MTM®
Machine Tool Market
SOUTHERN AFRICA

May/June 2026 Volume 35 No.3

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Ultra-high speed and high precision SSS (Super Smoot Surface) control with 8,190 block look ahead speeds

Core Specifications

Table Size
400mm

Travel (X,Y,Z)
610x610x550mm

Spindle Speed
15 000rpm

Tool Storage
60 Pcs, 100 Opt

Rapid Feed (X,YxZ)
50m/min x 25m/min

Rapid Feed (A, C)
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Incredible Accuracy

Positioning accuracy
±0.002mm/Full stroke
Repeatability ±0.001mm

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MTM® Machine Tool Market SOUTHERN AFRICA

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Fiber Laser

The ENSIS range provides high speed processing of thin to thick materials in 3, 6, 9 & 12kW derivatives

VPSS Virtual Prototype Simulation System

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The Amada Product Portfolio includes:
CNC TURRET PUNCH PRESSES, CNC LASER CUTTERS, CNC PRESSBRAKES, NC HYDRAULIC/MECHANICAL SHEARS, SOFTWARE, BANDSAWS, BANDSAW BLADES, SALES & SERVICE.

VPSS
Virtual Prototype Simulation System

Further evolution of a best seller punching machine with drastic set-up time reduction and process integration

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The new AE-NT servo drive turret punch press offers high performance and reduced operating cost in one package

HYBRID DRIVE SYSTEM
HRB SERIES PRESS BRAKE

High speed and accuracy for all production environments

EGB SERIES PRESS BRAKE

Electric bending from small to large work pieces

MTM®

THE DO-ALL MASTER – MULTI-MASTER FOR EVERY TASK

The MULTI-MASTER system, an innovative range of assembled tools with exchangeable cutting heads, was originally introduced by ISCAR at the start of the 21st century, making the product as old as the era itself. Despite its age, the MULTI-MASTER has demonstrated remarkable longevity and remains highly popular in the metal cutting industry. Moreover, although the concept provoked widespread doubts initially, it paved the way for numerous competitors to develop similar solutions based on the same elements.

The MULTI-MASTER design centers the cutting head in the tool body using a short taper, ensuring face contact through elastic deformation of the body's female taper area, while the head is secured in place by a threaded connection. Initially, the use of threads was met with significant scepticism, as threading can act as a stress concentrator in cemented carbide, the hard but brittle material used for the exchangeable heads. Such conditions can present a potential weakness, an Achilles' heel, in the design. However, the introduction of a specially engineered thread profile provided an elegant solution to this problem, effectively settling these hesitations. This innovation inspired many companies to adopt threaded connections for cutters with exchangeable carbide heads. As a result, almost every leading brand now includes such cutters in their product ranges.

What benefits of the MULTI-MASTER family explain its longevity? Which features contribute to the product's enduring success in the industry? These frequently asked questions are worth further consideration.

First, the MULTI-MASTER concept is based on three key elements, the product's design triad, taper centering, face contact and the connection thread, which together provide significant advantages. Taper centering ensures high accuracy, while face contact uses the head overhang within strict tolerance limits, resulting in excellent dimensional repeatability of the assembly. The threaded connection makes replacing the heads simple and operator friendly.

Owing to its high accuracy, the MULTI-MASTER stands as a strong competitor to solid carbide tools. Maintaining the head overhang within close tolerances meets the requirements of the important "no-setup time" principle, as replacing a worn head does not require additional setup operations. The head can be changed without removing the tool from the machine, which significantly reduces machine downtime. This is an important attribute of assembled tools for tomorrow's smart manufacturing.

The thread connection allows the tool body to mount different cutting heads and vice versa, transforming the body into a universal holder and thereby reducing both tool inventory and storage needs. The bodies (referred to as "shanks" in MULTI-MASTER terminology) are made of steel, cemented carbide with considerable stiffness, or heavy metal, which offers excellent vibration-dampening properties. Moreover, the wide selection of MULTI-MASTER adapters, extensions and reducers simplifies tool customization, ensuring the optimal tool configuration for specific applications and diminishing the need for special tools.

All of this enables thousands of efficient assembled tool combinations for a broad range of machining applications, including milling, holemaking, threading, engraving and even gearing.

Additionally, the MULTI-MASTER system features another characteristic that makes it particularly relevant today. In recent years, the prices of tungsten-containing ores and raw materials have risen rapidly, due to various factors. This has led to a significant increase in the cost of tungsten carbide, a primary material for cutting tools, which in turn, has had a major impact on overall tooling costs.

As a result, manufacturers in the metalworking industry are reassessing their priorities, and the need for cost-effective tooling solutions that can substantially reduce expenses has become more important than ever. Given these circumstances, the MULTI-MASTER system stands out, as it offers impressive opportunities for economizing on tungsten carbide. This makes it a truly groundbreaking solution for today's challenges. A MULTI-MASTER assembly approaches the performance of a solid tool not only in terms of accuracy. The extremely rigid connection between the head and shank gives the assembly stiffness comparable to that of a monolithic design. In the MULTI-MASTER system, the advantageous combination of accuracy and rigidity, enhanced by the system's versatility, offers a valuable, cost-effective alternative to solid carbide tools.

Over its more than 25-year history of continuous innovation, the MULTI-MASTER system has developed a rich product portfolio. Its application range includes milling shoulders, slots, planes, 3D surfaces, threads, gears, splines, chamfering, drilling and countersinking. Beyond exchangeable solid carbide heads, the system now incorporates heads with indexable inserts, significantly expanding its versatility. Though major developments have reached their natural limit, ISCAR engineers continue to introduce new products, keeping the MULTI-MASTER family fresh and dynamic. These new designs, whether prominent or subtle, demonstrate that the MULTI-MASTER story logically (logIQally!) continues. Let's look at several recent additions.

Solid Carbide Milling Heads

The assortment of MULTI-MASTER's standard-line solid carbide heads is extensive, encompassing a wide variety of shapes, including cylindrical, tapered, ball-nose, disc-type, toroidal and others, within a nominal diameter range of 5–32 mm. While it may seem that this diversity fully satisfies design requirements, ISCAR continues to expand the line with new products each year. Among the latest additions are six-flute high-feed milling (HFM) heads for efficient roughing, capable of

machining steels hardened up to HRC 65; six-flute dovetail groove milling heads with cutting edge angles of 120° and 135°; and four-flute, 32-mm-diameter heads for milling aluminium and other ISO N materials, featuring an anti-chatter design, sharp cutting edge and polished rake face. The increased number of flutes is intended to promote productive machining combined with rational and sustainable utilization of carbide material.

Shanks

Recently, ISCAR introduced new MULTI-MASTER anti-vibration shanks featuring an innovative assembled-structure concept, a carbide body integrated with a built-in vibration-damping

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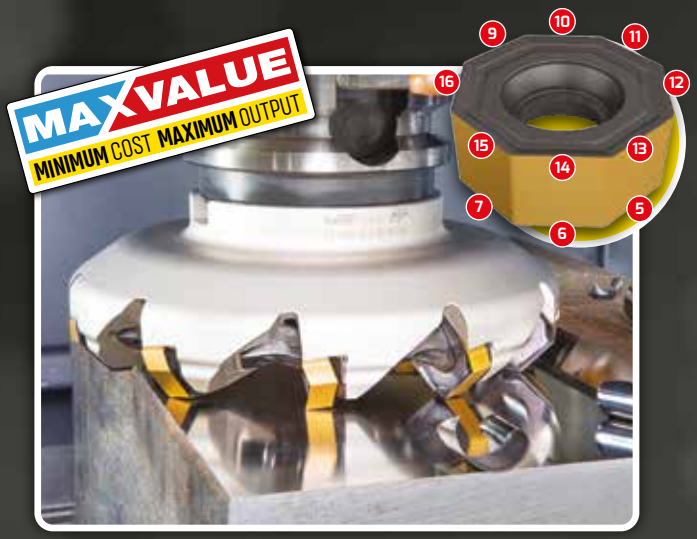
YOU MILLING INTELLIGENTLY?

MAXOUT



HELIDO
800 HD LINE

A smart, cost-saving solution for indexable face milling, delivering **greater part-making capability with fewer tools to stock** and the right tool for the job **with outstanding value and efficiency.**

HELITANG
T490 LINE

This miniature, double-sided tangential insert with 4 cutting edges offers a **cost-effective solution for square shoulder milling at shallow depths.**

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☞ *Cont. from page 4*

mechanism. Such a combination of a high-stiffness material and an oscillation-absorbing mechanism dramatically improves dynamic performance by minimizing vibrations during cutting. As a result, these shanks enable enhanced performance in long-reach applications and under unstable machining conditions.

Another seemingly minor, yet highly valuable, addition is the double-sided shank design. This design incorporates two head pockets on opposite ends of the shank and a central through-coolant hole, offering a cost-effective solution that can help reduce customer tool inventory.

Threading Solutions

MULTI-MASTER threading products include various exchangeable heads with both full and partial thread profiles of 60° and 55°, known for their impressive reliability and dimensional repeatability. This range is continually expanding with the introduction of new heads. One of the

latest developments is the high-performance thread milling head with spiral single-sided inserts. The helical cutting edge ensures smooth and stable cutting, which significantly reduces cutting forces and power consumption. The benefits of the helical edge are especially pronounced when thread milling with a high tool overhang, particularly when using the new anti-vibration shanks.

Holemaking Products

In hole making applications, the MULTI-MASTER line now offers three-flute solid carbide heads. These heads combine the highly efficient three-flute concept, which originates from ISCAR's LOGIQ-3-CHAM family, with the exceptional robustness of the MULTI-MASTER system. Thanks to this combination, the tool is particularly effective for shallow drilling operations, especially when machining materials that produce short chips.

A similar interfamily combination is seen in the modular drilling heads that incorporate key design elements from the successful SUMOCHAM family into the MULTI-MASTER platform. This new development provides the customer with a flexible drilling solution that is easily adaptable and simple to set up for a range of applications.

The history of MULTI-MASTER, which began more than a quarter-century ago, continues to be a story of success. Its versatile tool system has not only withstood the test of time but has also made a significant impact on the development of cutting tools. The MULTI-MASTER concept has yet to reach its full potential and continues to evolve, consistently providing masterful solutions for a wide range of metal cutting operations.

RISING CARBIDE PRICES SHOULDN'T CUT INTO YOUR PROFITS

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Raw tungsten material pricing continues to climb, and for many shops that pressure shows up quickly right on the bottom line. When raw material costs rise, the gap between a "good enough" machining setup and a truly optimized one becomes measurable in dollars per part, spindle uptime and how often tools are being changed. In today's environment, productivity and tooling strategies aren't just technical decisions, they're margin protection.

ISCAR is addressing this challenge head-on with its MAXOUT strategy, a calculated approach designed to help manufacturers achieve MINIMUM COST and MAXIMUM OUTPUT. The message is simple, when you choose ISCAR, MAXOUT becomes MAXVALUE, higher productivity and improved machining economics.

ISCAR's MAXOUT strategy provides productive, stable machining with improved tool economy for turning, milling, holemaking, parting and grooving.

ISCAR's approach centres on stable, repeatable machining performance that supports aggressive cutting data, while protecting consistency and tool life. The goal is to maintain throughput even when input costs are moving in the wrong direction, using tooling solutions that balance performance with economics.

MAXIMUM OUTPUT – More Parts

High-performance turning geometries combined with rigid, stable setups help shops increase feeds and speeds without sacrificing process stability. The payoff shows up in shorter cycle times, improved chip control and more parts out the door per shift, more parts, less time.

MINIMUM COST – Spend Less Per Cutting Edge

The cost of tooling, specifically solid round endmills and drills, increase significantly when carbide prices rise. Substituting these expensive tools for indexable insert options reduces cost since only the cutting edge is replaced not the entire tool. In many cases, ISCAR's indexable options can meet the machining economics of the best round tools reducing cost per cutting edge, improving tool utilization and reducing disposal requirements for used tools. ISCAR solutions help stretch tooling budgets further while maintaining production demands. More parts, less carbide used, less tooling cost.

MAXVALUE – Repeatable Results That Protect Quality

Repeatability is critical, especially in long-running production. ISCAR's insert grades and geometries are engineered for reliable, consistent results, supporting predictable surface finish and dimensional control, while reducing the risk of rework and scrap. With the rising cost of inputs in the machining process, rejected parts are not acceptable. Consistency of process is a competitive advantage. Less inputs, less time, MAXVALUE.

When rising material costs squeeze margins, ISCAR's MAXOUT strategy is a practical way to maximize machining performance and minimize machine shop inputs.

Stop profit erosion, MAXOUT your machining performance with ISCAR.

For more information, please contact ISCAR South Africa (PTY) LTD – Tel: 011 997 2700.

YOU MILLING INTELLIGENTLY?

MAXOUT

MICRO 3 FEED
MF 300 ENDMILL

With 3 indexable cutting edges, the small high-feed trigon insert delivers **efficient, productive roughing and proves that compact inserts can make a big performance impact.**

HELI 3 MILL
HM390 LINE

A material-efficient triangular insert with 3 cutting edges **boosts productivity through longer tool life and delivers accurate 90° square-shoulder milling while reducing carbide scrap through full-edge utilization.**

QUICK D MILL

The ultimate all-in-one indexable tool, combining milling and drilling to **increase versatility, maximize insert utilization, and improve cost efficiency.**

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POWER SKIVING – AN INNOVATIVE GEAR MACHINING OPTION

It is expected that the machining of automobile transmission gears will continue into the future with 7-speed and 8-speed transmissions, even with the introduction of EV reducers. The core component of these gears and reducers is the planetary gear set, with the power skiving being an innovative method for machining ring gears.

Power skiving was conceived in the beginning of the 20th century. Though highly productive and flexible, this method was difficult to implement because it required precision equipment and tools. Today, however, the development of new geometries and grades of tools, as well as improved machine control, makes the power skiving process an interesting alternative for gear manufacturing.

Power skiving is basically an operation where a workpiece is machined into the shape of a desired gear. The two axes rotate according to the gear ratio, due to the intersecting angle between the gear axis and the tool axis, resulting in skiving cutting in the direction of the gear's tooth line, and continuous skiving cutting occurs with a combination of hobbing and shaping.

Advantages of Power Skiving Machining Method

The advantages of the power skiving machining method are as follows:

Power skiving replaces most of the conventional gear machining methods:
Such methods include broaching, shaping and hobbing, which are used depending on internal/external gear machining and interference issues. Power skiving is more flexible than broaching, because it can be applied to blind and through hole gears. Hobbing can only be applied to external gear processing but cannot be applied if there is interference, whereas power skiving can also be applied when there is interference with internal/external tooth processing. In shaping, compared to power skiving, the tool has a longer contact time with the workpiece and generates much cutting heat, which is disadvantageous to tool life. Another advantage to power skiving is its excellent profile accuracy in the lead direction.

High productivity:
In the power skiving process, the cutting speed is in the tooth line direction of the gear, so the milling rotation speed of the cutter must be multiplied by sinΣ (intersection angle).

Although there is a difference, depending on the angle of intersection, the revolutions per minute (RPM) of the spindle must be about four times faster than that of conventional milling in order to obtain the desired speed with a carbide tool.

At this time, the workpiece rotates according to the gear ratio, and since continuous cutting is performed according to the way the gear is generated, the cutting speed becomes very fast.

Power skiving differs depending on conditions, such as the module and pressure angle, but it is generally four times faster than hobbing and about 10 times faster than shaping. Therefore, it is possible to significantly reduce the number of machines used in the machining process. For example, one power skiving machine can do the work of 10 installed shaper machines. This is the basis for reducing space, minimizing equipment investment and reducing manpower costs.

One machine for turning, milling and gear machining:
Traditional gear machining requires separate machines for each process; for example, shaping is usually done on the shaping machine and hobbing is done only on the hobbing machine. However, in the case of power skiving, all the work is done on one 5-axis multitasking machine, making it possible for the operator to complete turning, grooving, milling, drilling and chisel machining, all in one setting. This eliminates the need for separate setup time and can dramatically shorten the cycle time.

High compatibility:
With the same module and pressure angle tool, power skiving processes of spur gears and helical gears are machined within the range of formed crossing angles in the production of internal and external gear teeth. In addition, it is also able to machine the various numbers of teeth.

Less interference when machining:
Hobbing can only be applied to external teeth and cannot be applied when there is workpiece interference, but power skiving can reduce the component size and weight when machining gear parts. Gear tooth profiling using shaping has relatively even less interference than hobbing, but the productivity is low and undercutting is essential when machining blind hole types. However, power skiving avoids this issue with a programmed tool path, even if there is no undercutting required.

Hard power skiving for internal gears:
After gear cutting, partial deformation occurs when heat treatment is performed to increase the hardness of the gear surface. Hard power skiving refers to finishing the deformed part with a carbide power skiving tool. Previously, there was no way to efficiently process heat-treated small and medium-sized internal gears, therefore, power skiving will become a game changer in gear cutting in the future.

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GEARSKIVE

TaeguTec

Precision Meets Speed

- Ultimate Precision
  - Solid Carbide GearSkive
- Exceptional Value & Optimized Clamping
  - Head Changeable GearSkive
- Maximum Efficiency for Large Modules
  - Indexable GearSkive

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TaeguTec's Power Skiving Tool Technology

TaeguTec is a leader and innovator of advanced metal cutting tools including insert types and head changeable solid carbide tools with advanced technology in the production of power skiving tools.

Essentially, carbide tools have very high cutting speeds and high hardness, compared to HSS tools; this reduces machining time and increases tool life. The insert type is applied to gears in large sizes with the diameter of the tool being relatively large. In addition, the head changeable solid carbide tool is suitable for the gear processing of small sizes, such as automobile parts.

Usually, there is a high probability of problems, such as chip tangling, due to the rotation of the workpiece during internal gear processing, but TaeguTec's cutting tools solve these challenges using an internal coolant supply. The head changeable type solid carbide tools not only guarantee high-precision because of its rigid and precise fastening structure but also eliminates the need for setup intervals, due to simple indexable head replacement, which enables high cost reduction.

For more information, please contact TaeguTec – Tel: 011 362-1500.

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HJS Emission Technology

TAKISAWA MX-800 SERIES

Equipped with twin turrets and twin spindles this is a multi-tasking fully intelligent turning-milling CNC lathe for complex machining.

Opposed left and right spindles and turrets allow independent machining by each spindle/turret system with interchange between the systems to reduce cycle times for highly complex machining, while the compact working area with twin machining stations is designed for flexibility and fast component transfer for highly cost effective machining. Full roller guideways allow higher speeds that shorten cycle times to enhance capability for mass production. Increased distance between linear guideways on each axis improves rigidity and stability for highly accurate machining, while the gantry loading option allows high speed mass production with minimal operator intervention.

Specifications

Maximum Turning length:	250 mm
Maximum Turning diameter:	310 mm
Maximum Bar work capacity:	52 (65) mm
Bearing diameter:	100 (110) mm
Spindle speed:	4000 (3500) rpm
Spindle drive motor:	11/15 (15/18.5) kW
Maximum Spindle torque:	188.2 (242) Nm

An option to equip the MX-800 with a gantry loading system and parts conveyor radically shortens component handling times and coupled with the design of the twin turret/twin spindle system for the highest machining speeds, it provides the perfect solution for high-speed mass production.

For more information, contact
600 SA Machine Tools – Cell: 072 157 6003.

THE ULTIMATE ALL-ROUNDER FROM 600SA

While every day presents different challenges, the Maple ME-Series has what it takes to tackle just about anything. Its super wide base design provides great balance providing a platform capable of supporting up to 2000 kg. With high-end servo motors that are directly connected to the ball screw no power is lost during transmission.

Maple ME-Series.

Featuring an innovative design combined with cutting-edge technologies make the ME-Series ideal for mould production and parts production. The machine has a clever solution for whatever challenge comes its way.

The ME-Series was designed with the most advanced FEM analysis software on the market. Maple consistently tests its design under many different stress conditions to perfectly satisfy customers' requirements.

The advanced design of Maple's spindles provides high axial- thrust capability, yet generates minimal heat. The spindle uses front and rear pre-load angular bearings with large spacer to enhance radial stability enabling heavy cuts on steel. To ensure long life of the spindle, high temperature grease is used to guarantee smooth operation of the spindle regardless of temperature.

Without a perfect tool changer the machine cannot operate at its fully automatic potential. Therefore, the ME-Series uses the most high quality tool changer available. With a 1.8 second tool change time it is one of the fastest performing tool changers in the world.

NORIS DRILLREX UNI TWIST DRILL

Innovative, versatile and economical

REIME NORIS, specialist in threading tools, presents the further development of its successful NORIS DRILLREX UNI twist drill program. By applying latest technologies, this drill has been optimized to meet the growing demands of the market.

Perfect threads start with the right twist drill, and this is where the NORIS DRILLREX UNI comes into action. Designed according to DIN 6537 L (5xD), the twist drill is available in the diameter range from 3.00 to 18.00 mm.

The NORIS DRILLREX UNI is defined by its high profitability and sustainability, as it can machine a wide range of materials with a single

Cont. on page 17 ☞

600SA MACHINE TOOLS PRESENTS TAKISAWA

BUILT FOR PRECISION. ENGINEERED FOR PERFORMANCE.

✓ High-precision CNC machining ✓ Heavy-duty cutting capability ✓ FANUC-controlled reliability

From high-speed turning to extra heavy-duty CNC machining, TAKISAWA machines are designed to deliver consistent accuracy, powerful cutting performance, and long-term durability in demanding production environments.

TAKISAWA LS Series Heavy Duty CNC Turning Centres

Featuring high spindle speeds, rigid construction, and exceptional machining accuracy for modern production environments.

TAKISAWA EX-108II CNC Lathe

Engineered for large workpieces and heavy cutting applications with powerful spindle performance, high rigidity structures, and advanced machining capability.

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BLIN® QUALITY

AT COMPETITIVE PRICES

Main components from European countries, Japan & Taiwan

CNC Machining Center BL-V11

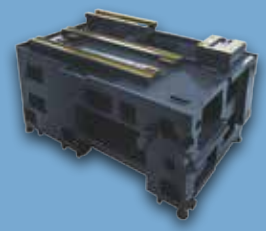
Specification	BL-V11
Worktable size	1 200mm x 600mm
X/Y/Z axes travel	1 100mm/600mm/600mm
Spindle motor	15kW
Tool magazine type	24T Arm type

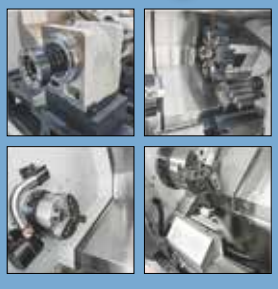
Standard configuration:
- FANUC 0i MF CNC Controller
- 24T Arm type tool magazine

Optional configuration:
- Tool setting probe
- 4th axes
- 5th axes

EX STOCK
Subject to prior sale

Slant Bed CNC Turning Center





Item	Specification	BL-S200L
Capacity	Chuck size	8"
	Maximum swing diameter over bed	Φ510mm
	Maximum swing diameter over slide	Φ260mm
	Maximum turning length	500mm
	Maximum turning diameter	Φ380mm (8 tool turret)
		Φ350mm (12 tool turret)
	Spindle bore	Φ66mm
	Spindle end type	A2-6
	Spindle speed	4 000rpm
	Maximum bar through diameter	51mm
	Spindle motor power	11/15kW (FANUC)
	X axes travel	180 + 20mm (8 tool turret)
		175 + 35mm (12 tool turret)
	Z axes travel	540mm (8 tool turret)
		550mm (12 tool turret)
Tool turret	Tool turret type	Hydraulic-servo
	Tool quantity	8 or 12 as option
	Toolshank size	25mm x 25mm, Φ40mm

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Quaser PROKING Colchester Bridgeport TJR HARDINGE PROTH

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ESTABLISHED 1960

A SYMBOL OF PRECISION

Mitutoyo

Small Measuring Equipment with large Capabilities

HH-V400 HLD Hardness Tester

Modern light-weight portable hardness testing instrument for metal workpieces

Working on the Leeb rebound hardness principle, the measurement is conducted with hardness value L (Leeb-value), however, conversion to any desired hardness scale can be performed. For a reliable test procedure, an offset value is generated and stored each individual workpiece.

The New SJ-220 Surface Roughness Tester

Pocket-Size Precision for Surface Roughness Measurement

A portable surface roughness tester designed like a hand tool for easy on-site use. Convenient portability and one-touch measurement functionality for comfortable operability.

Mitutoyo Small Tools

Dedicated Micrometers and Calipers

Mitutoyo offers a range of specialized micrometers and calipers designed for specific applications.

Mitutoyo QM-Fit

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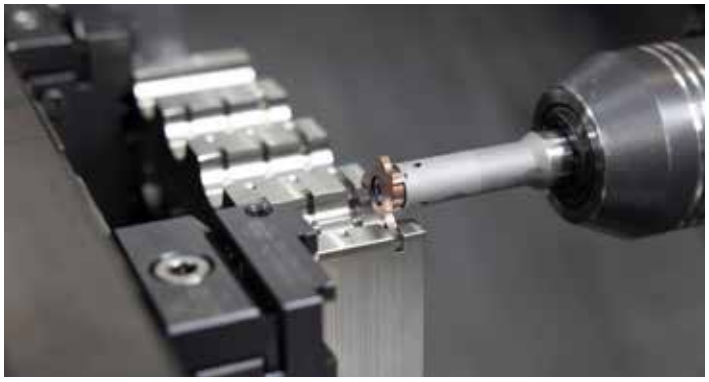
ISO 17025:2017

MODULAR CIRCULAR INTERPOLATION MILLING TOOLS FROM WALTER

Walter recently launched new series of modular solid carbide circular interpolation milling cutters for slot milling. These can be used with four different exchangeable head versions, either with three or six teeth arranged crosswise. While Walter is already in a good position in terms of larger diameters with its established milling cutters, the modular circular interpolation milling cutters also offer a wide range for smaller hole diameters from 6.7 mm to 39.7 mm. These specialist tools can be used for slot milling, chamfering and grooving (e.g. of circlip grooves in accordance with DIN 472) in many different materials with high flexibility, including steel, stainless steel and hardened steel, as well as materials with difficult cutting properties, through to cast iron and aluminium. The circular interpolation milling cutters owe their versatility to the different options for combining the four exchangeable heads with different shanks (Weldon or cylindrical shank) made from steel or solid carbide.

Alongside the impressive stability of the tool, the HiPIMS coating on the exchangeable heads is particularly important in extending tool life. Its high wear resistance reduces tool change times and, in conjunction with the six-toothed design, boosts productivity. In addition to general mechanical engineering, typical applications include the aerospace industry, automotive production and the hydraulic industry. Users with small and medium batch sizes in particular, as well as mass producers, can reduce their inventory, due to the flexibility and variety of different versions of the circular interpolation milling cutters and benefit from specific services, such as the integration of the circular interpolation milling cutters in the Walter GPS machining software, which is already complete. This makes it possible for users to generate the 3D data and cutting data for the milling cutters directly for their programming.



For more information, please contact Spectra Carbide Tooling Technology – Tel: 021 555 4144.

EXTENSIVE PERFORM LINE FOR ROUND TOOL MILLING

The complete range for price-conscious customers

Walter recently completed its existing Perform line with the addition of five- and six-flute solid carbide milling cutters for the ME232 Perform series, as well as two- and four-flute ME432 Perform ball-nose end mills.

The Perform line offers advantages to users who work with small and medium batch sizes, which are often not able to get the most out of the long tool life of a high-volume tool. At the same time, retailers and users in the price-conscious segment also stand to benefit. The short three- and four-flute cutting tools for turning centres with stationary or driven tools offer huge potential as they are part of the standard set-up in this field. With the additions to its product range, Walter offers the Perform line milling cutters with diameters from 1 to 20 mm, two to six cutting edges and with cutting edge lengths from 1 × Dc to 3 × Dc.

The Perform line milling cutters boast a "high-performance geometry", meaning that the number of teeth and helical pitch are perfectly coordinated. This ensures excellent operational smoothness and an outstanding material removal capacity. Another thing they have in common is their cost-efficiency and universal application for many different materials and milling strategies. In addition to being excellent value for money, with the Perform line, users can enjoy the same support services that are typical of Walter's higher-priced tools. Alongside STEP files and data models for programming, these services also include calculating and providing cutting data with the Walter GPS "machining navigation system".

WALTER MP271 AND MP470 PCD MILLING CUTTERS

Walter is augmenting its expertise in the machining of non-ferrous metals with PCD milling cutters. As most PCD tools are often customized solutions, Walter has expanded its standard ISO N range with the solid MP271 and MP470 milling cutters. The three-edged MP271 drill slot cutter (Ø 16-25 mm) with a segmented cutting-edge length of 30 mm and centre cutting edge is ideal for deep depths of cut – such when trimming – and minimizes vibrations thanks to a differential pitch. The double-edged spherical cutter MP470 (Ø 4-16 mm) is designed for creating and finishing free-form surfaces.

Both PCD milling cutters have been specially developed for ISO N materials such as aluminium, Al-Si alloys, magnesium alloys, copper alloys and fibre composites, whereby Walter's own PCD grade WDN20 can multiply the tool life in many cases. The brazed PCD cutting edges of the tools are also suitable for reconditioning, which – together with the significant extension of tool life – increases the sustainability of the tools, reduces cutting material costs and thus increases cost-effectiveness. Their specific properties make these PCD milling cutters particularly interesting for aluminium machining in general mechanical engineering as well as in the automotive and aviation industries.

DIMENSION IN EFFICIENCY – SMARTSELECTION FROM REIME NORIS

When things have to move quickly, it's often the essentials that count. For this very reason, REIME NORIS has selected a best-of class range of threading tools from its extensive product range and clearly summarized them in the SmartSelection program. This gives the user the perfect solution for his field of application at a glance.

Particularly in small and medium-sized companies, the requirements for threading tools are constantly changing. It is precisely here that a targeted and quick selection of the required tools is crucial. With the SmartSelection range, REIME NORIS simplifies this task for the user.

The tools in this range are especially characterized by their geometry, which is adapted to the specific application. In addition to the proven products for thread production, REIME NORIS has also included twist drills in the SmartSelection family in order to offer a high-quality solution for every application, from core drilling to the finished thread.

Through optimized cutting edge geometry, surface and coating combinations, this tool selection ensures increased production reliability and extended tool life. In addition, the brochure contains valuable information and explanations on various chamfer variants and flute shapes. Tables for the drill hole diameters for the common thread types complete the technical section.

☞ *Cont. from page 12*

tool. The optimization of carbide, coating and geometry enables universal use with a reliable increase in performance.

Thanks to the newly developed cutting edge preparation in combination with the stable cutting corner, the drill achieves excellent performance in various material groups such as steel materials, stainless steels, cast materials, non-ferrous materials and selected special materials, and thus noticeably reduces costs. The AlTiN coating, specially adapted for this type of machining, provides exceptional wear protection and enables high cutting speeds and feed rates.

The curved main cutting edge and the resulting open flute shape ensure easy chip removal and high process reliability thanks to the internal coolant supply. The four optimally arranged margins guarantee precise bore quality, prevent clamping even in stainless steels and ensure optimum guidance during machining.

For more information, contact Duncan McDonald – Tel: 011 865 4090.

HELLER F 8000 HIGH-PERFORMANCE MACHINING CENTRE

Following the successful introduction of the F 5000 and F 6000 models, HELLER recently extended its new generation 5-axis range at the top end with the F 8000. With numerous innovations that ensure extremely high performance and precision, as well as a small footprint, the F 8000 is suitable for applications in a wide range of industries. The high-performance machining centre has been on the market since September 2024.

Things move fast at HELLER: In the autumn of 2023, the Nürtingen-based machine manufacturer unveiled the F 6000, the first 5-axis machining centre in its new generation F series. Only six months later, another model was launched: the F 5000. And the larger F 8000 has been available since AMB 2024 in Stuttgart. Like its 'siblings', the machine is suitable for a wide range of users in many industries, from mechanical engineering and power generation to aerospace – from single-part manufacturing through to flexible 24/7 series production.

The F 8000 is based on the successful 5-axis F series, which has been on the market for more than a decade. However, it surpasses its predecessors in many areas. For example, at 4.20 metres wide, it has a much narrower footprint and the basic version takes up around 25 per cent less space. In addition, the optional PRO version offers the best technical specifications. Axis acceleration in X/Y/Z has been increased by 50% to 6 m/s^2. Chip-to-chip time has been reduced by approx. 30 per cent. The F 8000 with PRO package also offers greater precision. Positioning tolerances in X/Y/Z are 6µm – a 25% improvement over the previous model.

Another advantage of the F 8000 is its large work envelope (X/Y/Z: 1,400/1,200/1,400 mm), which allows larger workpieces to be machined and, above all, the 150 mm longer stroke in the X-axis, which provides even greater machining flexibility. In addition to 800 x 800 mm pallets, it is also possible to use larger 1,000 x 1,000 mm pallets. Head of Development Dr Manuel Gerst explains: "The maximum pallet load is 2,000 kg, with an optional pallet load of up to 3,000 kg."

Full compatibility with the previous generation

To make the transition to the generation F series as easy as possible, HELLER has ensured maximum consistency. This means, for example, that the pallets and tools are fully compatible with the previous 5-axis range.

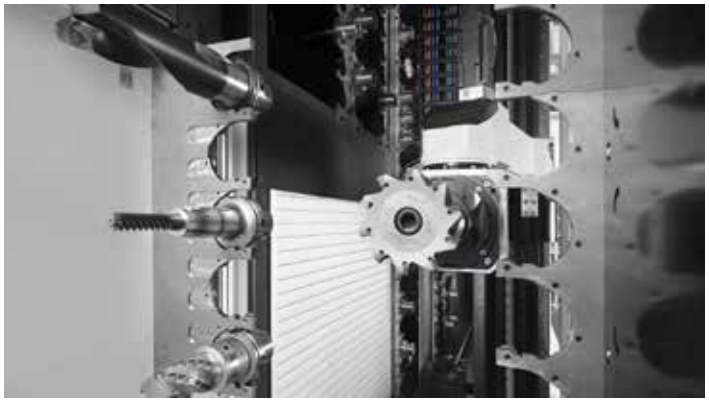
The new machine is equipped with the latest generation Siemens control system, SINUMERIK ONE. However, users can easily adopt all NC programs used on previous machines equipped with Siemens' SINUMERIK 840D sl control. A main operating unit in console-design with a 24-inch touch screen and a host of other features makes the control system even more enjoyable to work with.

With the F series, HELLER not only guarantees full continuity with previous generations, but the developers have also ensured a high level of compatibility with the H series 4-axis machining centres. Pallets and tools are interchangeable, and standardisation of structural components such as beds and columns enables the same strokes, pallet loads and part dimensions.

Small footprint provides more space for automated machining

The standardisation of the 5-axis machine within the range goes even further. The F 8000 uses the same modular system as the entire F series for key components such as heads, spindles and tool magazines. The machine structure is also standardised across the F series, resulting in the narrow footprint mentioned before.

Equally important to the compact design of the F 8000 are HELLER's rack-type tool storage systems. All of them are almost two metres



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HELLER

4-axis machining centres

H

The perfect 4-axis machining centre must be configurable to your needs, produce reliably even under maximum loads and offer a fair price/performance ratio. Our solution: HELLER H series 4-axis machining centres. Reliable components that have been tried and tested in series production over many years, combined with high dynamics, ensure robust processes – even when pushed to the limit, 24/7 in 3-shift operation.

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☞ *Cont. from page 16*

narrower than the previous versions. This is particularly useful when automating multiple machining centres. Four machines can be placed in a row where previously only three could be installed.

Machining units with tilt and swivel kinematics

Among the highlights of the F 8000, and the F series as a whole, are the completely redesigned swivel heads, which ensure maximum cutting performance. The integrated motor spindles, developed in-house, are manufactured by HELLER. Equipped with an HSK-A 100 interface as standard, the Dynamic Cutting Universal (DCU) unit achieves torques of 400 Nm and speeds of 12,000 rpm. The Speed Cutting Unit (SCU) provides 15,000 rpm with HSK-A 100. In conjunction with the optional HSK-A 63 tool interface, HELLER also offers spindles with speeds up to 18,000 rpm. For ultra-heavy machining, the Power Cutting Universal (PCU) unit with gear spindle is still available – delivering 1,146 Nm of torque and speeds up to 8,000 rpm.

In addition to the swivel heads, HELLER also offers a tilt head variant for the F 8000. It is characterised by a particularly high degree of flexibility in 5-axis machining. This is because the tilt kinematics make it possible to produce the recesses and undercuts required, for example, in the manufacture of integral components for the aerospace industry.

Ready for any type of automation

Whether it is for the manufacture of single parts or flexible series production, the F 8000 5-axis machining centre is always the right choice. For those who are not yet sure whether they want to equip the machine with pallet automation at the time of purchase, HELLER offers the 'Automation-READY' option for maximum flexibility. This means that the available standardised automation systems can be integrated quickly and easily at a later date. The F 8000 is equipped with an automatic pallet changer as standard. In addition, extended automation with linear or rotary storage systems or robots is available.

All in one – milling, turning and other technologies

In addition to automation, complete machining is playing an increasingly important role in many manufacturing companies. Following this all-in-one concept, HELLER offers an optional mill-turn function for combined milling and turning operations for the entire F series. At its heart is the high-torque DDT (Direct Drive Turning) rotary table. This means that in addition to milling and drilling, external and internal contours can be turned longitudinally or transversely in a single set-up, as well as a wide variety of undercuts and recesses. Even cutting of external and internal threads is possible. This eliminates the need for re-clamping on separate turning machines, improving part accuracy and reducing cycle times.

For further information, please contact RETECON – Tel: (011) 976 8600.

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DVF 5000 DESIGNED TO REVOLUTIONIZE PRODUCTIVITY AND MACHINING CAPABILITIES

The DVF 5000 Second Generation simultaneous 5-axis vertical machining centre from DN Solutions is designed to elevate productivity and machining capabilities to unprecedented heights.

Serving as the flagship 5-axis machining centre for DN Solutions, the DVF 5000 facilitates the seamless machining of complex shapes and curved surfaces in a single setup. By addressing issues of time, cost and quality inherent in repetitive setup processes, it streamlines operations while enhancing efficiency.

Building upon the success of its predecessor, the DVF 5000 Second Generation raises the bar even higher. Equipped with an industry-leading cooling system and standard thermal displacement compensation, it ensures unparalleled precision, even during prolonged operation. Its robust bed structure enables precise machining of workpieces weighing up to 400 kg, empowering manufacturers to tackle diverse projects with ease. The integration of a built-in Auto Workpiece Changer (AWC) and round magazine facilitates a compact automation system, while various features such as the auto kicking device enhance profitability for customers.

Productivity Enhanced with Astonishing Speed

With remarkable speed, the DVF 5000 Second Generation redefines productivity, boasting significantly faster X, Y, and Z-axis feed rates that double the speed of its predecessor, achieved through an acceleration and deceleration rate of 0.4g. Additionally, it showcases a 25% increase in B- and C-axis rotation speed, now at 25 r/min, alongside an impressive Tool to Tool (T.T.T) time of 1.3 seconds and a Chip to Chip (C.T.C) time of 3.8 seconds, making it 28% faster than its forerunner. This remarkable advancement positions the DVF 5000 Second Generation as the epitome of productivity in its class.

Moreover, the DVF 5000 Second Generation comes standard with a 15 000 r/min spindle, elevating its versatility and performance. Equipped with a high-rigidity high-speed spindle and a robust columnar structured table, it delivers impeccable surface finishes, facilitating the machining of a wide array of materials, from high-speed aluminium to challenging-to-cut metals like titanium, Inconel, and CoCr (Cobalt Chromium). Furthermore, opting for the built-in spindle capable of achieving speeds of up to 20 000 r/min enhances precision machining capabilities, enabling fine surface finishing and intricate 5-axis contouring. Additionally, the inclusion of a high-torque spindle (max. 230Nm) enables the machining of exceptionally tough-to-cut materials, further expanding its capabilities.

Advanced Thermal Displacement and Precision Compensation

The DVF 5000 Second Generation showcases a meticulously engineered symmetrical structure, designed to thwart any deformation. To curtail heat generation within the rotation and feed axes, it integrates multiple cooling units strategically positioned in key drive locations, including the spindle, feed axis and rotary table. Embracing a smart thermal displacement compensation function as standard, it guarantees impeccable precision even during prolonged machining sessions. Moreover, active sensors embedded within the spindle head, column and bed diligently monitor thermal displacement throughout the machining process, automatically adjusting to minimize thermal expansion and distortion.

Elevating productivity and machining stability, the DVF 5000 Second Generation includes a high-speed servo magazine as a standard feature. With its high-rigidity and precision roller-type LM guideways, capable of accommodating a maximum load of 400kg, it ensures steadfast machining performance. The incorporation of a 0.0001-degree high-precision B- and C-axis rotation mechanism guarantees exceptional accuracy. For added precision, the optional IKC (Intelligent Kinematic Compensation) solution adeptly compensates for rotary axis centre errors, mitigating deviations in workpiece shape with precision and finesse.

Upgraded Machining Flexibility

The DVF 5000 Second Generation presents expanded machining capabilities, providing greater flexibility with enlarged workpiece and clamping tool sizes. Featuring a table size of Ø630 x 450 mm and accommodating a maximum workpiece size of Ø600 x H500 mm, it boasts a remarkable 26% increase in table size and a substantial 32% expansion in maximum machining area. This enhancement opens doors to a wide spectrum of industries, catering to the needs of manufacturing diverse parts, from intricate, high-precision medical components to small and medium-sized parts vital to the automotive, aerospace, and semiconductor sectors.

Additionally, the DVF 5000's extended travel distances for the X, Y, and Z axes—now at 650 mm, 520 mm and 480 mm, respectively, represent a significant 20% increase. This expanded space allows seamless integration of automation units for material loading and unloading, further enhancing operational efficiency and versatility.

Compact Automation Solutions

Positioned as the prime choice for compact automation, the DVF 5000 sets the standard for streamlined automation capabilities. Elevating its automation prowess, the DVF 5000 2nd Generation features an easy-to-install and operate AWC, a

Cont. on page 22 ☞

DVF 5000 2nd Generation

Compact, Simultaneous 5-Axis Machining Center For High-Speed Machining

DVF 5000 5-axis machining centres are designed for component manufacturers looking to machine high-precision, complex parts in one hit. Equipped with leading edge technology and supplied 'automation- ready', these machines will take your productivity and performance to a whole new level.

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round magazine system that enables 24/7/365 unmanned operation, accommodating up to 40 workpieces. Notably, the AWC unit seamlessly integrates with the previous generation, ensuring compatibility and ease of transition.

Enhanced Operator Convenience Features

The DVF 5000 Second Generation offers users the flexibility to select and apply NCs from FANUC, HEIDENHAIN and SIEMENS, each equipped with cutting-edge NC technology. It boasts accelerated data and PLC (Programmable Logic Controller) processing speeds, spanning from programming and program verification to machine setup and actual machining. Notably, FANUC NCs stand out with their collision prevention system (CPS), which actively monitors internal materials, tools and axis feed units in real time to avert potential collisions and prevent damage.

Moreover, the machine enhances operator accessibility with the relocation of the magazine window for tool setup to the front, streamlining access. An auto kicking device has been incorporated to facilitate seamless tool changes, while the reduced distance between the operator and the table centre simplifies workpiece setup. Improvements in chip handling are achieved through the installation of six flood coolant nozzles on the spindle's front, aiding cooling and chip removal during machining, alongside a flushing nozzle on the machine bed to minimize chip accumulation. As a testament to its commitment to environmental sustainability, the DVF 5000 Second Generation features grease lubrication as a standard feature, reducing oil consumption and rendering it a more eco-friendly machining centre.

Main Specification

Item	Unit	DVF 5000 (2nd Generation)
Max. spindle speed	r/min	15000 {20000}
Max. spindle motor power	kW	CUFOS: 18.5 {37} TNC640/TNC7: 17 {30} Sinumerik One: 16.5{30}
Max. spindle motor torque	Nm	CUFOS: 118 {230} TNC640/TNC7: 108 {230} Sinumerik One: 79 {230}
Tool type	–	ISO#40
Feed distance	mm	650/520/480
Tool capacity	ea	Drum type 30 {40} Chain type {60 / 120}
Table size	mm	Ø 630x450
Machine dimensions (H x L x W)	mm	2867x 2795 x 2347
CNC system		CUFOS, TNC640/TNC7, Sinumerik One

For further information, please contact PUMA MACHINE TOOLS – Tel: (011) 976 8600.

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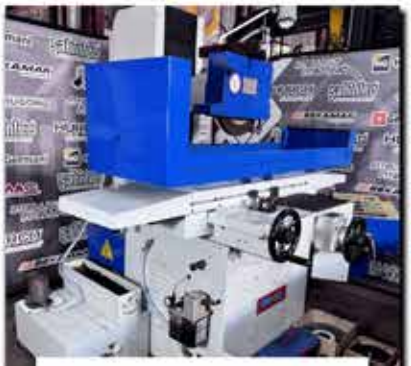

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HOW DO YOU DETECT VALUE FOR MONEY IN MACHINE TOOLS

By Paul Savides, Managing Director, PBS Machine Tools

"Discussion sharpens one's interest in any subject and accordingly inspires reading and corrects errors." – *Nelson Mandela (1918-2013)*

When evaluating machine tools, value for money is not determined by purchase price alone. The real measure lies in the machine's ability to produce quality parts profitably over its lifetime.

A more accurate way to assess value is through Total Cost of Ownership (TCO) and overall machine optimization, a combination of structural integrity, availability and utilization. In simple terms, the cheapest machine is not always the most cost-effective machine.

Key Indicators of Value for Money:

Structural Integrity

Machine weight is often used as an indicator of structural rigidity, which contributes to accuracy, vibration control and long-term durability. A rigid machine typically delivers better consistency and longevity.

However, true structural value goes beyond physical mass. The real question is, how quickly does the machine pay for itself? A machine that improves productivity, increases output, reduces scrap and lowers labour or maintenance costs often delivers stronger long-term value than a cheaper alternative.

High Uptime and Reliability

Reliability is one of the clearest indicators of value. A machine with minimal unplanned downtime, low maintenance requirements and dependable performance contributes directly to productivity and profitability. Lost spindle time is lost revenue.

Lower Cost per Part

Many manufacturers continue operating at traditional speeds and feeds without fully evaluating their cost-per-part performance. Cost per part is typically influenced by Machine Hourly Cost, Cycle Time, Tooling Cost and Number of Parts Produced.

When these factors are optimized, premium machine tools can often reduce cost per part by more than 15%, while significantly improving gross profit per component compared with lower-cost alternatives.

Practical Method for Assessing Value:

1. Analyse Total Cost of Ownership (TCO)

TCO looks beyond the purchase price and considers the machine's full lifecycle cost:

TCO = Acquisition + Operating + Maintenance + Training + Disposal-Residual Value

A lower-cost machine may appear attractive initially, but can result in significantly higher long-term costs, due to maintenance, downtime, inefficiency or poor resale value.

2. Compare Market Value

Benchmarking similar new or used machines helps establish fair value. Factors such as machine age, condition, performance history and remaining useful life, should all be considered before making a purchasing decision.

Paul Savides Managing Director, PBS Machine Tools

3. Evaluate Used Equipment Carefully

When assessing a used machine, maintenance history is critical. Review maintenance logs for signs of neglect, excessive wear or improper servicing. Machine hours should align with overall condition, as heavily worn components may be costly to replace or in some cases no longer available.

4. Match the Machine to the Application

The best machine is the one suited to the job. Purchasing decisions should be based on production requirements, such as material removal rate, precision, repeatability and output expectations rather, than simply selecting the machine with the most advanced features or the machine with the fastest delivery time.

Value versus Price – Understanding the Difference

Quality over Cost

Higher-performance machines often generate a better return on investment than lower-cost alternatives. While the initial purchase price may be higher, improved productivity, reduced scrap, greater reliability, and lower cost per part frequently justify the investment.

Watch for Hidden Costs

The purchase price is only one part of the equation. Training, electricity consumption, spare parts availability, tooling compatibility, maintenance requirements and downtime costs, should all form part of the buying decision.

Consider Resale Value

High-quality machines generally retain value better over time, reducing ownership costs and improving long-term investment returns.

Final Thoughts/Conclusion

Although Total Cost of Ownership is still not a common purchasing approach in many manufacturing environments, it is becoming increasingly important for maintaining competitiveness.

In an industry facing growing pressure from imported products and tighter margins, investing in equipment based on lifecycle value rather than upfront cost, can provide a meaningful competitive advantage.

For more detailed, industry-specific guidance on calculating machine ownership costs and evaluating value for money, feel free to contact us.

For more information, please contact PBS Machine Tools – Tel: 011 914 3360.

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FANUC THE FANUC ROBODRILL EVEN MORE VERSALITE

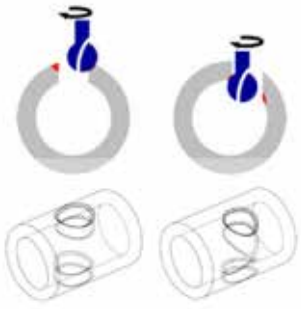
The FANUC ROBODRILL is widely known and adopted into engineering shops throughout South Africa. FANUC continuously develops new features and aims to make the ROBODRILL even more versatile.

Machining Modes

The FANUC ROBODRILL has Machining Mode settings which enable the user to easily switch between parameters related to the milling behaviour of the machining process, be it for high accuracy electronic housings to high quality mould parts. These settings can even be changed on-the-fly with the use of a simple M-Code to simply switch from speed to precision mode when reaching the final pass cuts. FANUC constantly develops these features with ease-of-use in mind and strives to have the best possible interface.

Development of G-Codes

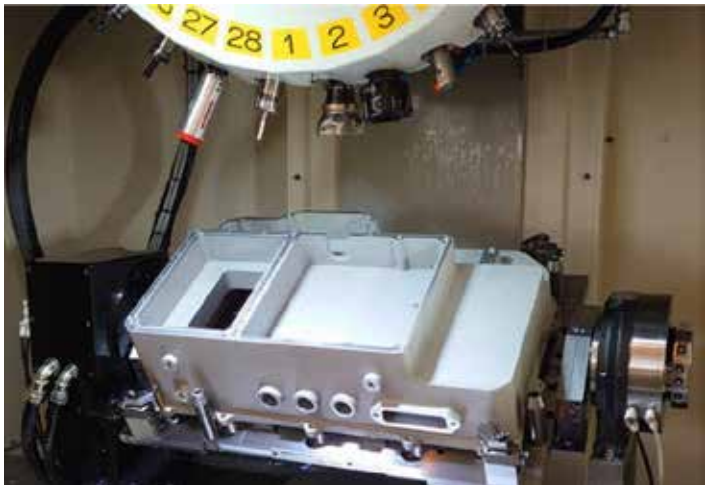
Some unique tools require special G-Codes and the FANUC ROBODRILL strives to make any introduction of new tools as simple as possible. Use of deburring tools on a cylindrical surface is one such application. With the use of a simple G-code the deburring of a hole on a cylindrical surface can be easily integrated into a program.



For more information, please contact FANUC South Africa – Tel: 011 392 3610.

Even bigger rotating parts with the same footprint

The FANUC ROBODRILL is available with a travel of 500 mm in the Y axis and enables the use of an even larger DDR-TLiB Raised Version. Parts up to 540 mm in diameter can be rotated with the raised centre height of 325 mm.



Lathe functions on a Robodrill?

FANUC has released a High-Speed Rotating version of its highly trusted DDRiB 4th axis unit. The DDR-HSiB realises not just accurate four axis positioning but also rotation speeds of up to 1,500 RPM. The DDR-HSiB can be installed in either A-axis or C-axis orientation.

FANUC ROBODRILL is made in Japan and comes with a 2 year mechanical and control warranty.

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MTMA

KITAMURA MYTRUNNION-4G 5-AXIS SIMULTANEOUS MACHINING CENTER

Click to watch video

The Kitamura Mytrunnion-4G 5-axis simultaneous machining center has been designed for high precision machining of medium to small multi-sided parts. The maximum work size of Ø19.7 x 15.7" high and table load capacity of 440Lbs allows for easy and more productive processing of parts in a single set-up. Guaranteed Kitamura quality and value combine to ensure high levels of quality and rigidity for unbeatable tool life and ultra-high-level accuracies for complex part machining.

The Mytrunnion-4G incorporates a dynamic double column construction for outstanding support and stability even throughout the long Y-Axis stroke movement, offering exceptional cutting load characteristics and optimum accuracy. Symmetrical construction extends thermal stability over the Y-axis travel. The Arumatik-Mi CNC simplifies complex surface profiles and geometries faster, with superior surface finishes and optimum precision.

Table Size	(Ø400mm) Ø15.7"
Travel (X, Y, Z)	(610 x 610 x 550mm) 24" x 24" x 19.7"
Travel (A, C)	150° (-120 to +30°), 0 to 360°
Spindle Taper	NST No. 40 (HSK-A63 Opt.)
Spindle Speed	40-15,000 min^{-1}, **20,000 min^{-1} Option
Tool Storage Capacity	60 Pcs. – 100 Tools Optional
Rapid Feed (X, Y x Z)	50m/min (1,969ipm) x 25m/min (984ipm)
Rapid Feed (A, C)	50 min^{-1} (18,000 deg/min)
Power Requirement	45KVA, 200v AC, 3 Phase

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ELECTRA MINING AFRICA'S UNMATCHED FACE-TO-FACE ENGAGEMENT ENABLES BUSINESS GROWTH

Industrial sectors form the backbone of the South African economy. Mining, power, electrical, automation, transport and local manufacturing each play a distinct yet interconnected role in driving economic growth, employment, exports and industrial development. However, capital equipment purchases in these sectors are complex, high-cost and long-term investments that rely heavily on trust and strong supplier relationships.

Electra Mining Africa uniquely brings together all levels of the capital equipment decision-making chain in one environment, making it a powerful platform for building those relationships. This unmatched ability to facilitate meaningful, face-to-face engagement positions the show as a key driver of growth across South Africa's industrial landscape.

The event connects potential clients directly with industry leaders, engineers, technical specialists and local partners, enabling side-by-side comparison of suppliers and brands. Visitors can explore equipment, technologies and solutions in one location, making it easier to assess specifications, localisation levels and support models. The show also enables detailed technical discussions around systems, components, automation, electrification and digital solutions, supported by case studies and expert insight. These interactions are difficult to replicate through other marketing channels and highlight the unique value of a large-scale tradeshow environment.

According to Eric Bruggeman, CEO of the South African Capital Equipment Export Council (SACEEC), South Africa exports R220-billion worth of mining technology globally each year, with export activity often increasing in the 6–12 months following Electra Mining Africa. This uplift is attributed to the show's ability to stimulate the market, generate qualified leads and support deal-making that feeds into the next investment cycle. "South African engineers are leaders in innovation and technology development, creating solutions for real-world industry challenges. The country's leading mining technologies will be on display at Electra Mining Africa this September," he says.

Electra Mining Africa 2024 was the biggest show to date, with 950 exhibitors across six exhibition halls and four outside areas, and 40 000 visitors in attendance. Charlene Hefer, Portfolio Director at Montgomery Group Africa, organisers of the show, says "this year's edition will be even larger and more dynamic, featuring over 1 000 exhibitors, expanded floor space and a new outdoor 'orange zone' to accommodate additional OEMs and service providers. International exhibitors include companies from Australia, Austria, Canada and Poland. Beyond the exhibition floor, the event offers valuable networking, collaboration and knowledge-sharing opportunities through seminars, technical workshops and informal engagement across the industrial ecosystem."

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As part of its commitment to delivering high-value, free-to-attend content, the Southern African Institute of Mining and Metallurgy (SAIMM) will host the Seminar Theatre, reinforcing its role as a technical partner and creating opportunities for professional engagement around key industry themes. The Society for Automation Instrumentation Mechatronics and Computer Engineering (SAIMC) will present industry workshops on the second day, while the SA Institution of Mechanical Engineering (SAIMechE) will host the Skills and Career Hub throughout the event.

Visitors can also look forward to the return of the popular Forklift Driver Competition, organised by Lifting Africa. Winners of the Innovation and New Products Awards, a joint initiative between Electra Mining Africa and SACEEC, will be announced on the final day of the show.

"Electra Mining Africa is more than an exhibition; it is a cornerstone of South Africa's industrial sector," says Hefer. "Since its inception in 1972, it has facilitated billions in trade between exhibitors and local and global customers, connected SMMEs with global brands and helped build resilient supply chains. By attending this September, visitors become part of a long-standing tradition of industry excellence and gain access to a platform that continues to launch major innovations."

Electra Mining Africa will take place at Nasrec, Johannesburg between 7-11 September 2026. Visitors can register at www.electramining.co.za for free standard access to the exhibition. An upgraded visitor package is also available at R600 per person per day, or R2 000 per person for the full week, offering added comfort, convenience and exclusive benefits to enhance the overall experience.

NEW AUTOMATION INNOVATIONS ON SHOW AT ELECTRA MINING AFRICA 2026

New emerging innovations are transforming the South African mining, manufacturing, industrial and automation sectors and driving the deployment of advanced technological solutions across operations. Innovations such as mechanisation, automation and digitisation are improving safety and productivity on mines, production facilities, industrial plants and warehouses. However, to deliver real value, these technologies must be cost-effective and designed to address practical, people-centred industry challenges.

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The current growth in automation is positively impacting local industries by facilitating investment in innovation, data analytics and skills development, plus helping to develop local competitiveness and export potential as local African solutions are adapted to be exported regionally. South African engineers are leaders in innovation and technology development. Many of these innovations and newly automated systems will be on display at the largest trade-show of its kind in Southern Africa, Electra Mining Africa 2026 taking place in Johannesburg later this year.

Some of these innovations include new CNC simulation server automation software for CNC specific user interfaces that simulate part machining using real-time data. Also on show will be automated purpose-built digital systems that track and trace projects that provide real-time visibility, improve collaboration and ensure that critical information is accessible to the right people at the right time.

Mining and petrochemical industries demand uninterrupted power, precision control, and uncompromising safety as even brief interruptions can cause operational downtime, safety risks and financial losses. In response to changing industry requirements new developments in intelligent, digitally-enabled power solutions for modern, mission-critical facilities will be on show.

As mining operations continue to adopt higher levels of automation, the reliability of the data feeding these systems has become increasingly critical. Companies specialising in industrial sensing and monitoring technologies are contributing to the development of more reliable automated systems focusing on digital speed, position and condition monitoring solutions designed for use in demanding industrial and mining environments. Local companies will display the latest developments in precision motion within automated mining and heavy industry systems.

Other new technologies on display at Electra Mining Africa include collision avoidance systems for mining operations integrated with AI cameras capable of reliably detecting people vehicles and obstacles in real mining conditions, as well as new network terminal slice computing technology that moves computing from centralised servers to localised, device-level processing for improved speed, efficiency and resilience. Even emergency prevention systems are automating, with automated fire suppression systems for modern mines and industries also on display.

The biennial show will introduce several notable additions in 2026, including a new outdoor exhibition area in the Arena at the Expo Centre. According to Montgomery Group Africa portfolio director Charlene Hefer, the new Orange Zone has been created in response to strong exhibitor interest and the need for additional space following the previous show.

"The new Orange Zone allows us to accommodate more companies looking to showcase large-scale equipment and innovations outdoors," says Hefer. "It also enables greater participation from original equipment manufacturers, giving visitors a valuable opportunity to view, compare and evaluate a broader range of solutions across the show's expanded outdoor exhibition areas."

Electra Mining Africa 2024 surpassed previous records in terms of number of exhibitors, exhibition space, and number of visitors. Hefer says that the 2026 show will be even bigger with over 1 000 exhibitors and expanded floor space, which includes the new orange zone. "A growing exhibition reflects increased industry participation and innovation, offering visitors a broader and more diverse range of solutions to explore and evaluate," notes Hefer. "Visitors will have access to a wide range of technologies, suppliers, and expertise in one location, reducing the time and cost associated with sourcing products and supplier engagement".

International exhibitors and country pavilions will bring global innovations and new technologies to the show. Beyond the exhibition floor, the event offers valuable networking, collaboration and knowledge-sharing opportunities through seminars, technical workshops and informal engagement across the broader industry landscape.

YOUR MINING SUPPLY AGREEMENT WAS WRITTEN FOR HUMANS, BUT YOUR TRUCKS ARE DRIVING THEMSELVES

By Tobia Serongoane & Tristan Marot from Webber Wentzel

In August 2025, in Benavides v Tesla, Inc (Benavides), a Miami jury awarded USD 240 million in damages against Tesla, including USD 200 million in punitive damages, in a wrongful death lawsuit related to its Autopilot system. The jury found that Tesla's marketing created a misleading perception of safety, encouraging drivers to rely on a system not designed for certain conditions. The verdict arose in the automotive context, but the liability questions at its centre, namely, when does a manufacturer answer for what its autonomous system did, and what it must disclose about the system's limits, are the same questions that South African mining operations will face as AI-integrated yellow plant equipment becomes standard.

Tobia Serongoane, Senior Associate at Webber Wentzel.

Tristan Marot, Innovation Lawyer at Webber Wentzel Fusion.

The deployment of autonomous systems and AI-powered machinery in African mining is accelerating. The contractual arrangements governing these deployments have not kept pace. Most supply agreements for AI-integrated equipment still closely resemble plant hire contracts from ten years ago: bilateral, human-focused, and silent on who bears the risk when a machine makes a decision on its own. That silence will produce disputes, and the agreements in their current form are not equipped to resolve them.

Contractual gaps that could fuel AI-related disputes

Force majeure and foreseeable risk: In 2019, at BHP's Jimblebar mine in Australia, two autonomous trucks collided during heavy rainfall, an incident BHP attributed to heavy rainfall deteriorating road surfaces, though regulators noted the system had not been programmed to limit speed in such conditions. A separate driverless truck collision occurred at Fortescue Metals, also in Australia, within the same period. At Escondida in Chile, the world's largest copper mine, a union flagged what it called a huge risk to worker safety, less than one month after BHP completed a five-year autonomous vehicle rollout. And so, a pattern emerges, AI systems fail in response to conditions the operating environment routinely produces. These failures occurred in comparatively controlled mining environments.

South African operations contend with load-shedding and chronic connectivity disruptions, amongst other issues, as defining features of the landscape, conditions that are more volatile, less predictable, and to which any AI-dependent system will inevitably be exposed. Supply agreements include broad force majeure clauses, potentially broad enough for a supplier to try to characterise a system failure triggered in this manner as an unforeseeable event beyond its control and thereby disclaim liability entirely. But where those conditions are endemic and well-documented, that characterisation is difficult to sustain and any well-drafted agreement should foreclose it expressly.

Indemnities and the absent human: Standard indemnities are constructed around the acts or omissions of a supplier's personnel. When an autonomous system makes a decision without human instruction, the supplier has a credible argument that no identifiable act or omission of its personnel caused the harm and that the indemnity therefore does not respond. Benavides exposed precisely this gap, even where a human operator was present but distracted, the court held that the manufacturer's design choices independently contributed to the loss. The implication is that liability attached not because a person failed, but because the system was designed in a way that allowed failure. Most indemnity clauses in current supply agreements are not drafted to capture that distinction and until they are, the risk of an unindemnified loss arising from an autonomous decision remains unresolved.

Production downtime: Where AI systems become a linchpin of operations, their failure can cause significant financial loss without any physical damage occurring at all. That loss is consequential in nature and routinely excluded by standard limitation clauses. The insurance position compounds the problem, as most business interruption policies respond only where the loss follows physical damage to insured property. Where an AI system causes production downtime without any such damage such as a software malfunction, a failed autonomous routing decision, a sensor misread, there is no physical damage trigger, and the BI policy is unlikely to respond. Even where a mine holds broader cover, losses of this kind may fall squarely within cyber-loss or computer systems failure exclusion. The result is that for mines operating under production targets and offtake obligations, unplanned AI-caused downtime is a core commercial exposure that is neither covered by the supply agreement nor insured against, and that gap needs to be closed contractually before it is tested in practice.

The OEM who is not at the table: Supply agreements are typically bilateral. The Original Equipment Manufacturer (OEM) who designed the AI system, controls its training data, and deploy software updates is usually not a party. Section 61 of the Consumer Protection Act imposes strict liability on every participant in the supply chain, producer, importer, distributor and retailer, for harm caused by defective or unsafe goods. That liability applies to mining companies notwithstanding the juristic person threshold in section 5(2)(b). But section 61 requires a supplier-consumer relationship, and where the OEM is a foreign entity with no South African presence and no direct transactional link to the mine, that chain may not extend far enough. This means enforcing strict liability against the party who actually designed and trained the AI system is a considerably more demanding exercise than enforcing a back-to-back warranty against a local supplier.

Most agreements leave the question of the yellow plant operator unanswered: Most supply agreements for yellow plant mining equipment include obligations to appoint locally recruited operators, consistent with Social and Labour Plan commitments and broader transformation requirements. What those agreements do not address is whether the mine and/or the supplier is equipped to train those operators to the standard required to interact safely and competently with an AI-integrated machine, or whether the supplier or manufacturer is prepared to deliver that training. Who holds the licence to operate the machine? What

Cont. on page 36 ☞

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competency standard applies? When an undertrained operator is placed in a nominal supervisory role over a system that operates beyond their real-time understanding, the liability consequences of that gap will not be resolved by referring back to a clause that was never drafted with this scenario in mind.

The statutory aspect: The contractual gaps noted earlier do not exist in a legal vacuum. Section 2(1) of the Mine Health and Safety Act 29 of 1996 requires every mine employer to ensure, as far as is reasonably practicable, that the mine is designed and operated to be safe and free from health risks to employees. This obligation cannot be waived or limited by agreement. If a mine uses AI-powered equipment under a supply contract that does not specify responsibility for system design, operator training or fail-safe measures, the mine may still be found negligent for not doing everything reasonably possible to ensure safety, regardless of contract terms. The duties under the MHSA and the contractual obligations must be viewed together, not separately.

Data access: AI systems generate operational data that may be the only evidence capable of establishing what happened and why after an incident. In present agreements, the position on who owns and who can access that data is ambiguous, and in any dispute that ambiguity will serve the party with the least to explain.

What to do now!

Every supply agreement governing AI-integrated equipment must address:

- Force majeure clauses must expressly exclude AI failures caused by foreseeable South African conditions.
- Indemnities must extend to harm caused by autonomous system decisions, not only harm attributable to identifiable human conduct.
- Liability caps must be stress-tested against the actual risk profile of the technology, including production downtime.
- Back-to-back manufacturer warranties should be secured from original equipment manufacturers as a condition of the supply arrangement.
- Insurance cover must be confirmed in writing, specifically for AI-integrated equipment, before deployment.
- Data access rights to AI operational logs must be a non-negotiable contractual entitlement, with clear obligations on the supplier to preserve and produce that data following any incident.

Dispute resolution clauses should be agreed at the contracting stage. The clause should provide that any dispute may first be referred to mediation conducted by a mediator with demonstrable technical experience in AI systems, not merely legal expertise. Where mediation fails, the clause should expressly empower the arbitrator to appoint an independent AI technical expert as an assessor. As Benavides indicates, future disputes will turn less on whether a human made a mistake, and more on whether the manufacturer or supplier did enough to anticipate failure through system design and deployment. Those are questions that require specialist technical input, and the time to agree on that mechanism is before the dispute arises.

The agreements being signed today will govern the disputes of tomorrow, and right now, most of them are not equal to the task. Every gap identified above is a gap that will be filled, one way or another, either by the parties at the drafting table or by an arbitrator after the loss has occurred. The question is not whether these disputes will arise; it is whether the contract will have anything useful to say when they do.

LEAD MACHINE TOOLS NOW SOLE SOUTH AFRICAN AGENT FOR GERMAN CNC MACHINERY GIANT – GROB

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For half a century, the city of Mindelheim has been the headquarters and heart of the GROB Group. With a production space of more than 210,800 m^2 and around 6,100 employees, the German plant is the biggest employer in the Unterallgäu region and continues to offer more and more people from the region secure employment.

The Mindelheim plant is the central hub of the global growth strategy and, with the Research and Development Department, is home to two of GROB's key competences. The large-scale production facility ensures the globally renowned vertical integration and guarantees the best value creation with maximum cost-efficiency.

From innovative manufacturing lines to complete assembly systems through to universal machining centers and electric drives – the company's entire product range is made here in its headquarters.

GROB has production facilities in Germany, Brazil, China, USA, Italy and India, as well as worldwide service centers and sales subsidiaries.

AGENCY ANNOUNCEMENT

GROB

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STEEL TARIFFS RISK SUPPLY SHORTAGES, SAISC WARN

The Southern African Institute of Steel Construction (SAISC) has noted the recent implementation of anti-dumping tariff measures on selected steel imports, as published by The International Trade Administration Commission of South Africa (ITAC) on 20 March 2026.

While SAISC supports the intent of these measures to protect and strengthen local industry capability, the organisation has raised concerns about unintended consequences emerging within the market.

Industry feedback indicates that steel merchants and service centres are already cancelling or delaying import orders in response to the sudden tariff implementation. At the same time, certain locally produced steel products are no longer available at previous volumes.

"This creates a real risk of supply shortages in the market, particularly in specialised sizes and specifications not readily available locally," says Amanuel Gebremeskel, CEO of SAISC.

"If not carefully managed, these measures may increase project costs, delay infrastructure delivery and reduce the competitiveness of South African exports, outcomes that run counter to the intent of supporting a stable and competitive local steel industry."

SAISC has recommended that consideration be given to a phased or delayed implementation of the tariffs, allowing the market to adjust without disrupting supply chains or ongoing projects.

"This is not simply a trade issue, it is a supply chain and industry sustainability issue," says STEASA CEO Keitumetse Moumakoe.

"A balanced approach is required to ensure that, while local industry is supported, the market remains sufficiently supplied with the materials needed to deliver on infrastructure and economic development."

Beyond supply concerns, SAISC emphasises that the long-term sustainability of the steel industry depends on more than trade measures alone.

"Quality, traceability and compliance across the value chain are becoming increasingly critical as supply patterns shift," adds Gebremeskel.

To address this, SAISC will launch its Quality Certification Programme in 2026, aimed at strengthening confidence in both locally produced and imported steel.

"The programme is designed to support verification, traceability and responsible specification across the value chain, ensuring that quality becomes a defining factor in procurement, not just price."

SAISC concludes that a measured approach is required; one that supports local industry while ensuring that the market remains supplied with quality, fit-for-purpose steel.

Since the announcement of the tariff measures, ITAC has continued its formal review process, incorporating further submissions from industry stakeholders. Additional engagement has taken place across industry bodies, including STEASA and SEIFSA, with a view to consolidating input and providing coordinated feedback.

The regulatory environment therefore remains active, with outcomes still progressing through formal channels.

IS SOUTHERN AFRICA EQUIPPED TO MANUFACTURE

As Africa accelerates its industrialisation ambitions under frameworks such as the AfCFTA, a critical question emerges, is Southern Africa equipped to manufacture at scale and compete globally?

Southern Africa remains one of the continent's most industrialised regions, led by South Africa's diversified manufacturing base. Yet, despite this foundation, manufacturing contributes only a modest share to regional GDP, reflecting a sector that has yet to fully unlock its potential.

While capacity exists, it is under pressure from energy instability, logistics constraints and slow economic growth. This raises an important distinction, the region is not lacking capability, but rather the enabling environment required to scale production competitively.

Strengths – A Foundation to Build On

Southern Africa's manufacturing sector is supported by several key advantages, such as a relatively established industrial base, particularly in South Africa, abundant natural resources enabling downstream beneficiation, strategic access to regional and global markets and growing demand driven by urbanisation and AfCFTA trade integration. These fundamentals position the region as a potential manufacturing hub for the continent.

manufacturing indaba

Click for link

Challenges – Barriers to Competitiveness

However, persistent structural challenges continue to constrain growth, such as energy insecurity, impacting production reliability, logistics inefficiencies, including port and rail bottlenecks, limited integration into global value chains and skills and technology gaps, particularly in advanced manufacturing. Addressing these constraints is critical to unlocking industrial scale.

Driving the Conversation Forward

These challenges and opportunities will take centre stage at the upcoming Manufacturing Indaba, taking place on 14–15 July 2026 at the Sandton Convention Centre in Johannesburg, Africa's leading platform dedicated to advancing industrialisation.

The two-day event will bring together policymakers, manufacturers, investors and technology leaders to explore practical solutions to strengthen local production, enhance competitiveness and accelerate Africa's industrial transformation.

With a strong focus on localisation, innovation and investment, the Manufacturing Indaba provides a critical platform to align stakeholders and drive actionable outcomes for the sector.

The Opportunity – From Capability to Competitiveness

The region's challenge is not whether it can manufacture, but whether it can do so consistently, efficiently and at scale. To achieve this, Southern Africa must invest in reliable energy infrastructure, modernise transport and logistics systems, strengthen regional value chains, promote industrial clusters plus beneficiation and accelerate skills development and technology adoption.

In conclusion, Southern Africa is equipped, but not yet optimised, for manufacturing. The foundations are in place, but unlocking true industrial scale will require coordinated action across energy, infrastructure and policy.

As Africa moves toward a more integrated economic future, platforms like the Manufacturing Indaba will play a pivotal role in shaping the conversations, partnerships and investments needed to position the region as a globally competitive manufacturing hub.

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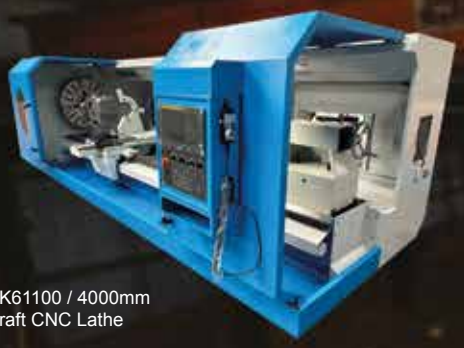

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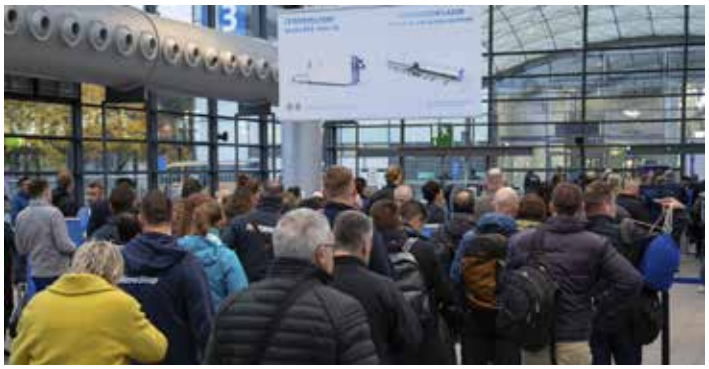
EuroBLECH 2026 UNVEILS INNOVATION ZONE TO SPOTLIGHT THE FUTURE OF ADVANCED MANUFACTURING

EuroBLECH 2026 is set to take a significant step forward in showcasing the future of sheet metal working with the launch of the Innovation Zone | Advanced Manufacturing. Designed as a high-visibility feature at the heart of the exhibition, the new zone will bring together the technologies and solutions redefining modern manufacturing.

Taking place from 20 to 23 October 2026 at the Hanover Exhibition Grounds, EuroBLECH, organised by RX, continues to evolve in line with rapid industry transformation. As manufacturers increasingly invest in automation, digitalisation and intelligent production systems, the Innovation Zone showcases the technologies driving efficiency, precision and competitiveness, alongside live machinery, new product launches and real-world demonstrations taking place across exhibitor stands.



A central hub for next-generation technologies

The zone's emphasis on advanced manufacturing reflects the industry's ongoing demand for greater efficiency, flexibility and resilience. Bringing together technologies such as automation, digital production systems and precision engineering, it provides a clear and focused view of the solutions driving sheet metal working today and in the years ahead.

"EuroBLECH has always been a platform where the future of sheet metal working comes into focus," said Evelyn Warwick, Exhibition Director for EuroBLECH on behalf of RX. "With the Innovation Zone, we are placing advanced manufacturing technologies firmly at the heart of the visitor experience. It is about making advanced manufacturing developments more accessible, more visible and more actionable for the global manufacturing community."

EURO BLECH
20 – 23 October 2026 | Hanover, Germany

To ensure a strong focus on the latest developments, only technologies launched between 1st November 2025 and 20th October 2026 will be featured. In doing so, the Innovation Zone reinforces EuroBLECH's position as the leading global platform for sheet metal working, connecting manufacturers with the solutions enabling smarter and more sustainable manufacturing.

Driving visibility, engagement and industry progress

For exhibitors, the Innovation Zone offers a focused platform to highlight a single breakthrough technology within a high-traffic, curated environment. With two participation formats, Showcase Podiums and Discovery Panels, companies can present their solutions through physical displays or visual storytelling, depending on their application.

At the same time, the feature is designed to support a more efficient and inspiring visitor journey. Guided tours will conclude in the zone, bringing targeted groups directly to the latest developments. Integrated access to technical data, case studies and product information enables faster identification of relevant technologies and suppliers. This creates a seamless journey from discovery to exhibitor stands and on to informed decision-making, making time at the exhibition more productive and outcome-focused.

An optimised layout for better connections

As part of ongoing enhancements to the exhibition experience, EuroBLECH 2026 will also introduce an optimised hall layout designed to better reflect how visitors navigate the show and evaluate technologies. This includes the repositioning of surface and joining technology exhibitors into Hall 16, creating closer proximity between complementary technologies and supporting a more intuitive visitor journey.

The updated layout is intended to encourage more focused interactions, improve cross-sector discovery and deliver stronger commercial outcomes for both exhibitors and visitors.

Be part of the future of manufacturing

Companies looking to showcase their latest developments are invited to secure their place in the Innovation Zone and position their technology at the centre of industry discovery.

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FERROUS HIGH PRECISION ENGINEERING CELEBRATES 45 YEARS OF PRECISION ENGINEERING

Ferrous High Precision Engineering was founded on March 10, 1981, by Giuseppe Cadamuro from Italy and Norman Carradus from Britain. Both founders brought a wealth of experience from their careers in the engineering industry.

Guiseppe Cadamuro was working at OIL Precision Engineering at the time and felt that he didn't get enough support from the owner to take on complicated high precision engineering jobs at the time. Machining to high precision standards and tolerances had always been his passion.

During its initial years, the company operated from rented premises, focusing on meeting the growing demand for precision-engineered components. The business expanded steadily, necessitating the purchase of additional machines to enhance production capabilities.

Initially the company focused on maintenance items specifically for Natref, Sasol, Air Products, Dorbyl Roll Works etc. They concentrated on items that other companies were unable or unwilling to manufacture and made a name for themselves as a company who could do very high quality jobs that others couldn't' do. Later on they identified the need for producing trapezoidal lead screws and nuts.

Ferrous Engineering relocated to its own purpose-built facility on Fairbanks Street, Vanderbijlpark. This move marked a significant milestone, providing larger and more efficient premises to accommodate expanded operations and continued growth.

In April 2024, ownership of the company changed, marking a new chapter in Ferrous High Precision Engineering's history. Under new leadership, the company continues its legacy of precision engineering excellence, serving diverse industries with innovative solutions and superior quality.

FERROUS HIGH PRECISION ENGINEERING's equipment includes conventional lathes, milling machines, surface grinders, cylindrical grinders, CNC lathes, a VMC and lead screw manufacturing machines.

While working from a ±1200 sqm factory space, the company employs 23 people.

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