Holdings have also cooperated on the AHRLAC (Advanced High performance Reconnaissance Light Aircraft) project.

"The creation of Paramount Aerospace strengthens the group's position in the military aerospace sector and further consolidates the local industry," said Ivor Ichikowitz, Executive Chairman of Paramount Group, as the Group celebrates its 20th Anniversary.

"As the Group has rapidly developed and diversified, each of the individual businesses are in the process of being streamlined and integrated to consolidate their unique innovative and manufacturing skills and create synergies between them, thereby building an indigenous defence group with multiple capabilities that will make a greater contribution to global security and stability, while transferring skills and creating new high-value jobs in Africa."

In line with Paramount's focus to re-establish a viable ship building capability in South Africa and following on its controlling interest in Nautic, Paramount Group has announced the acquisition of Veecraft, a major Cape based shipbuilding company with an order book of R250 million. The combined Naval business will have an order book in excess of R1 billion and grow to a workforce of 350 employees. Paramount can now offer navies vessels ranging in length from eight to 90 metres and even 100 metres.

## Paramount Robotic Systems

Separately, Paramount is forming a standalone robotics division to develop autonomous capabilities with airborne,



**The Paramount Group launched its latest mine-protected vehicle, the Mbombe, at AAD 2014. The Mbombe is a flexible battlefield tool for both conventional, asymmetric warfare, counter terrorism and peacekeeping missions. It can be configured as an armoured personnel carrier or as highly effective armoured fighting vehicle mounting a heavy machine gun or automatic cannon/ remote weapon station**

land and sea applications.

"The next generation of innovation in the global defence and security sector will be in the field of robotics. As warfare becomes more complex and the political risk associated with loss of life becomes more sensitive, both sophisticated and developing defence forces alike are investing in reducing the number of soldiers exposed to dangerous environments. In light of this we are pleased to announce the establishment of Paramount Robotic Systems – a consolidation of Paramount's mission systems, unmanned and robotics capabilities across land, sea and air. This division will consolidate Paramount's robotics research and development activities as well as the organisations' current unmanned programmes."

The Group will invest in excess of R100 million in research and development funding, bringing to market some of the most exciting innovations in the autonomous defence space.

"There is no defence company locally that has a robotics division like ours. We are now focussed on developing unmanned robot systems that take the human element out of the equation. This is a first for Africa and the Southern hemisphere, and we are very excited to be forging the way to making South Africa world leaders in the robotics industry," said Ichikowitz.

Meanwhile, Paramount also has launched production of composite main rotor and tail rotor blades for the Mi-24 and Mi-17 helicopters. It is also the Group's intention to produce composite blades for other helicopters in the near future.

For further details visit [www.paramountgroup.biz](http://www.paramountgroup.biz)



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# DCD Protected Mobility unveils its new Oribi medium sized utility truck

**D**CD Protected Mobility unveiled its new Oribi medium sized utility truck (MUT) at the Africa Aerospace and Defence (AAD) exhibition in Pretoria recently. The vehicle is designed for both the civil and military markets and has already attracted interested customers.

The vehicle is designed and manufactured as part of a joint venture between medium to heavy duty vehicle customisation expert Histomart and DCD Protected Mobility to have a balance between off-road capability, on-road comfort and operational efficiency.

DCD Protected Mobility general manager Andrew Mears said the Oribi offers a significant level of terrain clearance and an unrivalled ability to climb steep terrain. "It can operate on rails, tar roads and in severe off-road conditions. These features make the vehicle ideal for numerous

industries; ranging from military and security, to agriculture, construction and mining."

The Oribi can carry a three-ton payload and cover rough terrain with a maximum summit angle of 35 degrees, a maximum surmountable slope of 45 degrees, a front approach angle of 48 degrees, a rear approach angle of 44 degrees and a maximum fording depth of 900 mm.

Histomart executive director Idah Mabaso said the Oribi is particularly well-suited to the harsh African terrain. "With a fully innovative cab structure, the Oribi is built on sheer strength, with the principle of driver and passenger protection from the ground up. The Oribi is mechanically advanced, highly robust, and is considerably more agile than common off-road vehicles," she stated.

"In addition to being the perfect troop carrier, the Oribi can also be configured into a pilot rescue vehicle, a logistic support vehicle, a command and control vehicle, a reconnaissance vehicle, a water and fuel bowser vehicle, as well as an armoured vehicle for multiple uses."

Mears said the Oribi is a Unimog at half the price. He hopes the South African National Defence Force will select the vehicle for things like border patrol.

For non-military uses the Oribi can be used as a cargo vehicle, a field service vehicle to an ambulance, a fire fighting vehicle, or as a riot control vehicle. Commercially, it can be converted into a game viewing vehicle, a camper vehicle, a utility vehicle, as well as a leisure vehicle for towing a boat.

Rob King, Managing Director at DCD Group, said the concept for the vehicle came about when DCD realised the need for a support vehicle – its Husky armoured vehicle is highly mobile, but the support vehicles behind it weren't.

Mears said the Oribi truck range would be grown depending on demand, and may be fitted with 6x6 and 8x8 drivetrains in the future. Much of this demand is expected to be from the civil sector but Mabaso said most interest generated so far has been from military users. She said that there is interest in 200 vehicles and that production can begin in six to eight months. Most potential customers are from Africa.

"I anticipate demand to rise, as the Oribi is an all-in-one utility vehicle solution to numerous industries across the vast and rapidly developing African market, which requires a reliable offering that achieves optimal performance, even in the most hostile environments," she said.

Mears noted that the Histomart and DCD Protected Mobility joint venture was initiated in mid-2013. The Oribi is adapted entirely in-house at the DCD Protected Mobility production facility based in Johannesburg.

DCD Protected Mobility also launched its Testudo Multi-Track Machine (MTM) at AAD, which is designed for reconnaissance missions, mapping of unsafe areas, mine surveying and search and rescue operations.

For further details visit [www.dcd.co.za/defence/DCDProtectedMobility](http://www.dcd.co.za/defence/DCDProtectedMobility)



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# IDC, China sign iron and steel deal

Confirmation of \$4.5 billion, two-phase Limpopo steel mill investment.

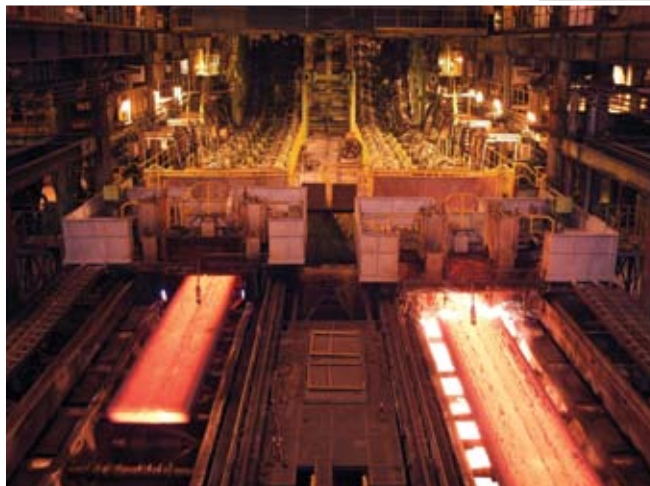
The South African Iron and Steel Project took a significant step forward recently with the signing of a Memorandum of Understanding (MOU) between the Industrial Development Corporation of South African (IDC) and China's Hebei Iron & Steel Group (HBIS) from Beijing. The two will co-operate on developing the project.

The IDC completed a pre-feasibility study for a new low-cost iron and steel facility based on available low-cost resources in South Africa. The total estimated cost for phase one of three million tons is estimated at \$2.7 billion, with the second phase of two million tons of products estimated at \$1.8 billion, bringing the total cost of the two phases to \$4.5 billion for five million tons.

It is reported that the initial phase would produce flat and long products similar to those



*The inside of a steel mill*



already available in the South African market. However, the intention during the second phase was to produce steel products and grades not currently manufactured domestically.

Hebei will partner with the corporation to conduct a detailed feasibility study for a greenfield steel plant. The Minister of Economic Development, Mr Ebrahim Patel welcomed the signing of the MoU.

"We need to increase the level of competition among local producers of steel, to help lower the prices of this critical input into industrialisation and avoid monopoly pricing. This agreement is a first step to look at the feasibility of a steel project that the IDC is working on," said Patel.

"If successful, it can help to expand capacity, process local minerals in South Africa, support sustained economic growth, job creation and youth employment. Local industry needs competitively priced inputs."

Early this year, the IDC and a Chinese consortium led by HBIS, with three other groups, including China Africa Development Fund (CAD), acquired Palabora Mining Company for \$373 million, leading to a sound business partnership between the two and forming the basis for increased co-operation, according to IDC chief executive Geoffrey Qhena.

"This MOU is specifically to undertake and complete a detailed feasibility study. Once this process has been completed – and depending on a positive outcome of the study – we intend to commence with the establishment of the South African iron and steel company," he said.

The demand for iron and steel in South Africa and surrounding markets is growing, creating huge potential for the development the industry. In addition, the continent is showing good growth potential, driven by investment in infrastructure, energy, mining and construction – all of which is expected to drive steel demand in the medium to long-term.

South Africa offers access to competitively priced raw material input, good infrastructure and within a rapidly growing region. "We expect this project to benefit from the projected market growth. The facility will meet world class operational, environmental and safety standards while meeting the financial returns expected by the shareholders," said Qhena.

"Growth in South Africa's downstream steel processing and fabrication industry is currently constrained by uncompetitive steel prices and unavailability of certain steel products. The downstream steel processing sector is highly labour intensive and thus has the capacity to create significant jobs. It is our view that an efficient steel making facility is capable of supplying steel at competitive prices to stimulate growth in the downstream steel sector."

HBIS brings to the table expertise and a proven ability to operate steel making facilities. The IDC has the necessary knowledge of the local and regional operating environment. CAD Fund, which already has presence in the region, is also expected to provide financial support.

HBIS is a large, state owned iron and steel group company established by the Hebei provincial government. Its principal business is the production of iron and steel. It has interests in natural resources, manufacturing, finance and logistics. ■

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# Aerospace sector flying high – Denel Aerostructures and Aerosud sign agreement with Airbus

European aircraft manufacturer Airbus has signed a memorandum of understanding with the two South African firms in what was hailed as a boost for the local aviation industry.

**A** day before the Africa Aerospace and Defence 2014 exhibition and show Denel Aerostructures and Aerosud signed a landmark collaborative agreement with Airbus that aims to strengthen the competitiveness of South Africa's aerospace industry and allow it to bid for more work packages from global manufacturers.

Under the new relationship, the three companies will jointly develop industrial projects which will enable the South African companies to jointly bid for larger scale manufacturing work packages on Airbus commercial airliner programmes than they have been able to secure independently of each other.

"What we sign here is not a single order or a short term result, it is a roadmap to develop the industry over the next ten years. The agreement covers the joint bidding of contracts and the development of niche technology which should make South Africa a key destination not just for the aerospace industry but

research and development as well," said Simon Ward, Airbus Vice President International Cooperation.

"Since 2005 Airbus has committed R4 billion in work packages and research projects to South Africa," continued Ward.

Aerosud produces components for Airbus' civil range, including the A320 and A350, as well as the military A400M while most of Denel Aerostructures' activities are directed towards A400M component production. The company recently received additional work packages to make ISO container locks and tailplane components for the A400M as Airbus continues to expand its industrial footprint in the country.

The agreement will also see the three partners identify and develop research and development projects aimed at giving South Africa's aerospace industry a unique and competitive advantage as part of its long-term development strategy. Airbus already has many research programmes in place with South



*Most of Denel Aerostructures' activities are directed towards A400M component production. The company recently received additional work packages to make ISO container locks and tailplane components for the A400M*

African institutions like the CSIR and universities.

"This new approach is in line with the National Development Plan, and further supports Denel's business strategy as it opens the door for us to participate on the world's most modern and successful commercial airliners, while at the same time reducing our dependency on military programmes," said Ismail Dockrat, CEO of Denel Aerostructures.

"Aerostructures wants to be Airbus' supplier of choice for its aircraft like the A320, A330, A350 and A380," said Dockrat.

Dockrat said the signing of the agreement marks a major step forward for the South African aerospace industry and is another vote of confidence as South Africa is broadly acknowledged as having one of a few aerospace industries outside Europe that can provide critical aircraft parts.

"The new work that may flow from this agreement will inevitably lead to the growth of the broader manufacturing sector and enable our two companies to bring in smaller companies into our supply chain. We are most certain this alliance will bring jobs, skills, growth and enterprise to South Africa."

Denel is also ready to produce components for the future maritime surveillance and light transport aircraft that will be acquired for the South African Air Force (SAAF).

Although the agreement is with Airbus, Dockrat said that

**"By working together under this new alliance, Aerosud Aviation and Denel Aerostructures will be able to take on larger work packages that are mutually viable, economically sustainable and with lower risk"**

"Everybody in the industry recognises that the company has to compete as well as collaborate and that Airbus accepts we will do business with other companies."

"By working together under this new alliance, Aerosud Aviation and Denel Aerostructures will be able to take on larger work packages that are mutually viable, economically sustainable and with lower risk. Until now our separate structures and economies of scale have never permitted this. We are highly complementary operations. There is very little competition between us. This meant that the two South African companies, one state owned and the other a private sector company are in a good position to form an alliance," said Aerosud Holdings Chairman Dr Paul Potgieter.

Aerosud currently makes around 1.4 million aircraft parts a year with a turnover of \$65 million but this is set to grow to \$100 million in the next few years.

"Today Airbus forms a very large portion of our manufacturing portfolio," he said, as Aerosud delivers 40 shipsets a month on all contracts and Airbus A400M work amounts to nearly 40% of its contracts.

Aerosud has been increasing both production capacity and offering new capabilities to meet demand and compete for new contracts. Part of the expansion process was to invest in a CFRTP press for making plastic parts. Future investment will be in digital manufacturing and additive layer manufacturing, expanding its manufacturing facility in Pretoria and adding new CNC equipment.

Aerosud is also involved in the first pilot laser additive manufacturing plant that uses titanium powder to produce parts, with the CSIR. It is envisaged that the pilot plant will start producing components in the near future. ■

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# Leaving inspired - Machine Tools Africa 2014

Resurrection of stand-alone machine tool exhibition mooted.

Local and international companies exhibited their products at Electra Mining 2014 and the popular Machine Tools Africa exhibitors showcased their products in Hall 9.

Electra Mining Africa is ranked as the second largest mining show in the world and it offers both exhibitors and visitors the opportunity to make valuable business connections and a forum for discussing the latest developments, technologies, trends, products and services in the mining, construction, industrial and power generation industries.

The show had a remarkable display of new and emerging technologies that will continue to revolutionise the manufacturing world. These innovations, coupled with traditional equipment, offer solutions to all manufacturers who seek increased productivity and lower cost.

I think it's impossible to deny that this edition of Machine Tools Africa (not its official name) was the most dynamic and inspiring that I've seen in years. Virtually every exhibitor I spoke to was in a positive mood and was pleased with the number of quality visitors and serious enquiries that they now have to follow up.

The technology displayed by the exhibitors - from fibre lasers to 5-axis CNC machines - shows that the industry is willing to compete on the world stage. It was evident in the

we always seemed to time it as the economy was on its way down or struggling. This placed a huge burden on exhibitors as the majority would import expensive equipment to display the latest technology available and then could not sell the equipment after the exhibition," explained Savides.

"Over the last decade we have co-exhibited on the Electra Mining exhibition platform, which takes place every two years, and have been located in Hall 9. But this has now reached saturation in terms of space available. The result is that a number of companies have not been able to book space and we have discussed resurrecting our own exhibition."

"It is still early days but looking forward we are planning a three year cycle and tentatively we are looking at 2017 to hold the first exhibition, under the auspices of the MTMA."

## **Metalworking/Manufacturing technology exhibition with a difference**

"Metalworking or manufacturing technology" — as the machine tool industry prefers to be known - is difficult to define as an industrial sector. It involves much more than machine builders and distributors, job shops (machining operations), and component parts producers within larger organisations. Purchases of CNC machines and cutting tools are one indicator of the market's economics, but how should

"As an industrial sector "metalworking or manufacturing technology" has its hooks into numerous sectors including automotive, aerospace, power generation, rail and transport, mining, high-tech manufacturing and general engineering".

rapidly growing presence of automation in just about every manufacturing process and the emerging uses of software, data and information for a variety of applications on the factory floor.

However, what was noticeably missing was any equipment in the field of 3-D printing (additive manufacturing). Maybe we are slow to embrace the technology that is a buzz worldwide.

## **Resurrection of stand-alone machine tool exhibition mooted**

During the exhibition it was announced that the MTMA (Machine Tool Merchants Association of Southern Africa) intends to resurrect the stand-alone machine tool exhibition. The MTMA last held an exhibition for its members and other companies associated with the industry in 1997. Held every four years, the exhibition name was derived from the year it was held i.e. Machine Tools 97. The history of the exhibition dates back to the 1970s when it was first held at the Milner Park Showgrounds, Johannesburg before moving to the NASREC Expo Centre.

"The exhibition ceased purely for economical reasons," said Paul Savides, current Chairman of the MTMA.

"We held the exhibition every four years in February and

we evaluate for other critical factors, like purchases of raw material, software and automation, and auxiliary technologies and services."

"As an industrial sector "metalworking or manufacturing technology" has its hooks into numerous sectors including automotive, aerospace, power generation, rail and transport, mining, high-tech manufacturing and general engineering. Today's machine shop or fabrication centre includes a number of machines capable of creating a precise, useful workpiece. Modern metalworking processes, though diverse and specialised, can be categorised as forming, cutting, or joining processes and includes cutting, forming, metal removal, tooling, materials, robotics, CAD/CAM, quality assurance, cleaning and finishing, and other plant operations."

"The plan is to encompass all the relevant industry suppliers, associations/institutes and engineering companies that are associated with the metalworking/manufacturing technologies industry."

"We are in the early stages of our planning and will make further announcements as we firm up on dates, logistics and costs. We also intend to make the exhibition as international as possible and a venue for the rest of Africa to visit," said Savides.



**Carlo Danielis of MTool, Deon Kleyhans of Ferguson Rentals, Corrie Danielis of MTool and Stefano Molinari of Tiesse Robot**



**Jacques Prinsloo of Software Development with Lewis Mackenzie of Haas Factory Outlet**



**Brian McCallum, Thomas Zackey, Eddie Harris and Jan Barnard all of Craft Machine Tools**



**Nico Hugo, Pieter and Anske Claassens, all of TH Machine Tools, with Ozgur Huneroz of Sahinler and Christo Hugo of TH Machine Tools**



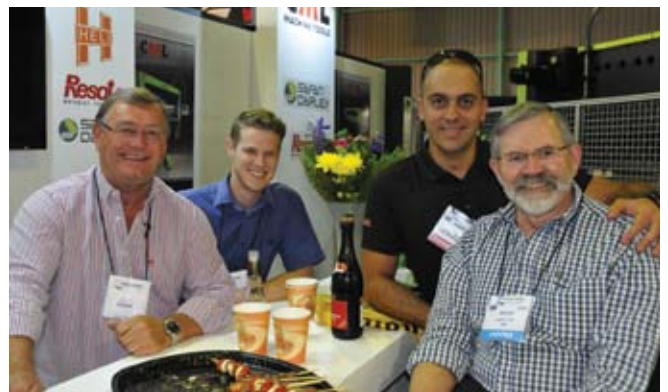
**Marius Maas of Daliff with Graeme Cooper of WD Hearn Machine Tools**



**Themba Stoffel, Ockert Zaayman, Nigel Morrison, Colin Morrison and Kagiso Matjie, all from Pilot Tools**



**Mike Hankin, Sascha Elstner and Michael Enste, all of Kennametal**



**Martin Haslam and Dale Lazenby both of MJH Machine Tools, Luis Torres of CML Machine Tools and John Clay of KWE**



**Mark Haslam and Ricky Lazenby, both of MJH Machine Tools, Arthur Kempen of Safan, Roberto Leoni of Heli Engineering and Marco Maiocchi of Euromac**



**Dave Brown of Cambro, Graeme Cooper of WD Hearn Machine Tools, Derek Howitt of Alba Precision, Mike Clayton of WD Hearn Machine Tools, Nick Penfold of Renishaw, Ray Cooper of WD Hearn Machine Tools and George Mills, a pensioner and retired gentleman**



**Carlos Figueiredo of MTP, Vladimir Vagner of Tos, Carl Barkhuizen of MTP, Miroslav Berecky of Tos with Richard Gladwin and Bart Pieterse, both of MTP**



**Gavin Homan of Wam Metals, Mark Whittington of Flexilube, Carlos Vieira and David Whittle, both of Wam Metals**



**Nigel Brown of Wam Metals with Paul Linaker of Flexilube**



**Mike Lee of Puma Machine Tools, Wayne Lin of Chiao Sheng Machinery, Anthony Lezar, Thys de Villiers and Konstantin Malinov, all of Puma Machine Tools**



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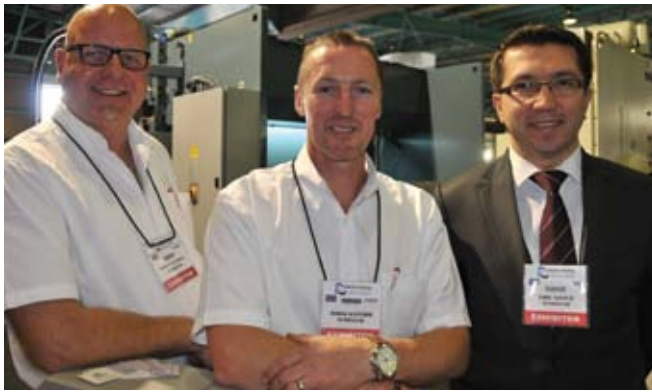
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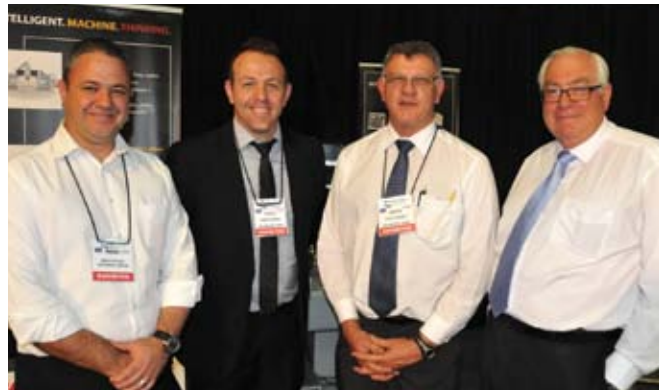
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**Robert Milne, Justin Theunissen and Hannes Pretorius, all of Mecad Systems**



**Emmel Kambouris, Hennie du Toit and Siebert Schoeman, all of Elkana CNC Services**



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**Henrik Steensen of Hypertherm and Ludwig Oellermann of Microstep South Africa**



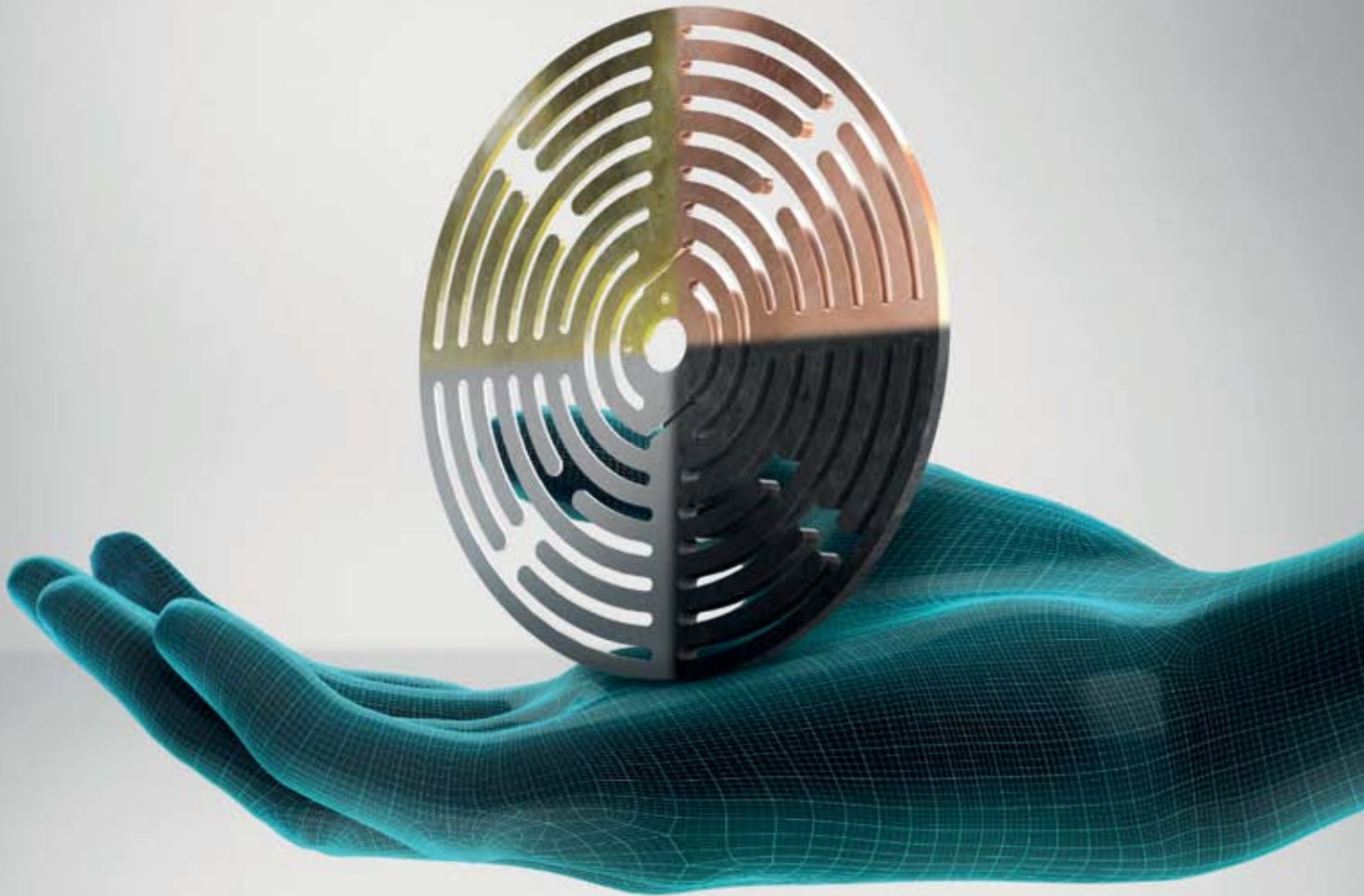
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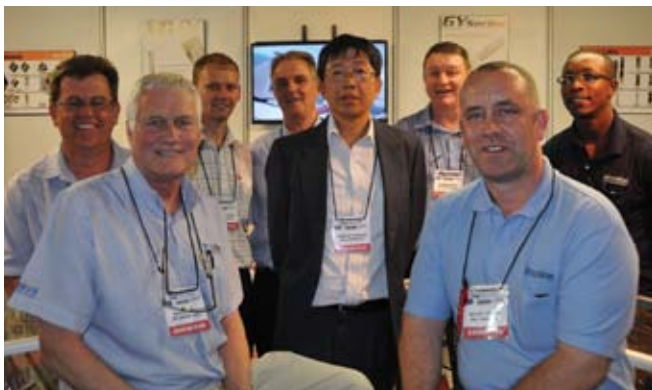


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**Standing: Alvise Crozzolin (Gasparini), Martii Versa (Prima Power), Roberto Gonzato (Omera), Franco Tallarico (Talmac), Roberto Costantino (Prima Power), Ferdinando Fusca (Rolleri) and Rami Alsharif (Gasparini). Seated: Federico Bonfogo (Faccin), Frank Waldner (Talmac), Stephen Goodyear (Talmac), Murray Forlong (Kinetic) and Malcolm Moriarty (Talmac)**



**Jim Aikman and Rickey Naidoo, both of CIP**



**Guy Pinker and Etienne Schepers, both of Mill Right Engineering Supplies**



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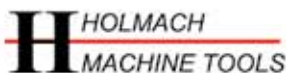
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# Doing it the Weir way

Heavy Bay foundry in Port Elizabeth takes shape.

**W**eir Minerals Africa has procured their castings from local foundries or imported them from Weir Minerals foundries located elsewhere in the world since 2006. This arrangement worked well in some respects, however, it also had its drawbacks. First and foremost, the company did not have sufficient control over the quality of material used or the processes employed at the contracted local non-Weir Minerals foundries. The obvious problems such as overall quality of castings, erratic delivery and lead times would frustrate the company no end. Importing castings from Weir Minerals in-house foundries abroad added unnecessary shipping costs, and the logistical problems made it very difficult to support response times required by the Weir Lean Manufacturing systems that were in place. Weir China was considered as an alternative but this would still have resulted in prohibitive lead times, and potentially the loss of local employment opportunities.

As a result of the above mentioned, as well as the commitment to customers in Africa and in particular South Africa, it was decided by Weir Minerals to invest in the manufacturing capacity of the African organisation. One of the first initiatives targeted by the company was to commission a greenfields foundry at its South African



**Management at Weir Minerals Africa: Rob Fawcett Sales, Marketing and Engineering Director (Africa and Middle East), Gavin Dyer Regional Managing Director, Johan de Lange Regional Financial Director (Africa and Middle East) and Chris van Rensburg, Plant Manager Heavy Bay Foundry in Port Elizabeth**

operations in Isando, Gauteng.

The opening of the foundry took place in November 2006 with an initial investment of

R12 million. The introduction and location of the foundry was ideal in that it would fulfil all Africa's needs and also be of sufficient capacity to export medium size castings, whilst creating jobs and supporting the local economy. An additional bonus was that the company already had a large machining shop on site.

Subsequent growth in the company led to more investment in the Isando foundry, and today this facility produces in the region of 15 tons of castings per day comprising of 70% white irons and the remainder is a mixture of SG and cast iron. This however, is only a fraction of the castings required by the organisation.

## **Weir Minerals Africa**

Weir Minerals Africa specialises in the delivery and support of a wide range of minerals equipment solutions including pumps, hydrocyclones, valves, dewatering equipment, wear-resistant linings rubber hose and sheeting, screening machines and crushers. Its broad portfolio of highly engineered core mill circuit products finds application in critical customer processes and is backed throughout the product life cycle by high levels of aftermarket support.



**A view of the main foundry at Weir Heavy Bay Foundry**

To help companies in the mining industry achieve increased operating efficiencies and throughput, Weir Minerals Africa supplies high-performance equipment, including the latest materials science has to offer. The 'Total Cost of Ownership' theme underpins the design of all equipment with emphasis on issues around engineering, hydraulics and the range of materials, as well as ease of component change-out, repair and

maintenance. Its comprehensive portfolio of high performance pumps and superior minerals processing equipment is designed and manufactured to meet the highest specifications – for robust and reliable use in the world's most demanding environments.

All this is backed up by a service and support programme – including installation and commissioning, condition monitoring and plant optimisation, emergency repairs, on-site or in-shop



**A component that has been shot blast**

servicing, customer training and asset management expertise.

A massive focus on boosting its service business has produced service models that enhance customer experience through a greater understanding of their operations. Customer service is also elevated by extensive ongoing investments into Weir Minerals Africa's manufacturing and service infrastructure, and by adopting a highly flexible approach to

designing service packages for customers.

Weir Minerals Africa places value on collaboration to gain a better understanding of the markets it serves, as well as the specific technology and support requirements of customers in these markets. This reflects Weir Minerals Africa's commitment to designing and manufacturing the most appropriate solutions for customers, a philosophy that also enhances its own and supplier operations. ▶

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### Investment in Heavy Bay foundry in Port Elizabeth

The benefits of the investment in the Isando foundry had an immediate impact. Customers have the assurance that quality issues are resolved at source; there has been a reduction in lead times and a dramatically improved response time to customer demand.

However, with respect to the profile of the Isando foundry, Weir Minerals Africa was still limited to the size of casting manufactured. The Isando foundry relies on two furnaces, each with a capacity of two tons per melt. Not operating in a dual melt situation has restricted the foundry to producing castings up to two and half tons per casting, and today Weir Minerals Africa offer product that can weigh up to 42 tons once fully assembled.

Individual castings can weigh up to 18 tons.

In line with its policy of controlling the quality and service for its supply chain, Weir Minerals Africa looked at investing in facilities that would be capable of not only producing the company's requirements from an African perspective, but also having sufficient capacity to supply other businesses within the Weir Group globally, as well as offering a large, heavy casting service to third parties.

In May 2013 an agreement was reached with John Exley, a prominent businessman in Port Elizabeth to acquire the plant, equipment and buildings of Xmeco Foundry, a specialist large casting foundry based in Markman Industria Township, Port Elizabeth, South Africa from the Xmeco Group.

### The Weir way

Xmeco Foundry has been manufacturing large, heavy castings in SG, high chrome and various alloyed steels since the early eighties. Run as a family owned business until its acquisition by Weir Minerals Africa it supplied general engineering castings, including pump components to Weir.



**Weir Heavy Bay Foundry installed a new 20 ton an hour continuous mixer supplied by Lauds Foundry Equipment**

The foundry has also been one of the few foundries in South Africa to undertake the supply of large bells and these can be heard ringing throughout South Africa.

The foundry has been supported on the machining side by an associated company, Xmeco Heavy Engineering, which is located on the same site. This arrangement is still in place thus ensuring that all castings leaving Weir Heavy Bay foundry will be machined to customer requirements.

The Weir Heavy Bay Foundry occupies a 5.2 ha site that is situated less than eight kilometres away from the Port of Ngqura, the heart of the Coega Industrial Development Zone.

"The site is big enough to allow us to develop the facilities to cater for future planned growth and market demand," said Rob Fawcett, Sales, Marketing and Engineering Director (Africa and Middle East) for Weir Minerals Africa.

"However since we acquired the Heavy Bay Foundry just over a year ago we have concentrated on transforming the facility to align with the Weir way."

"The Weir Group has a system of engineering excellence which includes global best practice sharing, Design Centres of Origin and Group specific Environmental Health and Safety



**One of the melting stations at Weir Heavy Bay Foundry in Port Elizabeth**



**The patternshop has installed a Haas GR-712, which is a gantry-style router with 3 683 x 2 159 x 279mm travels and a 40-taper milling head**

Management systems which adhere to both local and international codes of best practice."

"Quality is a central philosophy at Weir Minerals and its quality strategy has brought about a fundamental shift from quality control to quality assurance. While quality control calls for an inspection at the end of a process, quality assurance focuses on redesigning the elements of a process in order to ensure that the quality of the product is 100% when it reaches the customer."

"The focus is to continually introduce world class quality principles to the business. The quality strategy is applied to the total supply chain, from the supplier base to final delivery, and internal manufacturing Standard Operating Procedures are reviewed and updated regularly."

"The Environmental Health and Safety Management system that the Weir Group employs is equally important. The responsibilities of Weir leaders and managers in relation to creating safe working environments, is fundamental. Nobody working for Weir needs to be reminded of the critical importance of safe workplaces. But beyond that, continuously reminding ourselves of the important role we can each play as individuals in ensuring these safe workplaces to safeguard that colleagues, clients, suppliers and friends are not injured on a Weir site."

"While we have robust systems and processes in place to manage safety, what's equally important is the responsibility that we share in pointing out unsafe practices or acts whenever we see them. From top to bottom each employee is constantly reminded of the accountability and the understanding that it is their duty to implement improvements on a regular basis."

#### **The buy-in at the Heavy Bay Foundry**

"I was tasked to implement the Weir way at this facility and I can proudly say that we have had employee buy-in from the beginning. The biggest task has been changing the facility to one that complies with Weir's standards, which is no mean feat. This is ongoing, but we have now reached a point where our standards are being met, however we will not be content until everything is completed. Going forward it will be the responsibility of local management to implement all the identified changes - from infrastructure to the processes that we believe is necessary to ensure that Weir HBF becomes a best in class foundry."

"I will give you some examples that have transformed the foundry. Externally and internally most of the buildings have been upgraded. Polycarbonate sheeting has replaced small and broken windows thus allowing natural light throughout. All the power cables have been replaced and enclosed to adhere to regulatory standards. All walkways are now demarcated and clear signage has been erected. There are many other safety improvements that have been made like installing screens, railings and covers."

"Storage areas have been upgraded. The gas, flammable liquids and chemical areas have new compliant enclosures that, as an added bonus, have also contributed to efficiencies and cost savings."

"Even the sand silos and storage bins have been refurbished and now look like new. The dust extractor units have been upgraded to bag filter systems. And many other aspects throughout the foundry have been attended to."

"All the changes may be small individually, but collectively they have contributed to this facility's journey towards a world class foundry that provides customer confidence, both locally and internationally. While adopting and implementing our quality and environmental health and safety management systems, each employee goes through extensive training, ▶

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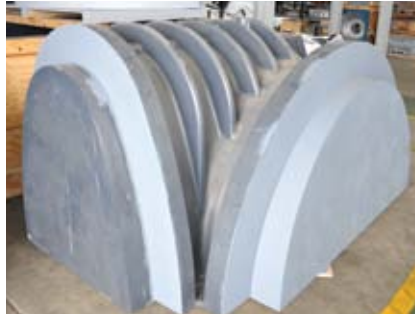
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**Weir Heavy Bay Foundry has its own coreshop**



**Weir Heavy Bay Foundry can cast large castings. This is one half of the pattern for a DN 1800 valve gate**



**All castings leaving Weir Heavy Bay foundry will be machined to customer requirements**

and comprehensive records are kept in each instance. This allows us to monitor and have traceability and accountability."

"To show our appreciation we have completely revamped the change room and ablution areas, and in September we inaugurated a new canteen in the name of the founder John Exley Snr."

#### **New equipment**

"Besides implementing all the safety, process and cosmetic changes, the manufacturing area has seen some investment. This included purchasing new equipment, upgrading and refurbishing existing equipment and generally organising the various areas to streamline the operations."

"Some of these changes included a new 20 ton an hour continuous mixer that has been installed by Lauds Foundry Equipment. Four new 20-ton driven moulding

tables have been installed in the large casting bay to significantly improve the production rate. A new 160kW Ingersoll Rand compressor has replaced 4 old piston-type compressors that are now museum pieces."

"We have one of the largest installed bases of Demag cranes in the Eastern Cape and the existing overhead cranes have now been serviced and are on a monitoring system for future services."



#### **A finished pump component**

we know exactly where they are in the storage area."

"A Haas GR-712, which is a gantry-style router with 3 683 x 2 159 x 279mm travels and a 40-taper milling head, has been added to this department. Its 10 000-rpm spindle and powerful 11 kW vector drive system provide the power for light machining and cutting. The machine, which was installed in September 2014, can cut and machine other materials. However, we have specifically purchased the Haas to assist in manufacturing new patterns and where necessary, refurbishing existing patterns."

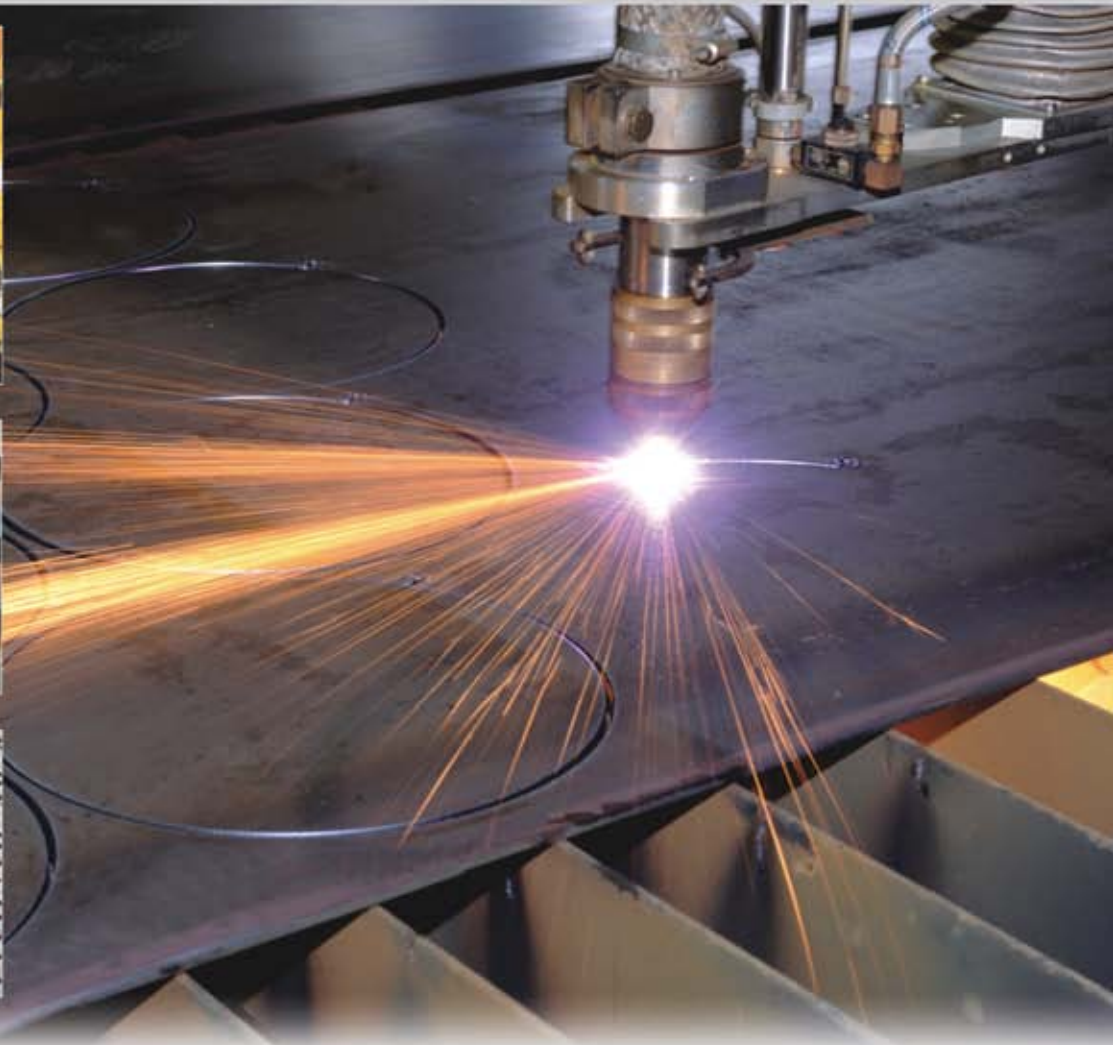
"We are busy moving certain of our furnaces in the melting department to make us more efficient with the workflow. The furnace controls have all been upgraded and we are looking at adding new furnaces to give us more capacity and efficiencies."

"The heat treatment ovens have also been refurbished, which included the control panels being upgraded."

"Prior to the acquisition, manual measurement and templates were used to



**Prior to the acquisition, manual measurement and templates were used to see if the castings were in specification. Weir Heavy Bay Foundry purchased two Romer 7-axis arms from Retecon Machine Tools, which have been integrated with an RSI laser scanner. Weir Heavy Bay Foundry are now able to deliver 3D scanning solutions for a variety of applications, use it for feature inspection to CAD, free-form surface inspection to CAD and reverse engineering. The Romer 7-axis arms are portable arm systems and this gives the company complete accuracy of measurements, no matter how complex they are**



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**The foundry has been supported on the machining side by an associated company, Xmecho Heavy Engineering, which is located on the same site**



**More castings waiting to be machined**

see if the castings were in specification or patterns were correct. This is critical in most cast components, including pumps. To ensure that our customers have access to the best quality, however, we purchased two Romer 7-axis arms, which are integrated with RS1 laser scanners. We are now able to deliver 3D scanning solutions for a variety of applications, use it for feature inspection to CAD and free-form surface inspection to CAD. These are portable arm systems which give us complete accuracy of measurements, no matter how complex they are.”

“We have made some minor improvements to the fettling department, including the installation of four small fettling booths, with future plans to purchase much larger booths.”

#### **New laboratory**

“Our metals sampling and testing department needed upgrading to the latest technologies. As a result we have completely rebuilt our laboratory, inside and outside, and added a host of new equipment. Taking centre spot is the new Spectro spectrometer. Amongst the other new equipment is a Struers Tegramin material preparation system for grinding and polishing of specimens.”

“To ensure that our quality systems are aligned across the company and with Group and Divisional policies, we will be 14001 and 18001 certified by the end of the year, with 19001 being implemented next year.”

“We now also have a seat of the Magmasoft casting simulation software, as well as Siemens NX design software

and a CAD/CAM package. This puts us in a position to offer clients design, simulation, casting and machining services for as cast castings from two hundred kilograms up to 20 tons – the complete value chain. Not many operations can offer that service.”

“Another big advantage of this foundry, and indeed one of the main reasons it was chosen as an acquisition target, is its proximity to the deep water Port of Ngqura. Typically, one of our clients in the Canadian oil sands business uses very large pumps and pump components, and a single pour for a component or part could be up to 20 tons. Being so close to a major port will help us achieve significant savings in logistics costs when exporting.”

“Currently we have enough capacity and capabilities to fulfil most of Weir Minerals Africa’s requirements within the target range of the two foundries, as well as to continue servicing external clients, no matter what their request. We currently produce up to 650 tons of castings per month, but intend ramping this up to over 1000 tons per month in the next three to five years.”

“During the whole takeover and the implementation of the Weir way, which incidentally goes further than the work environment, we have retained almost all employees at the time of acquisition. We have also reduced our scrap rate down to below four percent and are looking at improving that figure.”

For further details contact Weir Heavy Bay Foundry on TEL: 041 461 1407 or visit [www.weirminerals.com](http://www.weirminerals.com) ■



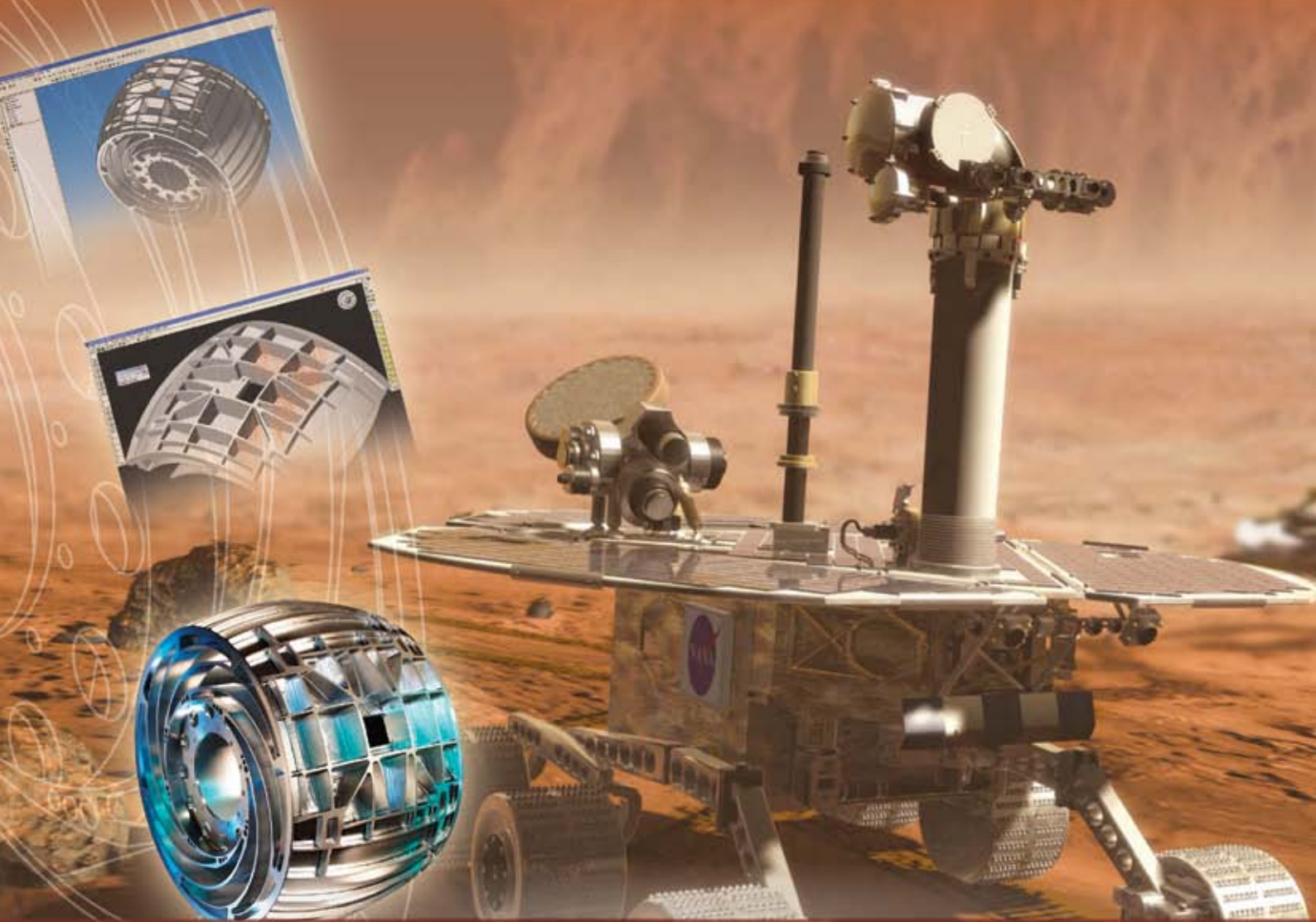
**A new Struers Tegramin material preparation system for grinding and polishing of specimens has been purchased for the laboratory**



**Taking centre spot in the laboratory is the new Spectro spectrometer**

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# Multitasking to increase your efficiencies

In the case of Strucmac, the company has built a job shop business based on flexibility and breadth. It's a business designed to handle parts, sub-assemblies or complete products for its clients.

In a multitasking operation, a milling cutter can machine a rotating workpiece. Combining milling and turning techniques has many advantages, but only relatively recently have multitasking machine tools allowed this process to display its full benefits.

Introducing multitasking in the manufacturing process can solve quality problems and substantially improve output. And highly productive machining using this method is possible with modern machines and when correctly chosen cutting tools are used.

For years, even with mass adoption of CNC technology, development of metal cutting machine tools has been done in a very traditional manner. Machining centers integrate rotating tools, both milling and drilling, while CNC lathes are developed to handle turning tasks. Looking for new ways to make the manufacturing process more efficient by reducing setups of a machined part, and eliminating the part's transfer from one machine to another led to the addition of a tool head with a rotary drive to typical CNC turning machines, thereby enabling turn/milling.

Modern multitasking machine tools now feature additional axes of head movement, advanced control systems, and upgraded software that allow these systems to perform the majority of machining operations with only one setting per workpiece.

Businesses that have someone that can multitask



**The new Skoda FCW 140 horizontal floor borer comes with a Siemens 840DSL control and an additional 60 ton rotary table for full simultaneous machining. Large components such as this gearbox housing for a drag line can now be machined by Strucmac. The machine was supplied by WD Hearn**

heading it up are generally businesses that thrive no matter what the economic climate. The energy and enthusiasm somehow filters down throughout the company from the individual. This scenario is more prevalent in an owner managed situation rather than in a large corporation or a public or state owned enterprise.

Strucmac CC, based in Elandsfontein, Gauteng, has founder Andre Hattingh to blame for being in a position where it offers a multitude of metalworking services and disciplines that makes it hard for a client to look elsewhere. Hattingh's attitude of 'multitasking' for the client has paid dividends over the years, and the increased services that have either been implemented in the last few years or are already past the planning stage, have put the company in a unique position.

Hattingh established his first business - Spares and Hardware Enterprises - just over 20 years ago. "I had been studying mechanical engineering but was impatient to start earning money and wanted to do something on my own. I started off at the bottom buying and selling nuts and bolts. I was not going to make myself into the tycoon that I envisaged, but it was the beginning of the formula that would lead me to where we are today," explained Hattingh.

"I had an old Isuzu bakkie and would run around all over the place. The business grew steadily but I was not satisfied with being a 'delivery boy'. I wanted to get into manufacturing something tangible. Something where we added value and offered a real service. In those days we did not have any fancy ▶



**Strucmac's owner and founder Andre Hattingh with his right hand man Ryno Bornman**



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**A new Leadwell V-60iT 5-axis machining center with a Siemens 828D control that has recently been installed by WD Hearn**

ideas about developing business plans, like it is today. You had a gut feel, you worked long and hard and you made it happen. This philosophy has stayed with me, and this is the discipline that I believe is essential to many successful businesses.”

“Strucmac, a name which comes from the words structural and mechanical engineering, was established in 1995 as a general engineering machine shop when we purchased a second hand turret lathe. We were a jobbing shop and were prepared to take on anything that came our way, or we sourced. This has changed now because we have specialised to a certain extent but not in a particular metalworking discipline. We still believe in being able to offer a client a complete one-stop service so that he does not have to take his components or products elsewhere to have them finished. I give my own example whereby I have to rely on someone else for my laser cutting services. We have decided to address this and will be installing our own laser next year.”

#### **New phase**

“It should be part of any shop’s strategy to identify areas for improvement, regardless of the size or speciality. This should be an ongoing exercise. We realised this a few years back, and embarked on a new phase in the company’s history whereby we are now all about bringing processes in-house so



**Strucmac are known for manufacturing new and refurbishing large components and sub assemblies**

as to accelerate delivery times while better serving our clientele. If a particular sub-assembly needs new pins and bushes I want to be able to make them in-house.”

“Of course implementing this strategy also means that costs are contained and this is a saving we can pass on to clients.”

“In the machining department we had always relied on our trusty conventional equipment. That was up until 2004 when we purchased our first two Feeler CNC lathes from Craft Machine Tools. This was the beginning of the new phase of the business – the CNC equipment expanded our capabilities and made our operations more productive.”

“However the lathe work restricted us and we made a conscious decision to go the milling route and purchase some CNC machining centres. By 2008 we had another four CNC machines on the floor, all of them Leadwells supplied by WD Hearn. Besides turning and milling operations we could now offer drilling work.”

“We now have five Leadwells on the floor and 16 CNC machines in total. Just installed a couple of months ago is a Leadwell V-60iT 5-axis machining center with a Siemens 828D control. The V-60iT is a new 5-axis model featuring a 630mm integrated tilting rotary table and a 26kW, 12 000 rpm ceramic/steel hybrid bearing spindle motor.”

“This is over and above the two Leadwell V-40L high speed linear way machining centers, the heavy duty Leadwell MCV-1500 box way vertical machining center with BT-50 and Siemens control, and the Leadwell LTC-35CXL M turning center with C-axis, live tools and 2 000mm turning length that were installed over the last 18 months.”

“By performing more services than generally found in a single discipline job shop, some of the business risk is spread over a group of jobs rather than just one. It has also cultivated customer loyalty.”

#### **The big test – large machines**

“Originally, much of our work came in for machining small to medium size components. This still accounts for a large portion of the business and hence the continuing investment ▶

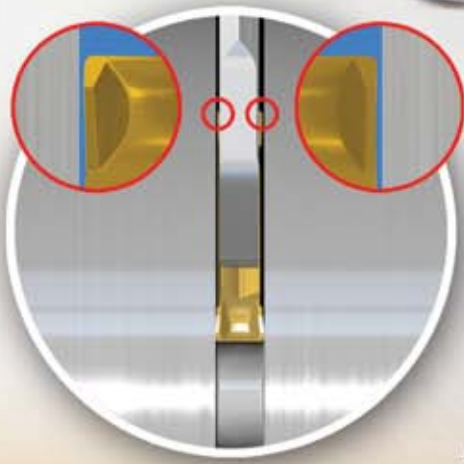


**Using a Renishaw probe components are checked for specifications by Strucmac**

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in the latest CNC equipment. However, with most of our clientele in the mining and construction industries we were getting more and more requests to manufacture and refurbish larger workpieces and components that in some cases can weigh many tons.”

“Large-part machining presents different challenges. You can define large-part machining as any component that is too heavy or bulky for a single human being to move the part to another location quickly, or too large to fit within the work zone of the most commonly available CNC machine tools. Parts such as these could apply to almost any industry, though aircraft, construction, power generation, mining and oil drilling are ready examples of industries that commonly have a need for very large machined parts. In large-part machining, much of the challenge has to do with performing as much of the work as possible in a single setup. Today five-axis or 3+2 machining is often required to let a machining center reach many of the features of the part in a single setup.”

“We invested in our first ‘large’ CNC machine in 2009 – a Sanco SDM 4225 L, a bridge type CNC double column machining center, supplied by WD Hearn. The machine has a table size of 4 000 by 2 000mm and can take a load of 12 tons. This was followed shortly by another large Sanco CNC machine, but this time a horizontal boring machine. The table size on this machine is 1 400 by 1 600mm and it can take a load of seven tons.”

#### **Big time machining – new Skoda CNC milling and boring machine**

“The Czech Republic manufacturer Skoda Machine Tools has gained recognition for building heavy duty lathes, milling



**The working range of the Skoda FCW 140 horizontal floor borer includes a spindle diameter of 140mm, which is large by any standards, a 10 000mm X-travel and 5 000mm Y-axis travel, but Skoda can build to customer requirements. The Z+W axis is 1 700mm, the Quill (W-axis) is 800mm and the Z-axis (RAM) is 900mm**

and boring machines. It is not often you get to order one of their machines, but it became necessary for us when we were asked to quote on some large sub assemblies for one of our existing clients.”

“The Skoda FCW 140 horizontal floor borer comes with a Siemens 840DSL control and an additional 60 ton rotary table for full simultaneous machining. The working range includes a spindle diameter of 140mm, which is large by any standards, a 10 000mm X-travel and 5 000mm Y-axis travel, but Skoda can build to customer requirements. The Z+W axis is 1 700mm, the Quill (W-axis) is 800mm and the Z-axis (RAM) is 900mm.”

“The main drive has a 40 kilowatt motor and the table load capacity is up to 25 tons. This is some machine and it has created a huge amount of excitement in the company.”

“The machine is large enough and open enough to handle everything that the company produces today. With its long-reach quill and rotary table, the company can now complete multiple machining tasks on large parts in one setup. Parts can be placed in one universal fixture without compromising access to all of the different compound angles that

are to be machined.”

#### **More than machining**

“While I have focused on the machining side of the Strucmac business, simply machining is not what the business is all about. Metalworking is traditionally divided into two main types of job shops. There are machine shops and fabrication/service shops. Increasingly, job shop customers are looking to work with fewer companies. They are driving a move toward integration of these two processes. To satisfy ▶



**Strucmac now have five Leadwells, all supplied by WD Hearn, on the floor and 16 CNC machines in total**



**Strucmac has a Sanco SDM 4225 L, a bridge type CNC double column machining center, supplied by WD Hearn. The machine has a table size of 4 000 by 2 000mm and can take a load of 12 tons. They also have another large Sanco CNC machine, but this time a horizontal boring machine. The table size on this machine is 1 400 by 1 600mm and it can take a load of seven tons. A new Sanco SHM-13040R horizontal borer and a new Sanco SHM-11025R horizontal borer will be installed shortly**

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**The profile cutting division includes a plasma cutter, a Mardicraft flame cutter and a Messer CNC flame cutter**

aluminium, nickel, steel and copper alloys along with cast iron. More importantly, we are now regarded as a shop that can offer full service sub-assembly work.”

**Growing, growing, growing - from job shop chaos to organisation**

After several expansions at its Atlas Road, Elandsfontein, Gauteng facilities Strucmac ran out of space to increase its engineering complex. A decision was taken to build, one that will see the company more than double the existing under roof space.

“We have always housed our flame, profile and plasma cutting facility offsite up the road in a 1 500 m<sup>2</sup> building. The purchase of the Skoda motivated us to develop the site, and we have now erected a 3 600 m<sup>2</sup> building with 30 ton crane capacity. The extra space that the new building has afforded us made us realise how chaotic it is in our existing facility, which at 4 000 m<sup>2</sup> is not small.”

“This has prompted us to identify problem areas such as workflow and bottlenecks. As a result we are currently erecting another 3 600 m<sup>2</sup> building alongside the existing new one. Once the new building is completed in a couple of months we will be able to organise our business into two distinctive areas – large and heavy engineering components and sub-assemblies, and a light to medium area.”

“This has to be completed relatively quickly because arriving soon, besides the Prima Power laser, is a new Sanco SHM-13040R horizontal borer, a second new Sanco SHM-11025R horizontal borer and a Waytrain WA-530HA, which is a big double column fully automatic band saw with a cutting capacity of 530 x 530mm. All of these new machines are being supplied by WD Hearn.”

this trend, many machine shops sub-contract with fabrication shops and vice-versa to keep clients happy. While that works well for some, a few shops have abandoned sub-contracting in favour of putting machining and fabricating under their own control.”

Hattingh adopted this strategy some years back. “We could handle the machining on larger fabricated structures that customers would fabricate in-house. Eventually, we asked some of our clients if we could take a shot at machining and fabricating. We were successful and more work came in because, like other manufacturers, our clients were looking for full-service suppliers to relieve them of some of their manufacturing stresses.”

Strucmac has steadily built this division of the company and can now offer boiler making, welding, flame, profile and plasma cutting, guillotining and bending. Laser cutting is about to be added. On order is a Prima Power laser that will be installed early in 2015.

Included in the inventory is a Heli 150 ton hydraulic press, a 400 ton Heli bending press, another 175 ton bending press, a Heli CS 13 x 3100mm guillotine, a MG plate roller, and the profile cutting division includes a plasma cutter, a Mardicraft flame cutter and a Messer CNC flame cutter.

“We can cut, bend and weld carbon steel, stainless,

**New shot blasting capabilities**

“Additionally we are adding shot blasting capabilities to our service offerings. The shot blasting facility is being erected in the vicinity of the two new buildings so we can easily accommodate the large components and sub assemblies that we manufacture.”

“Our goal is to be one of the top shops that others can benchmark themselves against. We don’t want to be regarded as a mom-and-pop shop.”



**WD Hearn have also recently installed an AnYang CNC flat bed lathe with a 2000mm swing and 650mm turning diameter x 3 000mm length**



**Strucmac have a number of CNC turning centers on their floor**

**Not just about machines**

“Although we have accelerated our capacity and capabilities to be more productive, the company is not just about the machines. I have to pay tribute to my staff, many of whom have been with me for over 10 years. Their knowledge and experience is going to be hard to replace in the future. For example, my youngest boilermaker is 55 and the oldest 69. Machines don’t replace that expertise and skill that they have built up over many years.”

“While the company has derived more work from its diverse capability, as one might expect, there have also been process advantages from the crossover, that were not anticipated. Our market niche is the manufacture of large and small parts and assemblies using a variety of materials and customer-supplied components. These include heat exchangers, pressure vessels, skid mounted assemblies, bases, forgings and castings, most of which require extensive fabrication and machining.”

“Although I would agree that thinking smart has been a tradition for Strucmac since its inception in 1995, the thinking big was a more gradual development. We can now control our own destiny by keeping work in-house and processing our own engineering. Using our own machines effectively keeps lead times short and costs down.”

“The job shop is a make-it-best-you-can environment where almost every new job represents new process challenges. It’s



**Strucmac has steadily built up its fabrication division and can now offer boiler making, welding, flame, profile and plasma cutting, guillotining and bending. Laser cutting is about to be added. On order is a Prima Power laser that will be installed early in 2015. Included in the inventory is a Heli 150 ton hydraulic press, a 400 ton Heli bending press, another 175 ton bending press, a Heli CS 13 x 3100mm guillotine and an MG plate roller**

also an environment where profit or loss hinges on how efficiently the shop can get a job done.”

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# A plan comes together at G.E Patterns & Foundry

Scaled up and ready to grow.

**A**round the world one dream unites foundry owners, regardless of their experience or speciality: greenfield capacity. Much can be accomplished with a clean slate. However in going this route, constraints such as cost, market opportunities, plant infrastructure, inaccessibility and local zoning rules are limiting factors to a foundry's growth opportunities.

But there comes a time when a foundry reaches a point of no return if it is serious about staying in business. The need to expand its "production base" and support its customers becomes too great and an alternative plan has to be implemented.

The solution is to add new melting or moulding machinery, update cleaning and finishing systems, revise your foundry or moulding process and look at improving the many other operations that are associated with a foundry. But there are also difficulties that come with expansion and modernisation, especially when you have carved out a reputation over the last 17 years as a niche foundry with an emphasis on service. The decisions that owners take to limit loss of production will shape the 'new' operation for the future and offer insights to the choices that management has made.

## Mould processing change

G.E Patterns & Foundry's management took a major decision earlier this year to change its moulding process from CO2, the process that it had been using from inception, to the no bake process.

"The CO2 moulding process has many advantages over other forms of sand moulding. The more environmentally friendly, carbon dioxide (CO2) cured binder systems have



Chris and Garth Robins

been around for many years, but they have not gained much presence in the foundry market for good reason. The earlier versions offered a few significant benefits, but the trade-offs (such as poor work-ability and increased resin levels) out-weighed the benefits. The CO2 casting process is ideal where speed and flexibility is the prime requirement. But in the modern foundry it has become more economical to change to the no bake process, which we have done," said owner and founder Garth Robins.

"With the no bake process moulds can be made to much closer tolerances, which can reduce machining time of castings, most ferrous and non-ferrous metals can be cast, it is adaptable to large or small quantities, the mould is of a much higher strength which results in better as-cast surfaces, there is improved dimensional repeatability and control, and less skill and labour is required."

"We had been urged to change for some time. When you and your employees have been used to one system it takes commitment, education and tenacity to make this decision."

## New equipment

"Many positive influences and advantages of inorganic series core and mould production in foundry operations have already been mentioned. Others include odourless coremaking, odour-reduced casting, significantly less cleaning of machines and tools, and the resulting higher output quantity and production. All these advantages are in addition to the benefits to the casting process, such as faster solidification made possible by lowering of ingot mould temperatures."



RC Systems were engaged to supply a range of new equipment. This included a 3 ton an hour reclamation system, a shakeout and dust collection unit

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**RC Systems supplied a 5 ton an hour continuous mixer which mixes the chemicals supplied by Applied Casting Solutions with the new and reclaimed sand. Novaset 745 resin and a catalyst are being used**



**A general view of the foundry floor**

“Many PUNB (Phenolic urethane no bake) binders are available and produce good castings. How do you choose the most efficient? When considering a no-bake product, the overall cost should be a balance between material costs, performance, and emissions. The key to choosing the correct combination is to evaluate the total impact on your finished casting cost.”

“Implementing the no bake process has also involved a sizeable investment in new equipment, but ultimately the payback in savings on less scrap and being able to reclaim our sand will prove that we have taken the correct decision.”

“We engaged RC Systems to supply us with a closed loop no bake sand mixing and reclamation plant. The equipment

includes a 5 ton an hour continuous mixer, two 15 ton silos for new and reclaimed sand, a cooler-classifier unit and a 3 ton an hour sand system to supply the mixer and includes a shakeout and dust collection unit.”

“The continuous mixer has been fitted with variable speed gear pumps that mix the blended chemicals with the sand. The chemicals are supplied by Applied Casting Solutions. They were very instrumental in converting us to the no bake system especially when we looked at the bottom line.”

“Although we only implemented the new system and equipment just over two months ago we can already appreciate the cost savings and more importantly the improvement in the quality of castings that we are producing.”

#### **Strike helps overcome obstacles**

“We had always planned to install the new equipment in July this year. At the time of planning we were not aware that there would be a month long strike in the metal industry and even less so in July.”

“Although we lost a significant amount of production due to the strike it, in a funny way, helped us to install the new equipment with a relatively low amount of disruption.”

#### **History**

Robins reaches a personal milestone this year at the tender age of 56. December marks 40 years in the foundry industry for Robins. “My interest in woodworking was a primary reason why I took up a career in patternmaking.”

“When I started my foundry career in 1974 I could not have imagined that our industry would change as much as it has in just 40 years. Adapting and growing in an ever changing environment has never been more important than in the recent history. I remember back in the 1980s there were probably over 800 foundries operating in South Africa at the time.”

The number of foundries dropped down to 400 in the nineties and has dropped by another 50 percent subsequently. Fortunately this number has stabilised since the turn of the century otherwise it would spell disaster for industry in general in South Africa, not just the foundry industry.”

“If you compare this to the US, we are not alone. In the 1980s there were approximately 6 200 metalcasting facilities in the US and today there are fewer than 2 000.”

“My apprenticeship and experience as a patternmaker was gained at foundries that most of the youngsters of today do not even know existed. And there were some well known names as well.”

“There was such a need for patternmakers in the



**The two 15 ton silos for the new and reclaimed sand system supplied by RC Systems**



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**G.E Patterns & Foundry can manufacture castings up to 750 kilograms, producing in the region of 20 tons of castings a month in SG, cast iron, plain carbon steel, high chrome manganese and a small amount of stainless steel and aluminium and has a capacity of between 40 and 50 tons per month**



**G.E Patterns & Foundry offers patternmaking services**

industry I could even further my studies and qualify as registered trainer, and also open up my own business relying solely on patternmaking requirements for the industry.”

“Although we still operate a patternmaking shop from our facility and I still own a separate patternmaking shop which I lease out, I hate to think of the drop in numbers of skilled patternmakers.”

G.E Patterns & Foundry’s venture into actual casting began in 1997. Robins remembers how he could not acquire the service he needed for his clients from the foundries he was dealing with so the only solution was start his own foundry.

“We did not want to grow into a soulless foundry whereby clients became a number. Still today we are a relatively small foundry, producing in the region of 20 tons of castings a month in SG, cast iron, plain carbon steel, high chrome manganese and a small amount of stainless steel and aluminium, with a staff compliment of 20. Our capacity is between 40 and 50 tons per month.”

“We are still in the same building that we started off in, although we have purchased the two buildings next door and

expanded a bit. With the acquisition of the new equipment it will give us the opportunity to increase our tonnage; however the main purpose of the capital expenditure was to improve yields and quality, and save on costs.”

“We are located in Sallies Village, Brakpan, Gauteng and operate under approximately 1 500 m<sup>2</sup> under roof offering patternmaking, casting, heat treatment, including annealing,



**Every melt at G.E Patterns & Foundry is tested on a spectrograph**



**Applied Casting Solutions were very instrumental in converting G.E Patterns & Foundry to the no bake system especially when they looked at the bottom line**

tempering, normalising and quenching and a range of finishing processes including cleaning to remove residual sand, oxides and surfaces scale, often by shot or tumble blasting, removal of excess metal or surface blemishes, (i.e. flash resulting from incomplete mould closure or burrs left from riser cut-off) by grinding, sawing or arc air (oxy propane cutting), rectification of defects by welding, machining, non destructive testing to check for defects, priming, painting or application of rust preventive coating and material analysis via our spectrometer.”

“When we moved in the Sallies Gold mine, located just up the road,

was still thriving. More of a shock to the system is that our monthly electricity bill was R6 000.00 and now we pay R120 000.00 per month."

"The castings that we manufacture are mainly for the mining industry however our general engineering clients have been increasing. Castings include trackpads, sprockets, gears, sheeve wheels, pumps, impellers, cam drums, spider arms and covers from one kilogram up to 750 kilograms in weight. We are limited to these sizes as we only have one 500 kilogram furnace and a one ton furnace."

#### Succession

Robins' eyes light up when I brace this subject. You get the feeling that retirement plans are already in place although, as he says, he would not be able to breathe if he could not have the smell of a foundry wafting past his nostrils for too long.

Son Chris joined the company in 2003 and has been one of the driving forces behind the upgrade and changes at G.E Patterns & Foundry. "It is my future," said Chris who has recently been made a director of the company.

"Besides having my father as a mentor, I must pay tribute to the late Mario Viegas and Tony Warlon, both of whom gave up their time, and a few of my contemporaries in the industry to lecture and mentor us during the time when we



**G.E Patterns & Foundry manufactures a variety of castings for the mining industry and general engineering**

were studying for our Diploma in Metallurgy. The company is also a member of the SAIF and I have attended the various courses that they offer."

The company's name is derived from the initials of Robins senior's first names - Garth Edward - and currently G.E Patterns & Foundry is a level 4 BBBEE contributor.

For further details contact G.E Patterns & Foundry on TEL: 087 940 1632 or visit [www.gepatterns.co.za](http://www.gepatterns.co.za)

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# Lease or loan?

## How to choose your equipment financing option

These days you could always consider renting.

As the U.S. economy improves, more domestic manufacturers will make capital investments to fuel their growth. When business owners and managers consider acquiring equipment, they often think of their payment option as a “lease versus buy” decision. In any economic environment, when preserving owner or shareholder capital is an important goal, financing equipment through a lease or loan will enable your business to preserve its cash.

Both leasing and borrowing offer advantages, but whether you finance equipment through a lease or loan, it is important to look at each alternative to determine which will best balance usage, cash flow and your financial objectives.

To help determine the most appropriate option, consider the following questions: Ask how much of a down payment is needed and assess the availability and desirability of allocating company capital for that down payment.

### How long will the equipment be required?

Generally speaking, if the length of time the equipment is expected to be used is short term (which usually means 36 months or less), leasing is likely the preferable option. Equipment expected to be used for longer than three years could be a candidate for either a lease or a loan.

### What is the monthly budget for the equipment?

As with any ongoing business expense, consider the monthly cost for a piece of equipment and how it fits into your budget. In general, leasing will provide lower monthly payments.

### Will the equipment become obsolete while it is still needed for the operation?

Protection against obsolescence is one of the many benefits of equipment leasing, since the risk of obsolescence is assumed by the lessor. Certain lease financing programs allow

for technology upgrades and/or replacements within the term of the lease contract.

### Is the equipment going to be used for a specific contract or can it be used for other projects?

Often, the business objective of equipment is for it to be revenue-producing. If a piece of equipment has limited use within a specific contract and won't be used for other projects, it's not ideal for it to be idle while you continue to make payments on it. It makes sense to stop the equipment expense when the income from it ceases, which you can do with a lease.

### How much cash would be required up front for a lease and for a loan?

Leasing can often provide 100 percent financing of the cost of the equipment as well as the costs for transportation, delivery, installation set-up, testing and training, and other deferred costs (e.g., sales tax). Loans usually require a down payment and don't include the other cost benefits.

### Can the company use the depreciation or would the company get a greater benefit from expensing the lease payments?

The tax treatment of the financing arrangement is an important consideration in choosing between a lease and a loan. A loan provides you with the depreciation tax benefit; with a lease, the lessor owns the equipment and realizes the tax benefit, which is usually reflected in a lower monthly rent payment for your business as well as the ability to expense the payment.

In many instances, if your business cannot use the tax benefit, it makes more sense to lease than to purchase through a loan because you can trade the depreciation to the lessor in exchange for better cash flow.



**How will a working capital facility be impacted?**

Many businesses have an aggregate line of credit through a bank that they can use for inventory purchases, improvements and other capital expenditures. Depending on the lending covenants, it is often possible, as well as preferable, to preserve your bank working capital by leasing equipment through an equipment finance provider.

**How flexible does your business want the financing terms to be?**

A lease can provide greater flexibility, since it can be structured for a variety of contingencies, whereas with a loan, flexibility is subject to the lender's rules. If your business has continuing use for the equipment at lease termination, extended rentals, purchase options, trade-ups and return options are available.

The lease term allows your business to match all expenses to the term of the equipment's use, including income tax expense, book expense and cash expense. Most importantly, as mentioned previously, the expense stops when the equipment is no longer required.

**Do you anticipate the need for additional equipment under your financing agreement?**

If your business is planning for growth, you can enter into a master lease that will allow you to acquire multiple pieces of equipment under multiple schedules with the same basic terms and conditions. This provides greater convenience and flexibility than a conditional loan contract, which must be renegotiated for additional equipment acquisitions.



**Who can help me evaluate what's best for my business?**

Whether you finance equipment through a lease or loan, each has its advantages. When making the decision between a lease and a loan, it is highly recommended that you consult with your accounting professional, as well as draw on the resources of your equipment financing provider to enable you to secure the best possible terms for your lease and/or loan.

This article was written by William G. Sutton, CAE, the president and CEO of the Equipment Leasing and Finance Association, the trade association that represents companies in the equipment finance sector in the USA.

For further details on financing and leasing locally contact Brett Kessel of Reichmans Capital on TEL: 011 286 8275. ■

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# Countdown to The Bright World of Metals 2015 has started

The four successful trade fairs GIFA, METEC, THERMPROCESS and NEWCAST are being held again in Düsseldorf under the motto "The Bright World of Metals" from 16 to 20 June 2015.

The target group for the 13th International foundry GIFA 2015 are all the companies around the world that are interested in presenting their operations in the following areas: foundry and melting plants, refractories technology, machines and equipment for moulding and core making, moulding sands and moulding auxiliaries, sand preparation and reclamation, gating and feeding, casting machines, knock-out, fettling, finishing, pattern and die-making, control systems and automation, environmental protection and waste removal as well as information technologies.

GIFA has been a major part of the Messe Düsseldorf portfolio since 1956 and set a new record the last time it was held in 2011, with 780 exhibitors from 45 different countries and 48,700 trade visitors (53 per cent of them from countries outside Germany).

METEC, the 9th International Metallurgical Trade Fair, reported another increase in exhibitors in 2011. A total of 486 companies from 33 countries presented their know-how about the growing metallurgical sector and demonstrated that they are actively involved in making sure that operations are both efficient and environmentally sound in future, thanks to their product developments. METEC has been one of the four trade fairs since 1979 and focusses on equipment for iron, steel and non-ferrous metal production, for casting and forming steel, for environmental protection, waste removal and gas purification, for electrical engineering and process technology, for measurement and test technology, for information technology, for metallurgical plants, rolling mills and steel mills. In 2011, more than 19,000 trade visitors came to METEC to obtain information, with half of them travelling from European countries outside Germany or from overseas.

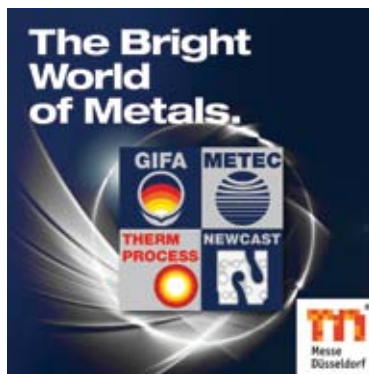
THERMPROCESS has a long tradition too: the international trade fair has been the place to find innovative thermo process technology since 1974. Presentation of the latest trends for solutions relating to the production and operation of industrial furnaces and heat treatment plants enables visitors to obtain information that keeps them up-to-date with industry developments. The range includes industrial furnaces, industrial heat treatment plants and thermal processes, equipment for



special uses, components, equipment and other supplies, occupational safety and ergonomics. Both exhibitors and visitors gave THERMPROCESS 2011 top marks: 96 per cent of them said that their involvement in the trade fair had been a complete success, for example. All in all, 305 companies from 30 different countries presented their products and services to 7,900 visitors, 45 per cent of which came from outside Germany.

The newest addition to The Bright World of Metals is NEWCAST, which has been the fourth member of the quartet since 2003. It is the most important trade fair in the world for precision castings, is the highlight of its industry every four years and has recorded excellent growth rates. The sectors covered by the castings range from car manufacturing and the aerospace industry to machine and plant manufacturing and medical engineering. In 2011, 374 companies from 30 different countries exhibited their products and services at the 3rd NEWCAST. More than 3,500 trade visitors, over 50 per cent of them from outside Germany, were impressed by the large selection of exhibits: ferrous metal castings, iron, steel and malleable foundries, non-ferrous metal castings, aluminium, zinc, copper, magnesium, nickel and other non-ferrous metal foundries, services, forging, sinters, trade and logistics. They gave NEWCAST excellent marks, with 95 per cent of them saying that their trade fair visit had been extremely positive.

Online registration for the four trade fairs is possible via the following links: [www.gifa.de/2330](http://www.gifa.de/2330), [www.metec.de/2330](http://www.metec.de/2330), [www.thermprocess.de/2330](http://www.thermprocess.de/2330) and [newcast.de/2330](http://newcast.de/2330) ■



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# Trade Fair Travel and Castings SA tour to GIFA, METEC, THERMPROCESS AND NEWCAST 2015

**T**rade Fair Travel, a specialist travel agency for trade fairs internationally and in particular Germany, in conjunction with the SA German Chamber of Industry and Castings SA have put together a very reasonable tour package to visit this exhibition.

The tour includes return airfare Johannesburg/Düsseldorf, airport taxes, airport/hotel transfer, accommodation, full breakfast daily and medical and travel insurance.

For a booking form contact Trade Fair Travel on TEL: 031 916 1414, Fax: 031 916 5674 or email peter@tradefairtravel.co.za or visit [www.tradefairtours.com](http://www.tradefairtours.com).

Trade Fair Travel is also able to offer you individual packages, tailored to your requirements. For more information contact Peter Stephenson on the number above. Booking forms can also be downloaded from the website.

## Tour 1

**Depart South Africa 14 June 2015 and return  
19 June 2015 arriving 20 June 2015**

Due to the extremely positive response from clients who travelled in 2011, we were asked by numerous clients to again book rooms at the Lindner Hotel Rheinresidenz. Although the hotel has been taken over by the InterContinental Hotel Group (IHG) and renamed the Indigo Hotel ([www.hotelindigo.com](http://www.hotelindigo.com)) we are pleased to confirm that we are holding a substantial room allotment\*.

The hotel is located a short walk from the banks of the River Rhine, and a 15 minute walk to the Altstadt and famous shopping at Königsallee. The "U" Bahn station, "Nordstrasse" is located 350m from the hotel and then a seven minute journey direct to Messe Düsseldorf.

\* Due to the extreme booking conditions placed on us by the Indigo Hotel, we are required to pay for all rooms sold by the 10th December 2014. For this reason we will invoice all clients for the accommodation before this date and all unsold

rooms will be returned to the hotel. Bookings after this date will be subject to availability.

## Tour 2

**Depart South Africa 15 June 2015 and return  
20 June 2015 arriving 21 June 2015**

On arrival, you will be met by our driver who will transfer you by private coach to the 2 star, tourist class Ibis Hotel Hauptbahnhof ([www.ibishotel.com](http://www.ibishotel.com)).

As the name implies, the hotel is adjacent to the main rail station, where the journey time to Messe Düsseldorf is only 15 minutes. The famous Old Town (Altstadt) and Königsallee are a short walk away. Accommodation is reserved in twin bed or single rooms, with buffet breakfast. Holders of fair entrance tickets are allowed free travel on the Düsseldorf transport network. The cost of these tickets will only be known early next year. We will be pleased to order the tickets at the advertised price.

### Prices include

- Return airfare Johannesburg/Düsseldorf
- Airport/Hotel transfer
- Accommodation for 4 nights
- Full buffet breakfast daily
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- Düsseldorf City Guide

### Optional extras

- Special reduced domestic add on fares available
- Passengers wishing to extend their stay may do so at an additional cost
- Passengers wishing to travel to London or other cities, may do so on payment of the additional fare

N.B. No refunds given to passengers not utilising airport transfers and Trade Fair Travel regret they are unable to accept payment by credit card.

### Entrance passes allow free public transportation

For GIFA, METEC, THERMPROCESS AND NEWCAST 2015, Messe Düsseldorf offers a service to all exhibitors and attendees: Visitor, exhibitor and press entrance passes allow free use of all public transportation within Düsseldorf on all days of the shows.

The entrance passes can be used as a free public transportation ticket on all buses, streetcars, underground trams (U-Bahn), urban railways (S-Bahn) and the German rail service within the Rhine-Ruhr regional network (VRR). This region extends north to south from Dorsten to Langenfeld and east to west from Dortmund to Mönchengladbach.

Further details on the entrance tickets and ordering of the exhibition catalogues can be obtained from the Southern African German Chamber of Trade and Industry on TEL: 011 486 2775, email: [info@germanchamber.co.za](mailto:info@germanchamber.co.za) or visit the website: [www.germanchamber.co.za](http://www.germanchamber.co.za)



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# Automotive Lightweighting: Steel versus Aluminium

**W**ith Ford boasting a weight saving of 700 pounds on its aluminium F-150, steelmakers like ArcelorMittal are trumpeting the lightweighting abilities of advanced high-strength steel.

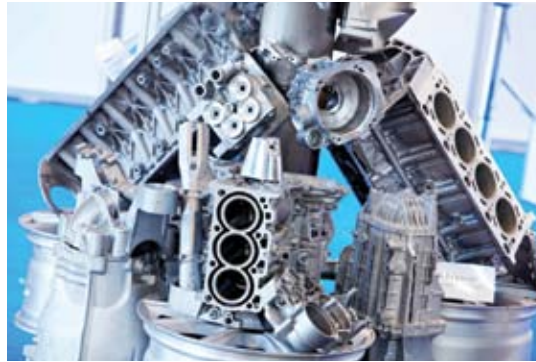
In the automotive world, the battle between steel and aluminium will be fought part by part.

At least that's the way Honda sees it.

While Ford decided this year to bring an aluminium-body 2015 F-150 pickup to market, Honda is taking a different approach in its quest to reach fuel emission standards.

Rather than commit to one material for an entire vehicle, or most of a vehicle in Ford's case with its most popular pickup, Honda prefers an amalgamation of materials.

The Japan-based automaker opts to find the right material for each part on each model of vehicle, said



Robert Zum Mallen, chief engineer and technical leader of automotive body design for Honda R&D Americas, Inc.

"As we go forward for future products, we can't really describe what our intentions are there," Zum Mallen said. "Using the philosophy of picking the right material for the right place, we'll consider a number of different materials for those applications."

That's why Honda worked with ArcelorMittal (IW 1000/49) to

introduce the Usibor door ring – a hot stamped, laser welded steel door ring – for the Acura MDX, which is made at Honda's facility near Birmingham, Ala.

The advanced high-strength steel door ring is not only a lighter solution, but also helps improve the MDX's small offset crash performance, Honda said.

## Steel: Light (Weighting) the Way

With Ford boasting a weight saving of 700 pounds on its aluminium F-150, steelmakers like ArcelorMittal are trumpeting the lightweighting abilities of advanced high-strength steel.

ArcelorMittal recently released a survey showing how an automaker can reduce the weight in the cab, box, frame and closures of a pickup by 384 pounds, or 23%, by using advanced high-strength steel with the expected improvements in powertrains.

Those weight savings, said Greg Ludkovsky, vice president of global research and development for ArcelorMittal, are enough to help automakers achieve the new 2025 fuel emission standards in the United States. ■



## Kennametal and Haimer develop most rigid and precise modular tooling interface

**K**ennametal Inc and Haimer GmbH have partnered to develop a new interface for modular cutting tool systems.

Via the new modular interface for carbide cutting tool heads, Duo-Lock, the pair are offering "the most rigid and most precise interface in the marketplace", which is "virtually unbreakable". For the first time, a modular milling system can achieve similar high performance of a latest-generation solid carbide end-mill, say the pair.

Explains Oliver Sax, director product management at Haimer: "The current existing modular tool systems have their weakness in the interface. Due to this fact, the full potential of the cutting heads can't be used, because of tool breakage."

And Colleen Cordova, vice president industrial marketing at Kennametal, adds: "Haimer and Kennametal have been able to

create a modular interface based on maximum stability that allows the user to make full use of the carbide tool potential."

Highlights Doug Ewald, director product management system tooling at Kennametal:

"The system provides 5 micron runout accuracy and a Z accuracy of 10 micron, which will eliminate most of the expensive presetting processes."

Like the Safe-Lock system, Duo-Lock will be licensed to leading high-end cutting tool companies to establish a compatible, high performance modular end-mill system.

Both Kennametal and Haimer introduced products at the recent IMTS exhibition in Chicago, with a new portfolio of cutting heads and mono-block screw-fit toolholders with Duo-Lock technology in all relevant spindle interfaces and extensions offered. ■



# Hexagon Metrology explains Vero Software acquisition rationale

**N**obert Hanke, president of Hexagon Metrology, has explained in a blog the reasoning behind Hexagon's July acquisition of CAD/CAM software specialist Vero Software.

Hanke says that Hexagon has seen "metrology break out of the confines of the measuring room and move closer to the production line to maximise productivity and efficiency."

He adds that the company has supported this with products such as its latest shopfloor-hardened CMMs, the 7.10.7 SF, TIGO SF and Leitz SIRIO range, while its automated inspection system SIMS 360° is capable of performing inspection within the production line itself, and its new Metrology Management System (MMS) can turn gathered data into actionable information.

However, in terms of the key customer demand – top quality output – inspection and information are only part of the story, and "this is where Vero Software will provide a real competitive advantage," says Hanke.

Vero Software's expertise in the field of

computer-aided manufacturing (CAM) offers customers "active production planning and response technology". And he adds: "In combination with a system like MMS, we see CAM as an exciting prospect for uniting quality control information and computer-controlled machine response. This would give our customers the ability to not only detect product imperfections, but also intervene and correct them automatically through active feedback loops."

And Hanke concludes: "It is no longer enough for us to simply measure things – our aim is to support customers in producing the best possible output, and to do that we need to work smarter. With Vero Software on board, quality-controlled manufacturing just got a little closer."

Note: Hexagon has recently announced that, following its acquisition of Vero Software, it has identified overlapping technologies and assets, specifically, between Vero Software's development of reporting tools for manufacturing data and Hexagon's existing software in this area. ■



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# Airbus A350-900 receives EASA type certification

Major milestone achieved on time, on cost and on quality.



The Machine Tool Merchants' Association of South Africa (MTMA) is a trade organisation representing the importers of Machine Tools throughout South Africa.

**For peace of mind be sure to purchase from an accredited MTMA member**

## PHILOSOPHY

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The world's latest generation commercial airliner, the A350-900, received Type Certification from the European Aviation Safety Agency (EASA) on 30th September 2014. The certified aircraft is powered by Rolls-Royce Trent XWB engines. Federal Aviation Administration (FAA) certification will follow shortly.

The EASA A350-900 Type Certificate was signed by EASA's Executive Director, Patrick Ky. The document was handed over to Airbus' Executive Vice President Engineering, Charles Champion and Airbus' A350 XWB Chief Engineer, Gordon McConnell.

"Receiving the A350-900 Type Certification from EASA is a great achievement for Airbus and for all our partners who have contributed to designing, building and certifying this fantastic, new generation aircraft.

**Main picture: The A350 XWB features numerous fuselage and wing components designed and manufactured in South Africa by Centurion-based Aerosud and Cape Town-based Cobham South Africa. For example, Aerosud produce the advanced composite frame clips, of which there are several thousand on each aircraft, which fasten the aircraft's outer skin sections to its skeletal structure. Airbus, together with Airports Company South Africa (ACSA), and the Air Traffic Navigation Services (ATNS) collaborated in testing and demonstrating the A350 XWB's compatibility with O.R. Tambo International Airport, and with the air traffic management system operated by ATNS. During the A350 XWB's visit to Johannesburg the aircraft also successfully completed a series of auto-landing and go-around tests at O.R. Tambo International Airport**

The A350-900 is now ready to fly from the nest and be enjoyed by airlines and passengers," said Fabrice Brégier, Airbus President and CEO. "The A350 XWB embodies many extra innovative technologies which make all the difference in passenger comfort and airline efficiency."

"The A350 XWB manufacturing programme has also been innovative and ambitious, aiming for a fully mature aircraft at entry into service and this is what we are proud to be delivering to our first A350 XWB customer, Qatar Airways, before the end of the year. Our fleet of five test aircraft completed the certification campaign, on time, cost and quality. Accumulating more than 2,600 flight test hours, we created and successfully achieved one of the industry's most thorough and efficient test programmes ever developed for a jetliner," said Fabrice Brégier, Airbus President and CEO.

The A350-900 Type Certification comes after successfully finishing a stringent programme of certification trials which has taken its airframe and systems well beyond their design limits to ensure all airworthiness criteria are fully met.

The A350 XWB is Airbus' all-new mid-size long range product line and the newest member of Airbus' leading wide-body family. The A350 XWB stands out in its class thanks to its combination of passenger comfort, technological innovation and its unique industrial process. Built hand-in-hand with customers, the A350 XWB sets new standards in terms of passenger experience, operational efficiency and cost-effectiveness. At the end of May 2014, the A350 XWB had won 750 orders from 39 customers worldwide. ■

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# Innovation in the self-driving connected vehicle market

AKKA Technologies and Dassault Systèmes announce a long-term partnership.

**A**KKKA Technologies and Dassault Systèmes, two international companies that are pioneers and trailblazers in their respective markets, has announced a long-term partnership aimed at promoting innovation in the self-driving connected vehicle market. Aware that two leading organizations together, such as AKKA and Dassault Systèmes, can be a powerful driver for industry innovation and growth, Maurice Ricci, CEO of the AKKA Technologies Group and Bernard Charlès, President and CEO of Dassault Systèmes, have decided to join together to address the challenges of the quickly advancing connected mobility market.

With this partnership, AKKA and Dassault Systèmes will offer high-end engineering services and solutions to help the global automotive industry. The topic of driverless and connected vehicles is critical and one of the 34 projects of the “New Face of the Industry” promoted by the French government.

Both companies share the same drive to answer the market’s demand for ever more connectivity, the challenge of cloud-enabled vehicle services, and the move towards “consumer experience” a primary business goal. Smart, driverless vehicles, a result of collaboration between the automotive sector and the digital economy, are a perfect example of the cloud-enabled consumer experience. For AKKA, this means developing the self-driving connected concept car known as the Link & Go, considered one of the best showcases of smart driverless technology. For Dassault Systèmes, it means delivering its 3DEXperience platform, a cloud-based collaborative business platform, to AKKA and the

overall transportation and mobility industry.

AKKA’s engineers will draw upon the 3DEXperience platform to develop the next generation of its autonomously driving Link & Go concept car, using Dassault Systèmes applications to ideate, design, simulate and validate on a single collaborative platform hosted on the Cloud. The new partnership will help speed up the development of the next Link & Go concept, whose technological advancements will focus on how mobility consumers can benefit from customised and customisable services. Bringing the new vehicle development platform and the 3DEXperience platform together will facilitate project management throughout the design phase, providing engineers with a unified social collaboration space that encourages the adoption of new technologies and new processes, the pooling of institutional know-how, and the unleashing of a multicultural, global experience approach.

“This partnership is a real technological development that will help create new services to suit the connected world and promote our engineers’ excellence and creativity,” explains Maurice Ricci.

“The challenges of creating mobility experiences of the future are fundamentally transforming the entire industry,” added Bernard Charlès. “What does a car experience look like when you tie it to the cloud, infotainment, mapping and GPS, and so many more services? This partnership will answer those questions, support driverless vehicle development, and address infrastructure integration, such as connectivity to the smart city of the future.”

Link & Go – the self-drive connected concept car

developed by AKKA Research, AKKA’s R&D centre offers self-drive and manual modes with a totally new approach to interior ergonomics. Robotic and high tech technologies converge to support the Cloud & Big Data. The goal of the Link & Go is to blend in with its urban environment. Equipped with cognitive intelligence, it is the user who is at the heart of this highly innovative project. The connected vehicle communicates with the world around it, with other vehicles and with the user’s environment to offer personalised services to suit different profiles. ■

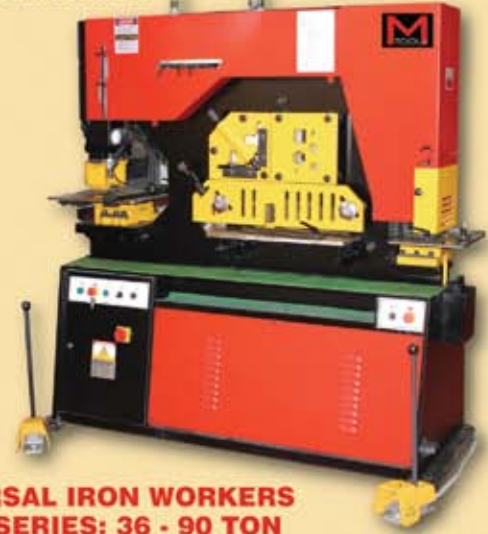


AKKA Link & Go Concept Vehicle

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# NASA unveils world's largest spacecraft welding tool

Vertical assembly center for space launch system opens in New Orleans.

The largest spacecraft welding tool in the world, the Vertical Assembly Center, is officially open for business at NASA's Michoud Assembly Facility in New Orleans. The 170ft-tall, 78ft-wide giant completes a world-class welding toolkit that will be used to build the core stage of America's next great rocket, the Space Launch System (SLS).

SLS will be the most powerful rocket ever built for deep space missions, including to an asteroid and eventually Mars. The core stage, towering more than 200ft tall (61m) with a diameter of 27.6ft (8.4m), will store cryogenic liquid hydrogen and liquid oxygen that will feed the rocket's four RS-25 engines.

"This rocket is a game changer in terms

of deep space exploration and will launch NASA astronauts to investigate asteroids and explore the surface of Mars while opening new possibilities for science missions, as well," said NASA Administrator Charles Bolden during a ribbon-cutting ceremony at Michoud.

The Vertical Assembly Center is part of a family of state-of-the-art tools designed to weld the core stage of SLS. It will join domes, rings, and barrels to complete the tanks or dry structure assemblies. It will also be used to perform

evaluations on the completed welds. Boeing is the prime contractor for the SLS core stage, including avionics.

"The SLS Program continues to make significant progress," said Todd May, SLS program manager. "The core stage and boosters have both completed critical

design review, and NASA recently approved the SLS Program's progression from formulation to development. This is a major milestone for the program and proof the first new design for SLS is mature enough for production."

Work is well underway on several additional welding tools. Engineers recently completed welding all the rings for the first flight of SLS using the Segmented Ring Tool. Ten barrels have also been welded for the SLS core stage using the Vertical Weld Center. The rings connect and provide stiffness between domes and barrels, which will make-up the five major core stage structures: the forward skirt, the liquid oxygen tank, the intertank, the liquid hydrogen tank, and the engine section.

SLS will open new frontiers for astronauts traveling aboard NASA's Orion spacecraft and may also offer benefits for science missions that require its use and cannot be flown on commercial rockets. Engineers at NASA's Kennedy Space Center in Florida completed the crew module for the Orion spacecraft that will venture into space on a test flight in December. In addition, NASA's Ground Systems Development and Operations Program, which is transforming Kennedy to support the launch of SLS and other users, completed a major agency-level review and was approved for progression from formulation to development. ■

***A ring and barrel recently loaded onto the Vertical Assembly Center at NASA's Michoud Assembly Facility in New Orleans. The tool, one of the largest in the world, will join domes, rings and barrels to complete the tanks or dry structure assemblies for the core stage of NASA's Space Launch System. The tool will also perform non-destructive evaluation on the completed welds. These are the first confidence welds performed on the tool, which ensures it works as it is designed to do before welding actual flight hardware***



# Hardinge acquires Voumard, adding ID grinding capability

**H**ardinge Inc. is buying the Voumard Internal Diameter (ID) Grinding business from Peter Wolters GmbH and will add it to its Kellenberger product line. The cost and other terms of the purchase agreement were not announced, but Elmira, N.Y.-based machine tool builder indicated that it expects to be quoting projects by the end of this year and to start selling the machines by late 2015.

Peter Wolters, of Rendsburg, Germany, has not commented on the sale. It will continue to own the Voumard OD grinding assets.

The significance of the sale is that it expands Hardinge's stable of grinding technologies, which includes the Kellenberger, Hauser, Jones & Shipman, Tschudin, and Usach brands, as well as its own branded products.

It also adds to the list of recent mergers and acquisitions in the manufacturing technology sector. While machine tool sales have been less than robust, the market has seen a spate of combinations in recent months, bringing together machine tool builders, tooling suppliers, and developers of design and programming software

Hardinge designs and manufactures CNC machine tools and workholding technology under its own nameplate, as well as under several others brands it has assembled. The company has also been an active buyer of competing and complementary assets in recent years, including the Forkhardt and Usach brands.

"The Voumard ID offerings by our Hardinge Grinding Group are a complement to our current product lines, resulting in a complete spectrum of internal and external diameter cylindrical grinding solutions to provide to our customers," explained Rick Simons, chairman, president and CEO of Hardinge. "By incorporating it into our existing grinding businesses, Voumard



customers can anticipate the same superior quality and technical support they have seen from our Kellenberger operations. This investment continues the company's strategy of growing through new product development and targeted acquisitions."

Voumard, originally a Swiss manufacturer, has over 9,000 machining technologies in place for more than 2,500 customers worldwide, according to the buyer. It was acquired by the Peter Wolters organisation in 2005 and relocated to Germany in 2010.

Hardinge plans to consolidate the Voumard ID production with its Kellenberger organisation, thereby returning part of the Voumard legacy to Switzerland.

For further details contact F & H Machine Tools on TEL: 011 397 4050 or visit [www.fandhmachinetools.co.za](http://www.fandhmachinetools.co.za) ■

## Dormer and Pramet merger finalised; new corporate name and logo revealed

**T**he merger between Sheffield-based rotary tooling manufacturer Dormer and Czech Republic-headquartered cemented carbide specialist Pramet, both already members of the Sandvik group, has been formalised and a new corporate name and logo revealed.

The united operation will be called Dormer Pramet, offering a combined product programme that encompasses a comprehensive range of rotary and indexable drilling, milling, threading and turning tools for the general engineering sector.

An expanded sales and technical support service extends to over 30 offices serving more than 100 markets worldwide. These are supported by state-of-the-art production facilities in Europe and South America, and a global distribution network consisting of five strategically placed hubs.

Dormer Pramet group president Fabrizio Resmini explains the rationale behind the decision to align the two brands: "Dormer's round tool specialisation and Pramet's focused expertise in the design and production of indexable inserts complement each other extremely well."

"Our core programmes are built around a range of products designed for the general machining industry, which dovetail together very neatly. So, from a product perspective, customers now have access to a wide range of rotary and indexable hole-making, milling, threading and turning tools from one single source."

"We now have 600 sales staff and 900 involved in product development and production. It is no secret; we have merged to expand our market share. In the markets where one of the brands is more established, we will use that to our advantage to increase the exposure of the other brand's product range. This will always be done with the philosophy of providing a solution that is simply reliable."

Resmini concludes: "With the combined strengths and knowledge of Dormer and Pramet we are in a strong position to provide the crucial support required by our customers."

"From reliable products that perform to a consistently high standard, to experienced technical backup from our engineers, businesses across the globe know they can trust us to deliver." ■

# Delcam's PartMaker 2015

**P**artMaker Inc is bringing out the latest version of PartMaker Software for programming CNC mills, turn-mill centers, Swiss-type lathes and wire EDMs. The CAM software, PartMaker Version 2015 that is designed for programming various CNC machines is bound to change the future of CNC machine operations.

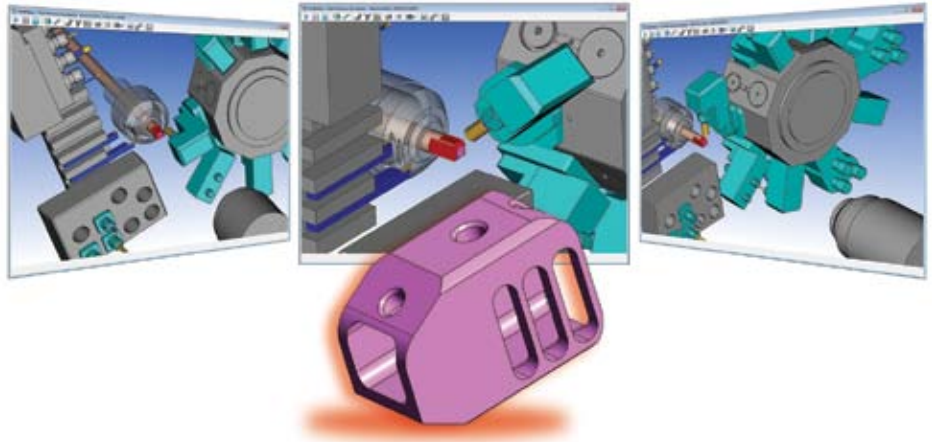
PartMaker is a Knowledge Based Machining system that keeps a track of all the tools, materials and relevant processing information related to the CNC machines and their parts, thereby relieving the user from entering the same feature information of the parts many times over. It improves the tool management functions and increases productivity. The software can support vertical mill-turns and incorporates the functionality of a vertical turret lathe on a 5-axis VMC. The best part is that this software can also be used to optimize post processing for multi-tasking machine tools.

The PartMaker 2015 has incorporated various advanced features and enhancements. The prominent features of PartMaker include better support for the modern line of multi-tasking machine tools and a higher milling and turning functionality. It also ensures productivity enhancements for machines like multi-axis turn-mill centers and Swiss-type lathes.

"The innovations in PartMaker Version 2015 further cement the software's position as the preeminent CAM system on the market for programming of multi-tasking machining applications," says PartMaker Inc. president Hanan Fishman.

"PartMaker 2015 extends support of the product's patented approach to programming multi-tasking machine tools to support today's latest breed of multi-function machines."

According to Fishman, the enhanced machining algorithm power in PartMaker will improve the capability for users while



retaining the trademark simplicity of the software.

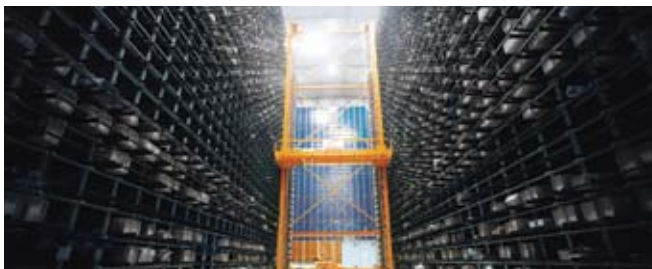
The new functionalities of PartMaker 2015 will enable users to make the optimum use of their specific multi-tasking machine tool's unique capabilities. PartMaker will be a path-breaking innovation in the CAM software for turn-mills and Swiss-type lathes thanks to its patented Visual Programming Approach for multi-axis lathe programming, coupled with live tooling. Users are assured of faster learning and easier use as it uses pictorial representation to describe tools, machine part features and machining data. The users can see the synchronisation of tools working on multiple spindles online with just a few mouse clicks.

PartMaker 2015 will support vertical mill-turns (VMT), the latest breed of machine tools. What makes these machine tools unique is that they provide the turning functionality typically found on a VTL (vertical turret lathe) with that of a 5-axis VMC (vertical machining center). In addition, PartMaker 2015 will also support the turret based Swiss lathes with programmable B-axis live tooling attachments.

For further details contact PBS Machine Tools on TEL: 011 914 3360 or visit [www.pbsmt.co.za](http://www.pbsmt.co.za)

## Kasto releases Kastologic warehouse management software

**T**o complement its range of storage systems and controls, Kasto has upgraded its warehouse management software from Kastolvr to Kastologic. Core functions consist of an intuitive graphical user interface, an interface to the customer's host computer system and a dashboard for overall visualisation



of warehouse management.

In addition to the standard module, customers can choose from various additions. One is material flow, which oversees dynamic random storage and real-time restocking, and provides 3D simulation and statistical information that includes gantry movement. Bottlenecks are detected and the system's full potential can be exploited by adjustment strategies.

Regarding inventory management, this is broken down into three sub-groups: logistics, for optimising routes within the warehouse; production, for providing an overview of orders and machine utilisation; and manual storage, for managing non-automated areas of a warehouse and manually operated equipment.

For further details contact Retecon Machine Tools on TEL: 011 976 8600 or visit [www.retecon.co.za](http://www.retecon.co.za)

# Okuma's GENOS L300 MYW horizontal CNC lathe offers variety and flexibility at an affordable price

**A**s part of Okuma's Affordable Excellence product line up, the Genos L300 MYW x 500 horizontal CNC lathe offers cost-effective turning options for parts up to 460mm in length and up to 300mm in diameter. The model can be fitted with live tooling, Y-axis and W sub-spindle for maximum flexibility. The machine has a custom part selector app, which allows the operator to easily select and change between part programs.

Built on a one-piece, cast iron base with a horizontal way system and hand-scraped headstock and tailstock mounting surfaces, this machine provides rigidity, stability and accuracy for a variety of applications.

The gearless spindle minimizes vibration and heat for high speed and minimal thermal deformation, while the compact turret provides high power and high torque for a variety of

cutting applications, including the optional milling function.

Equipped with Okuma's open-architecture

THINC® OSP-P300 control for easy operation and peripheral connectivity, the GENOS L300 is easy-to-operate, programme and maintain. Optional capabilities and functions include: Machining Navi for chatter reduction, Variable Spindle Speed Threading for simple, repeatable thread cutting, and Advanced One-Touch IGF conversational programming.

Key specs of the Genos L300 horizontal CNC lathe include a max turning diameter of 300mm, a 15 kW motor and rapid



traverses of 20/25 m/min.

For further details contact F & H Machine Tools on TEL: 011 397 4050 or visit [www.fandhmachinetools.co.za](http://www.fandhmachinetools.co.za)

## Reaming tools enable efficient machining of hard materials - Komet

Komet's Dihart line of reaming tools now includes the Fullmax universal reamer and Duomax indexable cutting ring for fast and efficient machining in hard materials.

**T**he Fullmax universal reaming tool optimizes cutting geometry to yield high cutting performance in a variety of materials, including hardened steels ranging to HRC 62. Its modified cutting edge pitch is said to reduce chatter marks and improve chip formation, while targeted coolant holes promote smooth chip evacuation. The solid-carbide reaming tool is available in diameters ranging from 3 to 22mm for through-hole and blind-hole applications, with one optimised geometry and one universal coating. The high-performance coating can be used in a variety of materials, and contributes to reduced wear and a longer tool life, the company says.

Komet's Duomax indexable cutting ring is designed with indexable inserts instead of brazed cutting blades, enabling users to index and replace the blades before sending the tool in for repair. According to the company,

the modular rings can be exchanged on and off the holders, and are easily adjustable when necessary. Each indexable insert provides two, fully usable cutting edges. The cutting rings are said to offer longer tool life because they are not subject to the thermal stresses of braising each time the cutting edges need replacement. The Duomax

reamers are compatible with the previous generation of Dihart cutting rings, and can be used with existing cutting ring holders. The tools can be individually modified with varying cutting materials and coatings for specific machining tasks.

For further details contact Multitrade Distributors on TEL: 011 453 8034 or visit [www.multicarb.co.za](http://www.multicarb.co.za)



# Transmission manufacturing with steel turning grades GC4325 and GC4315

With new technological developments emerging on the automotive horizon, manufacturers are faced with extremely high demands in terms of quality, security and productivity. The new Sandvik Coromant grades GC4315 and GC4325 with Inveio™ are designed to support the automotive industry with outstanding reliability and process security.

## Large batch production with low unit cost

Transmission manufacturing is a large volume production



with a low cost per part. Therefore, requirements such as high process security, short cycle times and consistent quality are critical for achieving faster lead times and lower production costs. Soft stage turning is performed before the case hardening process. Offering high wear resistance and excellent tool life, this is where the steel turning grades GC4315 and GC4325 are to show a marked step up in performance.

## Predictable performance for secure production

First choice grade for soft stage turning in stable conditions, GC4315, is designed for high-speed steel turning with a long and predictable tool life. Grade GC4325 is a tougher steel turning grade that manages interrupted cuts and uneven depths of cut at high speeds. Both grades enable high cutting data without sacrificing component quality. If the spindle speed limit prevents the full use of their capacity, maximum productivity can be achieved by applying higher feed rates. These two grades are excellent choices for outer-diameter turning, copying and profiling and guarantee predictable performance for secure transmission manufacturing.

For further details contact Sandvik Coromant on TEL: 0860 101 008 or Mary-Ann Germishuys on TEL: 011 570 9615 or email: [mary-ann.germishuys@sandvik.com](mailto:mary-ann.germishuys@sandvik.com) or visit [www.sandvik.com](http://www.sandvik.com)

## Bystronic's ByVision Bending on tablet PCs and voice control

As of now, ByVision Bending, the user interface for Bystronic press brakes, can also be installed on Windows tablet computers. Users are now able to access the processes and manufacturing details of press brakes and discuss them with customers, around the clock and regardless of location. The tablet version includes ByVision Bending's full range of functions.

### New with voice control

In a related development, Bystronic says it has also added voice control to ByVision Bending. With this feature, the most important operations on Bystronic press brakes can be executed by voice command. On average, the operator spends two hours per shift carrying out corrections on press brake control units, says Bystronic. However, with voice control, operators can reduce this non-productive time. Voice control is available in English and German for Hämmerle, Xpert and Xcite press brakes.



### BendSolver – New for smartphones and tablet computers

Bystronic offers a new version of BendSolver for smartphones and tablet computers. BendSolver automatically determines the optimal tools and machine parameters for each bending order. In order to accomplish this, the program accesses a database containing roughly 2000 tool entries. In addition, the user can extend the database with his own tool entries whenever he wishes. Subsequently, the required tools can be obtained in a fast and simple manner with the Bystronic Configurator, which is closely linked to BendSolver.

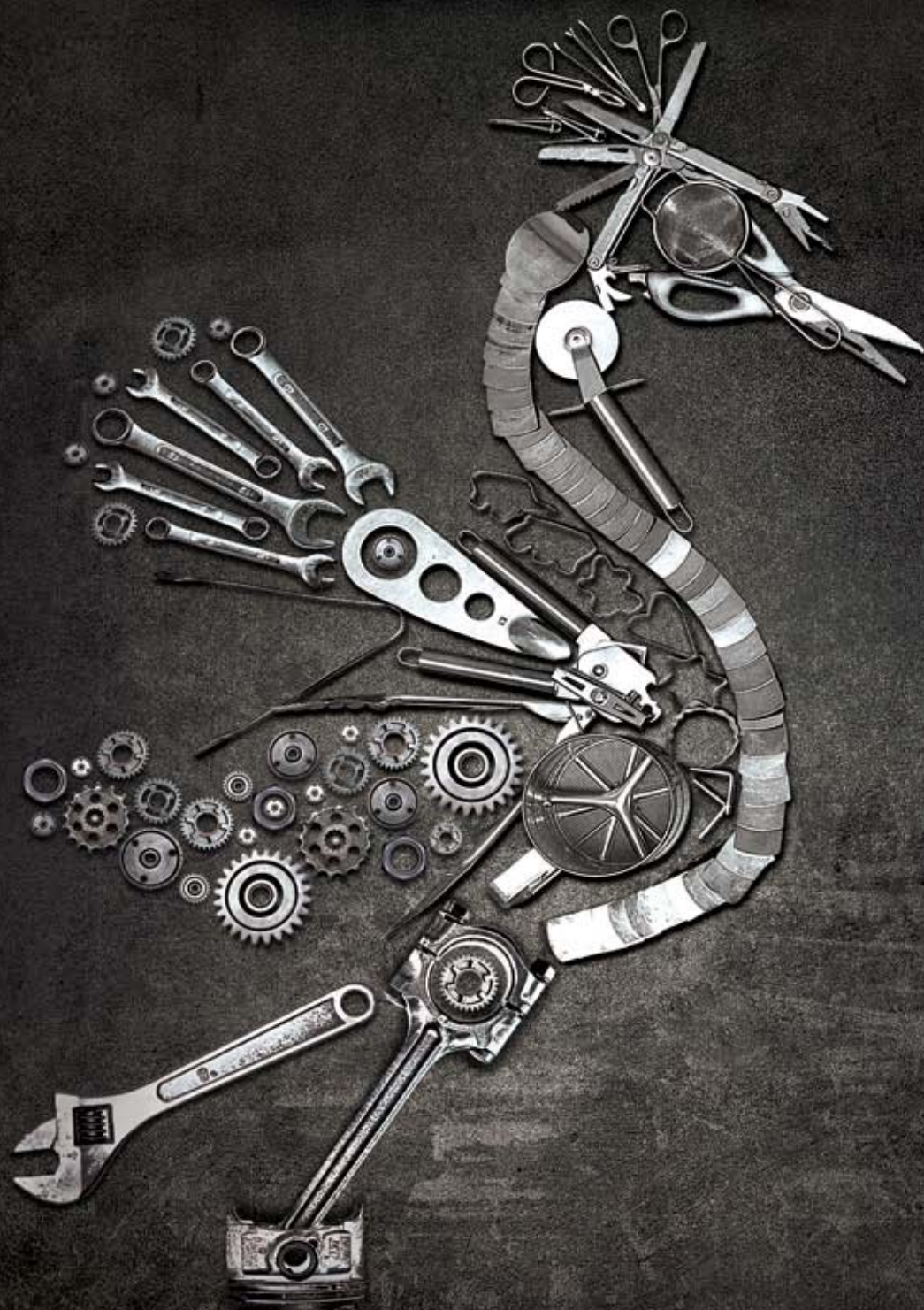
BendSolver comes with a user-friendly interface and is available in 17 languages.

For further details contact First Cut on TEL: 011 614 1112 or

visit [www.firstcut.co.za](http://www.firstcut.co.za)



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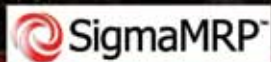
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# Powerful control hardware for compact CNCs - Siemens

The Siemens Drive Technologies Division has developed new control hardware with greater computing power for its panel-based Sinumerik 828D and Sinumerik 828D Basic compact CNCs for turning and milling. The new PPU2xx.3 panel processing units replace the previous PPU2xx.2 generation, and are available for all six versions of the Siemens compact CNC. The greater computing power has significantly accelerated the operating speed of the Sinumerik Operate user interface during commissioning, programming and operation. For example, when changing operating areas, the screen forms are loaded almost twice as fast as before.

The new PPU2xx.3 hardware for Sinumerik 828D and Sinumerik 828D Basic has a more rugged design than the previous version so that they can be used in harsh industrial environments, and are also better protected against wiring errors during installation in a control cabinet. Furthermore, Sinumerik 828D Basic can now also be used for turning and milling on one piece of hardware. This reduces costs, especially those for spare part logistics and stock keeping.

PPU2xx.3 has the same dimensions and connectors and is fully compatible with version PPU2xx.2. This ensures

trouble-free conversion to the new hardware, which requires Sinumerik 828D V4.5 SP3 software or higher.

For further information contact Rowan Dickason on TEL: 011 652 3652 or visit [www.siemens.com/sinumerik](http://www.siemens.com/sinumerik)



## Hypertherm expands Powermax line-up with the launch of Powermax125 air plasma system

Hypertherm, a manufacturer of advanced cutting systems, has announced the launch of the Powermax125®, a new cutting and gouging system delivering the most power of any portable air plasma available on the market.

The recommended cut capacity for the new system is 38mm at speeds of up to 457mm per minute, though it can sever metal more than 57mm thick if needed. The system is also strong at gouging, capable of removing more than 12.5 kg of metal an hour, while a full 100 percent duty cycle guarantees the system can easily hold its own in demanding round the clock work environments.

“The Powermax125 provides welders and fabricators with unprecedented power for a portable air plasma system,” said Erik Brine, product manager for Hypertherm Powermax systems. “Patented technology and careful engineering have resulted in a very efficient system that delivers more energy to the torch than higher amperage competitive systems.”

Hypertherm estimates consumables for the Powermax125 will last up to four times longer than competitive systems in

this amperage range. In addition to lasting longer, specially designed consumables are available for improved drag cutting, gouging, thin gauge cutting, and automated cutting.

Other benefits of the Powermax125 include cut speeds five times faster than oxyfuel on 12 mm mild steel, better cut quality than oxyfuel for less time spent on secondary operations, more torch options than competitive systems so owners can choose the right torch for their particular application, and SpringStart™ technology for consistent starting and a more reliable torch.

The Powermax125 comes standard with Smart Sense™ technology which performs two important functions. It automatically sets air pressure for the best cutting and gouging performance, and turns off power

to the torch when the electrode is used up, protecting both the torch and work piece from damage.

This system, like all Powermax systems, is available from authorized Hypertherm partners around the world.

For further details contact Hypertherm on TEL: +31(0) 165 596932 or visit [www.hypertherm.com](http://www.hypertherm.com)



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- Programmable Z Axis



# The new generation of the Zeiss Contura coordinate measuring machine

The new generation of the Zeiss Contura coordinate measuring machine is more attractive than ever: it now offers additional measuring ranges and a wide spectrum of optical sensors.

Zeiss Industrial Metrology has introduced the latest generation of the successful Zeiss Contura. This system provides a platform for flexible, reliable and uncompromising quality assurance. It is even more precise than its predecessor and offers a large package of optical sensors on top of additional measuring ranges. Outstanding scanning technology, Zeiss Calypso 2014 software and a highly tuned overall system enable Zeiss Contura to maintain its place as the standard in its class.

Like no other Zeiss coordinate measuring machine, Zeiss Contura has made high-performance measuring technology available to the masses. The latest generation will continue on this proven path. A reliable measuring system is the result of the interaction of its components: design, sensors, software and service. Thanks to its robust design, Zeiss Contura can also be used near production. The latest and most powerful scanning sensors from Zeiss are available for the machine.

## Choice of measuring ranges

Another new feature is the range of measuring volumes. The Zeiss Contura family has eight different sizes starting with a measuring volume of 700 x 700 x 600mm up to 1200 x 2400 x 1000 millimeters.

## Tailored sensors

In tune with the various customer requirements, sensors are available in the direkt, RDS and aktiv versions. With the Zeiss Vast XXT probe, the direkt model enables scanning. This

configuration is ideal for small workpieces, for which a small single or star stylus is sufficient. Scanning makes it possible to efficiently and precisely measure the form in addition to the size and location. For parts with different angular positions, the RDS sensor model is the right choice.

The RDS articulating probe holder can be freely positioned in 2.5 degree increments, resulting in more than 20,000 possible positions. Thanks to the RDS-CAA, the data from every single position can be mathematically calculated in just a few minutes. This drastically improves the utilization level of the machine and results in additional possibilities to immediately measure even complex angular positions. Its sensor interface permits the flexible use of contact and optical sensors, including the new Zeiss LineScan sensor. It enables the fast optical measurement of features.

The aktiv configuration is recommended when long styli are needed for measurements deep inside a part or for additional demands on precision and speed. The Zeiss Vast XTR gold and Vast XT gold premium probes are available. This active regulation enables highly accurate measurements with very long, heavy stylus systems.

For more information contact Arthur van Jaarsveld on TEL: 011 886 9510, email: [Arthur.vanJaarsveld@zeiss.com](mailto:Arthur.vanJaarsveld@zeiss.com) or visit the website [www.zeiss.co.za](http://www.zeiss.co.za)



# Mate Precision Tooling introduces new special spring packs and guides for Boschert busbar presses

Tooling designed for efficient processing of copper bars.

Mate Precision Tooling has introduced its new special spring packs and guides for Boschert busbar presses. Designed for the efficient processing of copper bars, this new Mate tooling provides a superior solution.

"Busbar presses such as the Boschert CU Profi and the CU WK II were developed for the efficient processing of copper bars. Mate Precision Tooling has created special spring packs and guides specifically for these punching machines," reports John Galich, Mate's Marketing Manager.

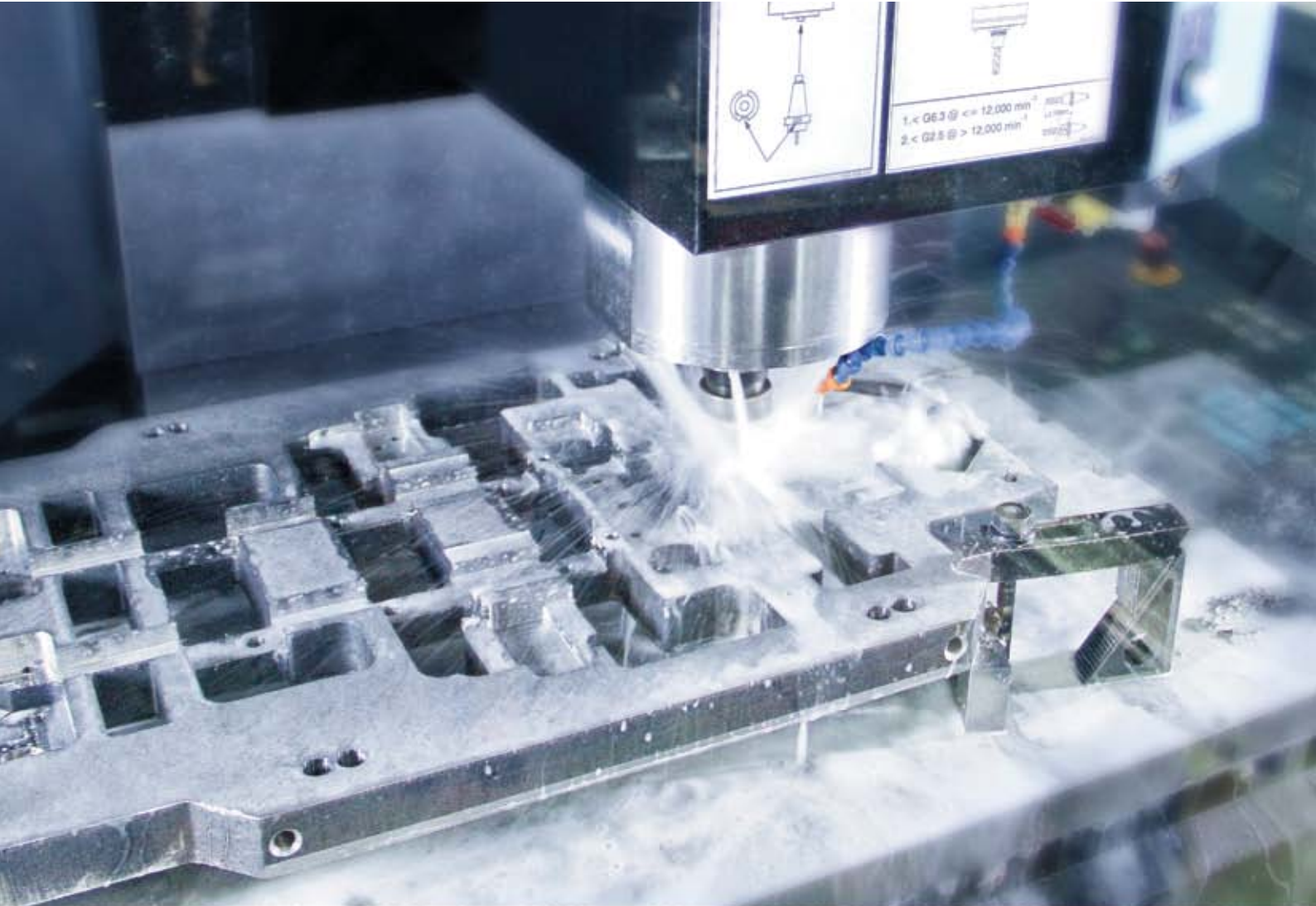
The Mate specialised tooling for Boschert A and B stations consists of

custom length spring packs that work with UltraTEC® guides, punches, strippers and dies. The Mate tooling designed for Boschert C and D stations are custom guide assemblies that use original style thick turret punches, strippers and dies.

Mate also offers a punch, stripper and die for the Boschert speciality shearing tools (size 80x8mm or 50x10mm) which include a custom guide, punch, stripper and die.

For more information contact Metal Sheet Tool Services on TEL: 011 618 4275 or visit [www.mstools.co.za](http://www.mstools.co.za)





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# One for all: a single tap solution for multiple applications – Iscar's new Onetap taps

Iscar has introduced a product line, called Onetap, which has an optimised cutting geometry for universal use in a wide range of materials. It is said to allow customers the opportunity to significantly reduce their tap stock usage and also achieve the highest efficiency in production.

The tap Iscar developed has a unique patented geometry that both reduces and distributes the cutting load, preventing overfeed tapping process, assures the highest surface quality (even in the last part) and increases tool life up to two times (depending on cutting conditions and workpiece material).

Users are said to be able to use the same type for machining grey iron, stainless steel as well as efficient use on a wide range of materials (multi-purpose), while maintaining excellent tool life and precise thread standards.

The line will be available in two of the most common geometries: gun-point tap for through holes and spiral flute tap for blind holes. Both tap types are made from uncoated polished HSS-E, while TiN, TiCN and TiAlN coatings or surface treatment (Steam Homo) are available on request.

## Gun point taps

Gun point taps push the chips forward. They are used for through holes and are said to be the strongest tap design due to their shallow flutes. Their straight flutes are used only for conducting the coolant fluid, not for chip evacuation.

## Spiral flute taps

The spiral flute taps are said to be the best option for blind holes and are used for both chip evacuation and coolant flow as well as being used for the most common 40° right hand helix and HSS-E blind holes tap. The chamfer lead is Form C (two to three threads chamfer) and it is pointed for up to 3xD thread depth.

## Expansion of HeliiQmill 390 line

Following excellent market response to the HeliiQmill 390



**HELIIQMILL**  
390 LINE

milling line with the 07, 10 and 15 mm insert sizes, Iscar is expanding the range with tools that carry the HM390 TDKT 1907PDTR to a larger 19mm triangular insert.

The new insert design is based on the original design of its three predecessors and includes all of their advantages. The insert features a maximum depth of cut of 16mm and the large triangular insert provides high productivity characterised by thicker and thus stronger helical cutting edges. This enables cost savings and longer tool life, compared with conventional inserts with two edges.

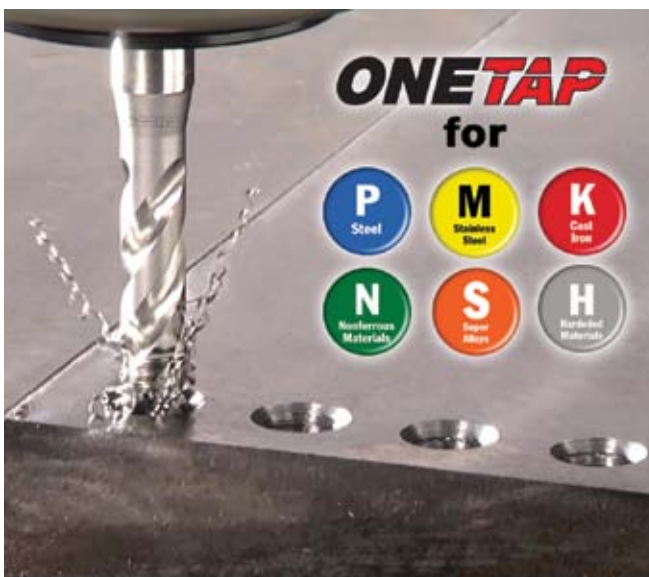
Other features are the triangular shape with three helical cutting edges, very rigid structure, positive axial rake that reduces cutting forces, wiper flat for high surface finish and clean and smooth cutting with long tool life.

The new HeliiQmill 390 inserts are produced from Iscar's latest Sumotec carbide grades, which provide a very high productivity advantage. The line includes endmills in diameters of 40 and 50mm and face mills in the diameter range of 63 to 160mm.

All of the HeliiQmill 390 cutters feature coolant holes directed to each individual cutting edge, are hard touch coated, providing better chip flow and protection from corrosion and wear. The fine and coarse pitch configurations are available as standard and are a thick insert, which enables very secure clamping. Combined with a durable body, the cutter ensures effective cutting even under high tooth load (feed x D.O.C. x W.O.C.) applications.

Applications include machining materials such as steel, cast iron, stainless steel and difficult-to-cut HTSA and are used for milling shoulders, slots and plane surfaces in general engineering.

For further details contact Iscar South Africa on TEL: 011 997 2700 or visit [www.iscar.com](http://www.iscar.com)



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# SMTCL introduces VivaTurn lathes

Accurate, economical lathes targeted toward the job shop market.

**S**MTCCL has introduced a new line of lathes called VivaTurn, which will bring high performance and high productivity to job shops. These lathes were designed by SMTCL's Schiess-Tech design center in cooperation with designers in Shanghai, China.

"This was the first collaborative effort where we have combined the technical knowledge of our German engineers with the vast experience and large installed base of our colleagues in Shanghai," said Marcus Otto, Managing Director of Schiess-Tech in Germany.

The result is a family of highly reliable slant bed CNC Lathes that are highly accurate and priced

competitively. The lathes are available in simple 2-axis configuration or with live milling. Sub-Spindle and Y Axis models will be released in the near future.

The VivaTurn 2Sm has 22" swing over the bed, a 10" hydraulic chuck, 3.1" spindle bore, and a 12-position live tool turret. The VivaTurn 4Cm has 28" of swing over the bed, a 10" hydraulic chuck, 3.1" spindle bore, and a 12-position power tool turret. All VivaTurn lathes come standard with NSK Bearings, a hydraulic tailstock, and chip conveyor.

For further details contact Harp Machine Tools  
TEL: 011 918 5138 or  
visit [www.harp.co.za](http://www.harp.co.za)



## Welding tubes quickly and easily with the laser

Trumpf releases new TruLaser Cell 1100 basic edition, a beam guidance system.

**T**he Trumpf TruLaser Cell 1100 Basic Edition is a beam guidance system that makes starting to weld tubes and profiles far less complicated. The system was conceived especially for companies that work a smaller number of differing tube sizes and that wish to make the transition from conventional tube welding to welding with the laser.

The machine is easy to operate and contains all the functions needed for a successful start. Two adjustable axes accommodate a wide variety of tube geometries. The X axis positions the welding optics parallel to the feed direction while the Z axis sets the optics at the correct working height, matching the tube diameter. Mechanical seam guidance is available as an option to improve the welding seam. When engineering the TruLaser Cell 1100 Basic Edition, Trumpf paid special attention to the machine's ruggedness under tough manufacturing conditions in order to minimise stoppages.

### CO2 laser mounted at the factory

Installed at the factory is the beam source, Trumpf TruFlow CO2 laser, with a power output that can vary between 3.2 and 6 kilowatts, depending on current needs. The compact, axial-flow lasers from the TruFlow family are not only



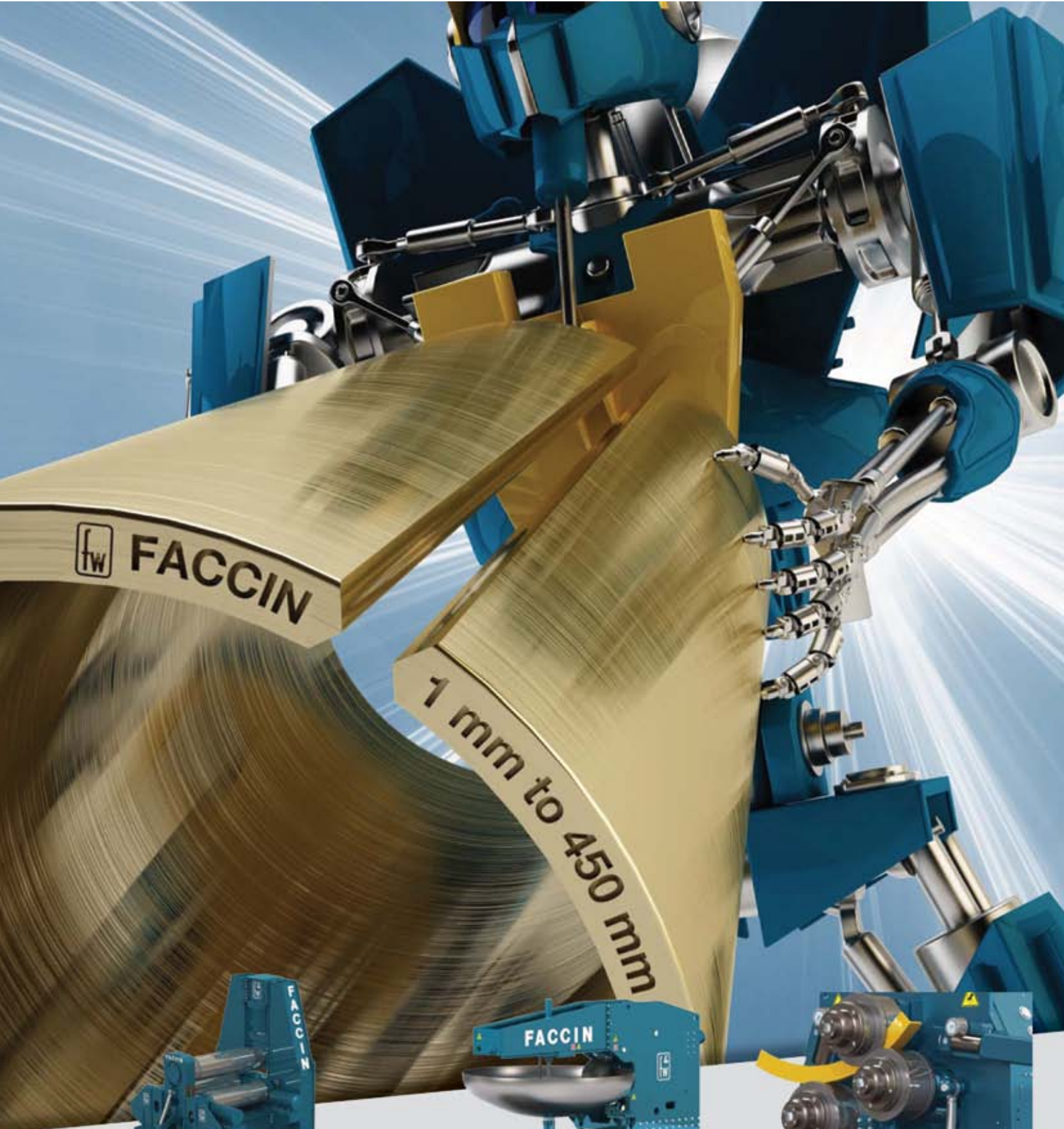
insensitive to thermal and mechanical influences, they also offer stable laser beam quality even during longer welding sessions. In order to make the operation as simple as possible, Trumpf has reduced the number of interfaces to a minimum.

The frame for the new TruLaser Cell 1100 Basic Edition has been designed for efficiency. It comprises two parts, so that the machine can be installed and commissioned very quickly at the customer's site. In addition, the pre-mounted laser is adjusted for optimum performance before the machine leaves the factory. This lets the customer launch production as quickly as possible, without any need for laboriously readjusting the laser.

In addition, Trumpf service technicians can use the tele-diagnosis feature, once the customer has approved this function, to communicate with the machine and to eliminate any

malfunctions both quickly and reliably. This raises machine availability and virtually eliminates service calls. The TruLaser Cell 1100 Basic Edition thus guarantees not only an uncomplicated entry into the welding of tubes and profiles, it also makes those operations fast and productive.

For further details contact Retecon Machine Tools on  
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# Achieve true 90° shoulder milling with high-performance Widia VSM11™ platform

**A**s a job-shop owner, how would you describe an ideal, go-to tool? Certainly, it should be a high-performance tool that can cover multiple functions such as shoulder milling, slotting, pocket milling, ramping and helical interpolation. And naturally it should have the performance and working life that make it an economical win for present and future production tasks.

This ideal product is the new VSM11 platform from Widia. “VSM11’s versatility and a wide breadth of offering is specifically engineered and optimised to provide higher productivity for job shops” says Adarsh Sowcar, global product manager, indexable milling. Designed for low horsepower draw and free machining, the VSM11 delivers an effective one-two punch of reduced horsepower at the machine and higher speed and feed rates that get jobs done faster.

VSM11 cutter bodies have an integral chip gash design for

excellent chip evacuation along with hardened-steel construction and hardened pocket seats for improved resistance to deformation. They are available in shell, screw on, cylindrical shank, and Weldon shank models with internal air and coolant capability.

VSM11 11mm insert has an optimised cutting edge and positive rake face that provides a true 90-degree wall while concurrently reducing cutting forces and providing excellent, stepless surface finishes. Six Widia Victory™ grades and five geometries make up a well-rounded portfolio of first-choice recommendations covering multiple material types and machining tasks.

There are many things for job shops to like about VSM11. One offering can accomplish 90-degree shoulder milling, full slotting, 3D pocket milling, circular contour milling ID and OD, helical interpolation and ramping into full material. Add to that reduced cutting forces and improved free-cutting action and the result is phenomenal hours of improved tool life. VSM11 are high-performance tools that do more of what job shops need done.

“VSM11’s versatility and a wide breadth of offering is specifically engineered and optimised to provide higher productivity for job shops” says Adarsh Sowcar, global product manager, indexable milling at Widia



**Louis Nel and Maritsa Petit of Petit Engineering with Willie Jordaan of Widatech**



**Avishay Zohar of Widia, Ronnie Graham of Widatech and Yossi Marely of Widia**

A VSM11 Starter Kit of four cutter bodies and Widia Victory grade WP40PM, covering roughing to finishing, is available by contacting your Widia distributor.

All inserts are available in the latest Widia Victory™ grades for a variety of workpiece materials.

Widatech held a seminar to launch the new products of Widia. The seminar was held at Emperors Palace, Gauteng and 120 clients attended. Below is a selection of the attendees.

For more information contact Widatech on TEL: 087 150 3266 or email: [info@widatech.co.za](mailto:info@widatech.co.za)



Jan Zuidersma of Zuidersma Engineering with Ralph Nel, Morne Ainsley and Machiel Bezuidenhout, all of Sulzer



Maurice, Ernst and Geerit van der Walt, all of Formach Engineering



Mike Ledley and Sam Ernst, both of West Rand Engineering, with Arthur Sousa of Joy Global



Jan and Michelle Hugo of Hugo Precision Engineering and Piet Booyens of Walquin Precision Engineering



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## Welding torches feature close-to-process wire feeding - SKS

Perfect results for automated arc welding are only possible if all components meet the highest technical standards. This applies, in particular, to the torch systems – the interface between the robot and the joint. SKS Welding Systems developed specific solutions for this very feature. SKS Welding Systems offers the Frontpull 8 family of welding torches. They feature close-to-process wire feeding, with the drive unit directly in front of the torch neck. The torches are suitable for all standard arc welding and soldering processes and the pertaining consumables; they highly support spatter and heat-reduced welding processes such as microMIG and microMIG-cc.

The new Frontpull 8i for process-arm robots (internal cable or hollow wrist robots) has a unique position in the market. It offers unlimited rotation even beyond 360°, it is light-weight (>3 kg), and features high-precision wire feeding. Limitless rotation is a real time saver, re-orientation movements of the robot are eliminated. Besides perfect wire control, the torch cable is well protected: thanks to a media feed-through with limitless rotation the cable is free from any torsional stress. Additional benefits include controlled heat input into the workpiece, virtually spatter-free joining with defined penetration, good seam appearance, low workpiece deformation and – as a result – only little rework. The reproducible accuracy of the TCP after changing the torch neck and/or the wearing parts is  $\pm 0.2$  mm.



SKS offers the Frontpull 8i with integrated collision protection, and the Frontpull 8i lite with support for existing robot collision protection systems. Robots with external cables use the Frontpull 8.

Another innovation is the standard version of eReam. The first 100% electrically driven program-controlled torch cleaning system offers fundamental advantages over systems driven by compressed air.

For further details contact Yaskawa South Africa on TEL: 011 608 3182 or visit [www.yaskawa.za.com](http://www.yaskawa.za.com)

## Redesigned CAM engine anticipates mill, lathe evolution

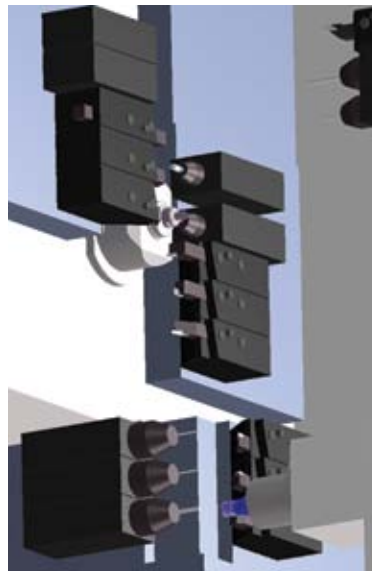
Gibbs and Associates has introduced GibbsCAM 2015 for programming CNC machine tools, which is built on the GibbsCAM UKM (Universal Kinematic Machine) software engine. Though backward compatible, the completely reengineered engine is designed to address what the company sees as an increasingly blurred line between the definition of mills and lathes with the advent of turn-mill machines and multitasking machines. As a result, the UKM engine can support any number of axes in any direction with multiple tools cutting simultaneously, and improves rendering and machine simulation in order to accommodate both existing and future machine types.

Built on this engine, the GibbsCAM 2015 software features added tool types (such as barrel, dovetail and convex tip), as well as dynamic 3D tool and toolholder viewing in the tool dialog for accurate visualisation and selection. The Intermediate Tooling category allows for items that are neither tools nor fixed machine parts, such as fixtures (e.g., chucks and tailstocks) and tool blocks

(e.g., adapter blocks). The programmer can create libraries of tool blocks to ease complex machine setup and can share them across different parts, saving time and reducing errors.

Other features include additional high speed machining (HSM) strategies and improved geometry tools, such as spline editing and contour tracing capabilities. Additions to machining functionality include adaptive roughing capabilities, predrilling and background processing for VoluMill, as well as Tombstone Management System capabilities. Functionality has also been added to aid in the importing and machining of hole features. Holes are now treated as fully associative features of solid bodies, including those imported from SolidWorks, Solid Edge, Autodesk Inventor or Catia Version 5. Compound holes (holes with multiple tapered or threaded segments) are supported as well.

For further information contact Product ONE on TEL: 012 673 9300 or visit [www.prodome.com](http://www.prodome.com)



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78mm                      91mm

Z Travel  
794mm                    1 275mm

3-Jaw Hydraulic Chuck  
10"                        12"

Max Spindle Speed  
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Programmable Tailstock  
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**\*Both available EX STOCK**



## KML80L – KML100L

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Spindle  
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# Walter extends Cut-SX single-edged grooving system

The grooving blades and internally cooled toolholders for the new Walter Cut-SX single-edged grooving system are now available in two additional dimensions and designs.

Process reliability is the top priority for grooving and parting off, particularly when the tool cuts deeper grooves into the workpiece. The Walter Cut-SX grooving system, launched 2013, 'cuts its grooves' precisely into this gap in capability; the cutting depth is no longer limited according to the insert length, as it was previously with double-edged systems. This makes it possible to achieve the deeper grooving and parting-off cuts that are increasingly common in many sectors of industry. At the same time, a new self-clamping system ensures that the cutting inserts are securely located, even under conditions of high stress.

The right tool for each job also plays its part in providing process reliability in any application. The Walter Cut-SX grooving system is therefore being continuously enhanced, in order to provide solutions for as wide a range of machining situations as possible.

## In future, Walter will offer its Walter Cut-SX G2042R/L grooving blades with strengthened shank in four variants:

As a left- or right-handed tool, each in a standard and a contra version. This makes it possible to work in any position required, even where space may be limited. Because the tool shank reduces available clearance when grooving in the immediate vicinity of the spindle, the mirror-image design of the contra version provides an easy solution to this potential problem.



Walter Cut-SX G2012-P toolholders with through coolant have been available in the shank sizes of 20 and 25 millimetres since 2013. The Tübingen experts in machining have now added the shank sizes of 12 and 16 millimetres for smaller diameters. These are particularly suitable for use on multi-spindle machines, automatic centre lathes, because the dimensions of the tools have been specially adapted to these types of machine. With machines like these in particular, 'room to manoeuvre' is often limited.

For further details contact Spectra Carbide Tooling Technology on TEL: 0860 23 23 23 or email [spectra@spectra-sa.co.za](mailto:spectra@spectra-sa.co.za) or visit [www.spectra-sa.co.za](http://www.spectra-sa.co.za) or follow them on Twitter @Spectra\_Carbide

# Victor Fortune Vcenter-H630HD heavy-duty horizontal machining center

The Victor Fortune Vcenter-H630HD heavy-duty horizontal machining center (HMC) has been upgraded and features a whole host of new functions. These include three-axis rapid feeds that have been increased (compared with the original VC-H630 model) to 944 IPM and are now heavy-duty box ways. The ballscrew pitch has been reduced from

12mm to 10mm and the horse power (HP) is increased on all 3-axis servo motors with the three-axis thrust force upgraded on the X by 63%, the Y by 60% and the Z-axis by 63% (includes longer Y-axis column).



The Vcenter-H630HD has a new ATC + tool magazine and the solenoid valve is upgraded with a check valve and modified PLC, and a new servo driven tool magazine is utilised in place of a hydraulic driving system.

The B-axis is upgraded to a deeper slope for less chip build-up and the 0.001° B-axis worm gear is changed to a roller cam drive. An optional hydraulic interface goes through the B-axis mechanism (coupling) and the pallet loading capacity is increased from 1 000 to 1 200 kilograms.

It is reported that a modified longer spindle and layout for spindle bearings is utilised, and the new spindle with hollow taper reduces the contact surface between the tool and spindle. The Y-axis and Z-axis cover with layer gap now faces downward (reversed design from VC-H630) and a new casting is featured on the Y-axis column, which is 152,4mm higher.

The machine guarding includes a user-friendly control panel that is designed for easy operation. The machine also features improved chip and coolant disposal and less noise for the APC door.

For further details contact Victor Fortune on TEL: 011 392 3800 or visit [www.victor.co.za](http://www.victor.co.za)

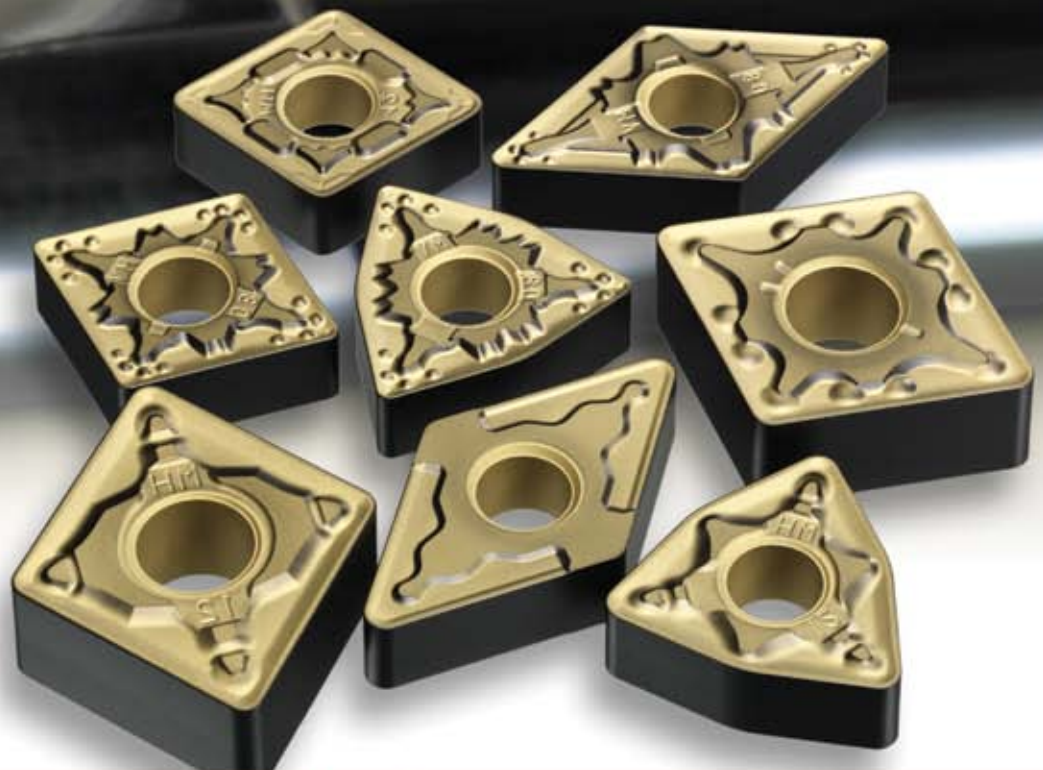
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SNMG1906XX	R100.60
TNMG1604XX	R38.00
TNMG2204XX	R55.00
WNMG06T3XX	R31.00
WNMG0604XX	R31.00
WNMG0804XX	R43.90

*Prices are subject to change without prior notice and are only applicable to coated inserts.*



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# TaeguTec's Typhoon adds power to low RPM machines

**M**achine shops looking for the power of mother nature in order to transform their limited RPM machines into speedy F-1 style workhorses at a fraction of the cost can now look no further than TaeguTec's newest offering.

The Typhoon, TaeguTec's revolutionary high-speed jet spindle, was developed for applications that need high RPMs for small diameter tools on slow RPM machines.

The new tool is designed to be used for high-speed machining in milling, holmaking and grinding applications.

The system works by utilizing the machine tool's existing coolant supply, driven by a high-pressure pump as an energy source, to rotate a built-in turbine at speeds of up to 40,000 RPMs.

The Typhoon does not replace the existing machine's spindle, hence saving the manufacturer thousands of dollars in upgrades or replacement. Instead, it improves the existing low RPM spindle machine's performance, surface finish and tool life capabilities and increases productivity.

TaeguTec's newest high-speed jet spindle is designed for applications requiring shanks of up to 6 millimeter and cutting diameters up to 3.5mm. It is specifically adapted to workshops where CNC machines have a spindle capacity lower than 15,000 RPMs and through coolant with a minimum.

During several product tests, TaeguTec's Typhoon considerably improved the performance of limited RPM machines. While performing a test that required the milling and profiling of an electrolytic copper workpiece, TaeguTec's Typhoon reduced the machining time by

58 percent and also reduced the spindle wear.

In another product that involved the milling of a turbine part made with a SAE 303 workpiece, the Typhoon increased tool life by 300 percent and reduced the machining time by over 27 hours.

In the case of milling a mold made from V2 material, the Typhoon was able to reduce the total machining time from over 13 hours to just over 5 hours and saved 50 percent of the time used during the polishing process.



The Typhoon's incredible precision offers excellent surface quality due to its optimised machining conditions, and its plug and play feature makes it an easy product to install on existing machines with no modification required

To save on energy use, the machine spindle is idle while the Typhoon performs its operation.

The Typhoon's incredible precision offers excellent surface quality due to its optimised machining conditions, and its plug and play feature makes it an easy product to install on existing machines with no modification required.

Another important feature of TaeguTec's Typhoon is that it extends the cutting tool's life, a feature that is made possible due to the optimal cutting conditions and strong coolant jet flow.

Its features include a direct wireless rotation speed display system that monitors the actual cutting rotation speed during the machining process, a 2.4 GHz frequency transmitter, direct wireless rotation speed monitoring of up to 5 meters and a wireless LED display that enables the reading of the Typhoon's RPM in real time.

The Typhoon is available in three versions, each one covering specific ranges of diameters and speeds for a wide range of workpiece materials and machine tools.



While performing thread milling tests on an SAE 4340 workpiece, the Typhoon continued its hot streak by reducing the machining time per part by 85 percent which in turn increased the tool life by as much as 200 percent.

Overall, TaeguTec's Typhoon is an ideal solution for the growing demand in finish and semi-finish operations on a wide range of processed materials in the die and mold industries as well as

high-precision machining in the aerospace and medical industries.

This newest high-speed jet spindle boosts productivity by significantly widening the application range on medium and large machine tools, increases efficiency, minimizes set-up time and decreases machining time, all of which reduce the overall cost.

For more information contact TaeguTec SA on TEL: 011 362 1500 or visit [www.taegutec.com](http://www.taegutec.com)

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# A CNC turning machine for those without CNC programming skills

**K**nuth Machine Tools has introduced new and redesigned models of its Numturn 420 CNC Cycle Lathe. This machine features a Siemens 808D MM Plus CNC control, which, according to the company, allows users without any previous CNC programming skills to produce parts with complex geometries.

The Siemens 808D MM Plus has a user-oriented cycle interface designed for easy programming. Turning cycles with a variety of options help simplify complete parts programming. Additionally, pre-loaded ballscrews, servo drives, hardened and ground guideways, and high precision ball bearings are used to help provide stringent tolerances.

"The spindle speed is infinitely programmable (3,000 RPM max.) in two geared stages to give the user a powerful spindle drive," said a company spokesperson. "This, combined with consistent cutting speeds, ensures enhanced surface



quality."

Standard equipment includes two electric handwheels for manual operation of the X and Z axes, hydraulic chuck (manual chuck on Eco models), six or eight station tool turret (quick change holder on Eco model), automatic central lubrication, a halogen work lamp, operating tools, an operator's manual and programming instructions.

The machine is available in four different configurations to suit different applications. The Numturn 320 with 12" swing, 16" center width, 5 HP, six station turret and 6" hydraulic chuck is also available in an Eco model with a manual chuck and quick change toolholder. The Numturn 420 with 16" swing, 29" between centers, 10 HP, eight station turret and 8" hydraulic chuck is also available in an Eco version with manual chuck and quick change toolholder.

For further details contact Knuth Machine Tools on TEL: 011 822 4610 or visit [www.knuth.co.za](http://www.knuth.co.za)

## Dassault Systèmes introduces Solidworks 2015

With Solidworks 2015, users gain access to cloud-based capabilities and a wider range of choices for improving productivity, work processes and operating costs.

**S**olidworks 2015 covers all comprehensive aspects of the product development process with an intuitive, integrated 3D development environment that includes 3D design, simulation, electrical design, product data management and technical communication. In addition, starting with the new Collaborative Sharing feature, Solidworks 2015 enables access to Dassault Systèmes' 3DEXperience platform and its cloud-based capabilities. Designers and engineers can span multiple disciplines with ease, shortening the design cycle, increasing productivity and collaborating to deliver innovative products to market faster.

"We've listened to our users and noted how, as their business success grows, their design needs rapidly expand," said Bertrand Sicot, CEO, Solidworks, Dassault Systèmes. "This is why we are so attentive to our users' needs. More than 90% of the functionality in Solidworks 2015 has been directly requested by customers. With the 3DEXperience platform now accessible, users can connect their existing Solidworks desktop applications to the cloud and begin developing new business processes and enjoy 3DEXperience powered by new generation apps, such as Solidworks' upcoming

Industrial Design application. This announcement is a testament to our ongoing commitment to users."

Solidworks 2015 not only delivers key enhancements requested by the entire user base, but also solutions for a wide array of industries and markets. For example, Solidworks users will be able to easily enhance the aesthetics of consumer products and apparel, and simulate construction machinery, building infrastructure and machine tools better than ever before.

"With the emphasis on the direct-from-3D-model fabrication processes, it's important that we shift our focus to model-based definition so that we can shorten our overall design cycle and simplify the way we do things," said Ryan Trulli, Mechanical Engineer, GE Oil & Gas.

"With Solidworks Model Based Definition, the 3D model itself holds all the dimensional data necessary to make the part. This means less documentation creation, fewer emails flying around, and fewer files to sustain when the project is complete."

For further details contact Mecad Systems on 086 111 2236 or visit [www.mecad.co.za](http://www.mecad.co.za)



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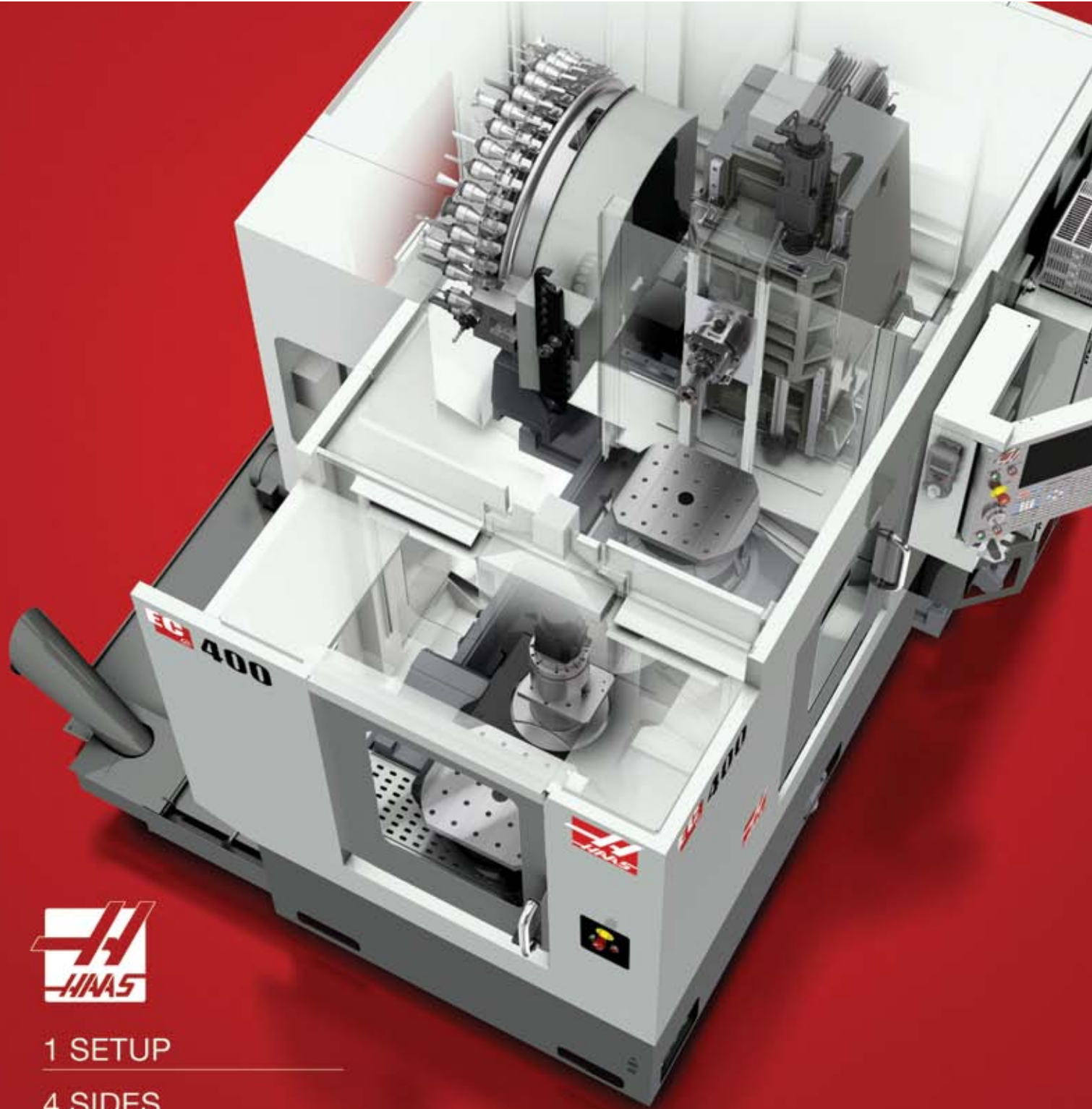
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