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- EDM
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The Tool Dentist: Sharpening your carbide edge in a sky-rocketing market

In the high-stakes world of precision engineering, the "bite" of your tool is everything. But as any production manager will tell you, maintaining that edge has never been more expensive. With the global price of raw carbide skyrocketing due to supply chain volatility and increased industrial demand, the cost of simply "scrapping and replacing" has become a luxury few can afford.

Enter the Tool Dentist, a key specialist at the NTR Tool Hospital in Wetherby, West Yorkshire. While many in the industry are being held ransom by escalating material costs, NTR's sharpening and grinding service is providing a heroic alternative: extending the longevity of your existing tooling for a fraction of the price of new.

The precision of the grind

At the heart of the Dentist's surgery is a sophisticated grinding process that treats worn tools not as waste, but as valuable assets. When a tool arrives at the NTR Hospital, it undergoes a rigorous "dental check-up" to assess the wear on its cutting edges.

The elite grinding engineers then utilise NTR's latest investment in high-precision technology to machine the tool in a rotary plane, sharpening it back to its original OEM performance and restoring the complex geometry of the tool to their exact original tolerances. This isn't just a quick sharpen; it is a full restorative procedure that ensures the tool returns to the factory floor as "good as new".

Real-world savings

The economics are undeniable. By choosing to regrind carbide and sharpen rather than replace, businesses are seeing savings of up to 85 percent. In an era where a single specialised tool can cost upward of £250, the ability to extend that tool's life multiple times represents a massive victory for your bottom line.

The greener bite

Beyond the budget, there is the mission of Nurse N. Viro. Last year alone, NTR's reclamation services, led by the Dentist, recycled over 300,000 kg of metal tools. By keeping your carbide in rotation longer, you aren't just saving money; you are actively reducing the carbon footprint of your production line. Don't let rising costs blunt your competitive edge. Contact the NTR Tool Hospital today and let the Tool Dentist restore your bite.

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Unison completes purchase of California-based PHI Hydraulics

Unison Ltd, the inventor of all-electric tube manipulation and a leading UK manufacturer of tube and pipe bending machines, has completed its acquisition of California, USA-based production machinery and tooling specialist, PHI Hydraulics.

For Unison Ltd and its North American division, Danville VA-based Unison Tube LLC, the acquisition further enhances its already extensive product portfolio and reinforces its position as one-stop providers of total tube technology. Most importantly, it will help accelerate the growth of Unison Tube LLC in the United States.

The purchase of PHI will introduce additional end-forming technologies and tooling for tube and pipe flaring, flanging, beading and squaring and deburring to the Unison product range with end-forming machines in the PHI range covering tube and pipe diameters from as little as 0.125 inches, 3.175 mm, to 8 inches, 20 cm. Thanks to PHI's other products, Unison will also enjoy greater product diversification. These include manual and hydraulic tube and pipe bending machines and tooling, as well as manual and motorised hydraulic presses.

Enhanced service and support for PHI customers

For PHI and its customers, the acquisition by Unison brings the promise of faster response times, shorter product lead times, new product innovations, advanced levels of automation and the benefit of Unison's industry leading customer support. PHI's extensive customer base will also benefit from a more direct route to Unison's ultra-precise, all-electric tube bending machines, its controls, software, tube scanning and bend simulation technologies.

"We decided that the best way to ensure the future success of the PHI name, its products and brand reputation, was to seek acquisition," says PHI president, Anthony D. Morrow.

"After considering various potential purchasers, we accepted the offer from Unison Ltd. It was clear from the outset that the Unison team does everything we do and more and is passionate about understanding and exceeding the needs of its customers. As a result, I am confident the future of PHI and the tube manipulation requirements of its customers could not be in better hands."

Perfect fit for long-term growth

"We are delighted to welcome PHI into the Unison family of companies," adds Unison Ltd's joint managing director, Alan Pickering. "PHI's product range and customer base will not only enhance our product portfolio and market position but will also help affirm Unison Tube LLC as a key provider of tube forming technologies in the United States. Acquiring PHI and its key personnel is significant for us. The assets we have obtained are a perfect fit for our long-term growth strategy. They bring critical market reach and proven products that, along with our own technologies, will enable us to better serve our existing customer base, PHI's customers and new customers globally. We are particularly excited to embrace the talent, expertise and time-proven designs that have helped make PHI the machine tool manufacturer of choice for many of the world's leading companies."

Established 85 years ago, PHI has a long, proud history of supporting the tube bending and end-forming machine tool needs of countless US and internationally based organisations, especially across the aerospace sector. This history includes the company's predecessor brands, Leonard Precision Products and Conrac Machine Tool.

"Whichever PHI brands or machines you rely upon, rest assured, as a member of the Unison family, PHI will be even better placed to meet your long-term tube forming needs," concludes Anthony D. Morrow. "Under Unison's expert care, market insight and leadership, the PHI name and everything it stands for will last long into the future."

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Renishaw invests in expanded German service centre

Renishaw, a leader in engineering technologies, has completed a major expansion and refurbishment of its German customer service centre, in Stuttgart, Germany, creating a modern hub designed to support its European customers.

The development forms part of a multi-million euro investment in the Renishaw GmbH facility, enhancing service capability, improving lead times and strengthening warehousing and logistics operations. It also marks a key milestone ahead of Renishaw GmbH's 40th anniversary in 2026, reinforcing Renishaw's long-term commitment to customers in Germany and across Europe.

Customers can access an expanded portfolio of local services, including recalibration and verification of probes, machine calibration and optimisation products, certification grade check and test services and a full repair capability. The site offers a Repair by Exchange (RBE) service for faster turnaround, along with refurbishment of selected product stock. Structured support agreements and free phone-based technical assistance from skilled engineers are also available.

In addition to workshop-based services, the service centre provides on-site probe testing using transportable probe testing rigs, helping customers minimise machine downtime. Preventative maintenance remains a core focus, with services that integrate into customers scheduled programmes. Over time, Renishaw plans to expand the use of data-driven insights to proactively recommend service interventions before issues arise.

The customer service centre has more than doubled in size, expanding from 453 m^2 to 1,080 m^2. The upgraded facility incorporates an open-plan service environment with scalable work cells that can flex with demand.

A dedicated team supports the service centre's operations, currently comprising nine administrative staff, seven technical specialists and a centre manager. Several technicians bring more than 20 years of experience, providing deep product knowledge and application expertise across Renishaw's measurement sensors and machine calibration technologies.

Heiko Müller, managing director at Renishaw GmbH, says: "This investment reflects our commitment to delivering faster, more responsive service for customers across Germany and Europe. With enhanced local expertise and substantial stock holdings, we can offer shorter turnaround times, local testing and calibration, direct communication in the customer's language and complete assurance that our services match the standards set by Renishaw's UK headquarters."

The new service centre was opened to key customers during Renishaw GmbH's bi annual Solutions Network Open House on 5th March, where the company showcased its expanded capabilities and celebrated the next phase of its regional growth.

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Precision, partnership and performance: NCMT supports EVTEC's EV manufacturing

As UK automotive manufacturing accelerates its transition towards electrification, suppliers are under increasing pressure to deliver high-quality components at scale, with absolute confidence in accuracy and repeatability.

That's where NCMT and EVTEC's partnership began, building capacity for the next generation of automotive engines on high quality machine tools. “This isn't just a single machine story. It's about building a production line around a consistent, repeatable platform.” Say's NCMT's, key accounts manager, Greig Underwood.

NCMT are meeting this challenge and supplying a growing fleet of high-precision Makino horizontal machining centres to under-pin EVTEC's latest manufacturing growth. Demonstrating how supplier and customers are pivoting and scaling together to meet the demands of electrification.

Greig Underwood states: “We started with three machines for prototyping, one of each size in the Makino a-nx-Series range. That allowed the process to be proven before scaling up to full production.”

Building on trust and technical capability

According to EVTEC's NPI Advisor Bran Antal, the decision to partner with NCMT was rooted in both technical confidence and long-standing trust: “The key factor was trust in both the technology and the people behind it. We needed a partner who understood the complexity of our components and could support us through the full journey from process development to full-scale production.”

That confidence proved critical as EVTEC scaled up machining capacity for high-pressure aluminium die cast components, including main housings, transmission housings and end covers for electric drive units.

Bran Antal adds: “Beginning with a small number of machines allowed us to validate the process, refine the tooling, optimise cycles and build operator expertise. By the time we expand the line, we will have a proven, repeatable process ready to scale.”

Precision where it matters most

The Electric Drive Unit (EDU) components being produced place extreme demands on machining accuracy. Tight positional tolerances are essential to ensure performance, durability and downstream assembly integrity.

As Bran Antal explains: “The tolerances on EDU components are incredibly demanding. Any deviation can affect the overall performance. Makino's accuracy and repeatability gave us confidence that we could consistently hit those tolerances.”

From NCMT's perspective the application required machine tools capable of repeatedly achieving true positional tolerances of around 40 microns: “The initial line needed machines capable of hitting 40-micron true position. Based on previous experience, Makino could do this reliably and that was a deciding factor.” Greig Underwood says.

“Makino builds these machines as highly accurate horizontal machining centres. When you're dealing with demanding automotive applications, that level of inherent machine accuracy is essential.”

A scalable Makino platform for EV production

EVTEC's machining line is built around a family of Makino horizontal machining centres from the A-Series, including a51nx, a61nx and a71nx models. Each machine was selected to match specific process requirements:

- a51nx machines with 400 mm pallets and HSK-63 spindles are used for high-speed, high-accuracy peripheral drilling operations.

Bran Antal says: "NCMT has supported us at every stage, from installation and commissioning to training, application support and ongoing service. Their team has been quick to respond whenever we've needed technical input. It is a genuine partnership."

For Greig Underwood, repeat investment is the strongest endorsement: "Customers don't keep buying the same machines unless they're happy not just with the machine, but with the support behind it."

- a61nx machines provide additional capacity for transmission housings, again prioritising positional accuracy and repeatability.

- a71nx machines, equipped with HSK-100 spindles, support heavy metal removal using large-diameter tooling for main housing roughing operations.

Greig Underwood explains: “The a71nx supports an enormous tool to remove a large volume of material in one hit, while the a51nx and a61nx machines handle the precision drilling operations. Together, they form a highly efficient, balanced machining strategy.”

Despite their capability, the machines compact footprints were also a key advantage when installing high machine counts on the shop floor: “The compact footprint allowed us to design a very efficient layout with good operator access and smooth material flow once we scale production.” Says Bran Antal.

Phased investment reduces risk and builds confidence

The project began with a small number of machines for prototyping and process validation, before scaling to full production volumes. This phased approach allowed EVTEC to work with NCMT to ensure the scalability. That confidence is reflected in continued reinvestment, with EVTEC repeatedly returning to NCMT for additional Makino machines and technical support as production requirements grow.

“Ultimately, this was about building a scalable solution. The machines had to support today's volumes but also give headroom for future growth.” Greig Underwood adds.

Through-life support as a differentiator

Beyond machine capability alone, both parties emphasise the importance of ongoing support throughout the life of the equipment. NCMT has provided project management, installation, commissioning, operator and programmer training and responsive service support.

Investing in the future of UK EV manufacturing

For EVTEC, the investment signals long-term confidence in electrification and UK-based manufacturing: “It shows that we're fully committed to the future of electrification and to manufacturing high-value components here in the UK. Investing in advanced machining capability is a clear signal that we believe in the long-term growth of the EV sector and in the UK's ability to compete globally. These machines are not just for today's programmes, they're part of our strategy for the next decade and beyond.” Bran Antal explains.

Greig Underwood adds: “This project shows that investment is happening in UK automotive. Companies are growing and they're investing in advanced capability to support the future of the sector.”

By combining Makino's proven precision with NCMT's through-life service and application expertise, the partnership with EVTEC demonstrates how advanced manufacturing capability can be successfully scaled to support the evolving needs of the UK automotive sector.

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Brandauer electrifies engineering partner vision with two high-profile automotive contracts

One of Birmingham's oldest manufacturers has secured two major automotive contracts just months after announcing its intention to become a long-term engineering partner for its global clients.

Brandauer, which competed an historic management buy-out in September last year, is working with Ford Motor Company and a leading Tier 1 supplier from Eastern Europe on exciting projects to produce tooling and precision components for use in electrification.

Both partnerships are tapping into the company's early-stage consultancy and design for manufacturing support, before following the production journey from tool design, manufacture and try-out to process automation and volume production.

The early wins reinforce the new strategic growth plan outlined after the MBO and has accelerated the firm's move towards £12m revenues by 2029.

Rowan Crozier, CEO of Brandauer, comments: "When Stuart Berry, Dave Champman and I spoke after the recent deal, we highlighted our desire to move from a traditional stamping business to a precision engineering provider.

"This move will transition us from a subcontract stamping specialist to a one-stop partner, who can scale precision metal/plastic assemblies from concept stage and prototype development, through to production ramp-up, ultimately capable of millions of component assemblies supplied globally every week.

"This is a long-term vision that will maximise recent investments in consultancy, design and automation capability and we are already seeing demand from existing and new clients to tap into this wraparound service."

He continues: "Automotive is a natural home for what we do, as it demands precision components and, with the drive for electrification, is looking to push the boundaries of innovation.

"Contracts with Ford Motor Company and the Eastern European Tier 1 supplier give us confidence that what we are offering is in demand, a demand that is also transferrable to multiple precision sectors, including defence, aerospace and power generation/ management.

"The MBO was a massive moment in our 164-year history. Now is the time to write the next chapter that will keep world class manufacturing in Birmingham for another century."

Employing 67 people at its Newtown facility, Brandauer has made history with the Ford Motor Company project, manufacturing a >2,500 mm diameter lamination progression tool for the first time.

This includes integrated automation to stamp, bond, stack and skew larger diameter thin gauge stacks for EV applications, which are set to change the way electric motors are produced going forward.

The global car marker used design for manufacturing workshops for validation, in-depth tool design services, laser cut prototyping and machine selection knowledge to ensure the right press was utilised to achieve project budgets.

A full tool is now being manufactured and, once this is complete, collaborative learning will be shared across both businesses by exploiting Brandauer's Precision Tooling academy, run in partnership with In-Comm Training.

Rowan Crozier adds: "The Tier 1 automotive work is based on a similar approach, again tapping into our comprehensive precision engineering capability.

"This time, we are working with the client to create a fully automated production assembly line, with three world class production tools at its heart delivering maximum efficiency and tolerances."

He concludes: "For Brandauer, these new contracts aren't just a symbol of new business. It's a symbol of a new beginning. Both companies have recognised our expertise in multiple sectors of the process and this has ensured better communication and faster lead times by cutting out third-party suppliers, so the end-to-end projects can be completed under one roof."

Brandauer has committed to securing the global IATF 16949 automotive certification by 2027, complementing existing ISO 9001, ISO 14001 and ISO 45001 quality standards.

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Tatra trucks impress with their off-road performance

Efficient machining of V8 and V12 diesel engines

Tatra Trucks is said to be the oldest manufacturer of road and off-road vehicles and the second oldest manufacturer of lorries with internal combustion engines in the world. It is now bringing its engine production up to the latest standards. A production cell with three Heckert HEC 800 machining centres, automated by a pallet system to increase efficiency and reduce the space requirement to almost a quarter is the route forward.

Tatra, an automotive manufacturer from Kopřivnice, Czech Republic, started producing carriages as early as 1850 and has been making cars since the end of the 19th century. Today, it is mainly the heavy Tatra trucks that impress with their off-road performance, high reliability and outstanding utility properties even in extreme weather conditions such as frost and desert temperatures.

One of the special features of the vehicles is the Tatra concept, a chassis with a central support tube and individually suspended semi-axles, which makes it possible to mount a chassis with any number of axles, from 4x4 to 12x12 and more. The direct air-cooled V8 and V12 diesel engines of the Tatra T3 series with supercharging and intake air cooler are also among the USPs.

Production takes place at the company's headquarters in Kopřivnice, Czech Republic. The complete chassis for the T158 Phoenix vehicles, which are available with various superstructures such as containers, concrete mixers, tanks and special superstructures, is produced there. In addition, vehicles from the T815-7 Force series are produced, which are available in both civilian versions and military versions.

Technology and process manager Martin Kappler explains: “We manufacture almost all components for our Force series vehicles ourselves: the complete chassis, cabin, engine and gearbox." Tatra's production portfolio also includes the Tactic series of medium-sized vehicles, which are designed exclusively for military purposes.”

Automated production cell replaces transfer line

As far as the engine equipment is concerned, Tatra Trucks lets its customers choose from several options. Liquid-cooled engines from proven manufacturers and Tatra's own V8 and V12 engines in various power variants are available. The latter have been manufactured on a transfer line in Kopřivnice since 1980.

“Despite its age, the technical condition of this plant is still good," says Martin Kappler, "but the energy costs are extremely high, as is the consumption of coolants. That's why we decided to switch engine housing production to a cell with automated machining centres.”

He also argues that the changeover from V8 to V12 on the transfer line takes a long time, usually several production shifts: “In view of the flexibility required today, the new production cell also impresses in this respect. With our universal fixture, we are quick to retool and can customise any motor housing. This means that we are much more efficient with the machining centres, even if the pure machining time of a motor housing on the transfer line is shorter.”

As a result, in 2024 the production managers at Tatra Trucks decided to order a Heckert HEC 800 from Starrag as the basis for the planned production cell. This was supplemented by an automation solution in the form of a Fastems FPC3000 system.

25 years' experience with Heckert machines

A decision with a history: Tatra replaced an ageing machining centre back in 2017. Its original tasks were cutting base surfaces and machining index holes, which are required for clamping and positioning the cast parts in the transfer line. Purchaser Libor Kališek recalls: “After comparing several suppliers at the time, we decided in favour of a Heckert HEC 800, as it seemed the most suitable and offered a wider range of machining applications.”

Since then, Tatra has been using the Heckert HEC 800 to pre-machine eight and 12-cylinder motor housings. The lower housing section is completely machined in a single operation, including the index holes and all holes for attaching the oil basin.

Technologist Dušan Kelnar adds: “We also rough machine the motor housing surfaces on the Heckert HEC 800 and drill holes that cannot be machined on the line. Before we send the pre-machined housing to the transfer line, the motor housing is completely reworked, including the various covers, the pump seat, etc.”

Tatra chose a pallet system as the automation solution, which initially contains twelve pallet spaces.

Dušan Kelnar points out that he and his colleagues have been familiar with Starrag and the Heckert centres for a long time: “We bought the first Heckert CWK 630 for machining gearbox housings 25 years ago.” In the years that followed, Tatra regularly invested in further Heckert machines: two CWK 630s for machining axle housings, three CWK 500s for swing arms and wheel reduction housings and two CWK 500s for components in the Tatra Tactic series. By 2017, three HEC 630 and two HEC 500 machining centres had also replaced other old machines. “That's why we have extensive experience with Heckert machines,” emphasises Dušan Kelnar. “These machines have proven themselves thanks to their design, reliability and long-term accuracy.”

Expanding production step by step

The new Heckert HEC 800, which was delivered at the beginning of 2025, is the basis for the production cell that has now been put into operation. The machine has special equipment, including a travel path extended to 2,050 mm in the Z-axis, an NC axis in the spindle for controlling special tools and a magazine for long tools up to 1,250 mm.

Martin Kappler explains: “The cell takes over the complete machining of our eight and 12-cylinder motor housings and is increasingly replacing the transfer line.” The blanks are cast parts made of copper-alloyed GG20 cast iron with dimensions of around 1,200 by 600 by 700 mm and a weight of around 400 kg. Complete machining is carried out in four clamping processes with special hydraulic clamping devices developed and manufactured by Starrag.

In a second step, the production cell will soon be expanded to include an identical Heckert HEC 800 machine and in a third expansion stage, Starrag is integrating the eight-year-old Heckert HEC 800, which is currently still responsible for the external pre-machining of the cast blanks.

A flexible pallet storage system, which consists of a shelf with twelve pallet spaces and a linear conveyor, automates the production cell. The latter handles the pallet transfer between the machines and the machine setup stations. The pallet storage system will also be further expanded as the number of machines grows.

The Heckert HEC 800 machining centre guarantees optimum results in the economical machining of large and heavy motor housings.

Enormous increase in space productivity

Martin Kappler compares the two production systems: “Our transfer line recently had a capacity of around 1,600 units per year, which we are currently only utilising half of. Our production cell will also reach this quantity in the final expansion stage in a two-shift operation, which is important for us. Because we expect demand to grow strongly, we can cover any further increase in demand with a third shift if necessary.”

His enthusiasm for the new production solution is primarily due to its high level of efficiency. There are several reasons for this, as Martin Kappler emphasises: "Thanks to the automation, our new production cell can be operated by a single employee. Compared to the previous transfer line, the operating costs are considerably lower and the space requirement of the production cell is just over a quarter at 570m²."

Purchaser Libor Kalíšek, who initiated the purchase of the Heckert HEC 800, has since retired. His successor, Tomáš Holčák, also praises the cooperation with Starrag: “All offers and negotiations were at a high technical and commercial level. We greatly appreciate the fact that Starrag supplies us with turnkey machines, as a fully functional unit comprising machine, tools, fixtures, technologies, testing and handover. The technical support, service and maintenance are also excellent.” Based on the positive experience, further projects to modernise and rationalise production are already being planned.

Tatra's own V8 and V12 engines are built in Kopřivnice in various power variants.

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Medical equipment factory's meteoric expansion continues alongside Citizen lathe investments

Formerly with an almost exclusive focus on producing equipment such as resuscitators used by paramedics and first responders in pre-hospital care and the emergency services, Halstead-based Meditech has, since the Covid pandemic, moved strongly into the supply of medical equipment to National Health Service and private hospitals.

This development has seen the company's turnover increase more than five-fold since 2020, as has its factory space. Understandably, such rapid growth has necessitated careful control over many aspects of the business, especially manufacturing.

The company's first Citizen lathe, a Cincom 20 mm bar capacity L20, was bought in 2008 following a decision by managing director Chris Buckenham to bring all production in-house. Until then, only a few brass and aluminium items like regulator bodies and valve components were machined on-site in multiple setups on CNC fixed-head turning centres, manual lathes and milling machines.

The remainder were being sourced from subcontract suppliers in the UK and overseas. However, some components supplied from Asia were proving problematic during assembly, so complete control over the manufacturing function to ensure top quality and timely delivery of Meditech products was the goal.

A further objective was the production of components in as few operations as possible, preferably in one visit to a machine. Chris Buckenham had become aware of the capabilities of sliding-head turn-milling technology and visited the MACH 2008 show to find out more. After a tour around the halls, it rapidly became apparent to him from the quality of Cincom lathes, their capability and the ease of access for setups, that Citizen Machinery would be the preferred supplier, so a deposit was paid there and then for the first L20.

Its arrival on the shop floor in June that year, in the words of Chris Buckenham, "revolutionised production overnight". It was the start of a programme of Citizen lathe acquisitions that has resulted in the delivery of a total of seven twin-spindle models over the years. A second L20 of higher specification was installed five years later. Then a third with even more capability, an L20-XIILFV with a programmable, 135-degree swivelling B-axis for complex angled machining at both the main and sub spindles, followed in August 2020 to help meet the higher workload during the pandemic.

This latest-generation lathe is characterised by the integration of Low Frequency Vibration (LFV) technology, a proprietary Citizen innovation that uses servo-controlled oscillation to break chips into manageable fragments. It drastically improves the machining of stringy materials like stainless steels and plastics, much of which are cut on-site, preventing swarf from coiling around the tool and workpiece and potentially damaging both. Additionally, it boosts productivity by avoiding having to stop the lathe to clear ribbons of swarf from the working area.

Prior to delivery of the third L20, to turn-mill larger components Meditech expanded its portfolio of Citizen lathes with a fixed-head machine from the supplier's Miyano range. It was an ABX-64THY with three Y-axis tool turrets and a bar capacity of 64 mm. Delivered in 2015,

it replaced a similar machine from a different supplier that was performing badly and set the medical equipment manufacturer on the road to becoming a Citizen-lathe-only company.

A similar Miyano with enhanced speed, power and thermal stability to allow longer periods of unattended operation, including overnight, was added in 2023 to expand production capacity for larger components, some of which are prismatic in shape without any turned features. Both Miyanos also benefit from superimposed machining capability, which enables three different tools to be cut simultaneously for elevated levels of productivity.

After installation of the first Miyano, it was the turn of a larger-capacity Cincom to arrive in 2019, an L32-XIILFV to take advantage of its gang rather than turret tooling arrangement to deliver faster cycle times. This machine, which also has a programmable B-axis carrying live tools that can work on either spindle, was delivered with an expansion kit to allow bar up to 38 mm in diameter to be processed, if required.

Notable is that, from the outset, the lathe has been operated exclusively without its guide bush in place, with the bar clamped in the spindle collet. Principal machine operator Ian Ronsky, who comes from an aerospace background, finds that the absence of the bush interface affords additional workpiece support, allowing more efficient roughing without risking vibration.

He says: "Deflection of a part when machining larger-diameter, stiffer bars up to 32 mm is not a problem, even though the general tolerance we hold on workpieces is tight at ± 10 microns.

"Any component whose length is more than the 80 mm headstock travel I simply rechuck. In non-guide-bush mode, we have the advantage of using less expensive bar and remnant lengths are much shorter, saving even more cost."

The most recent Citizen lathe to be delivered, an L12-XLFV, is the smallest machine with a bar capacity of 12 mm. About one-fifth of the parts Meditech turns are below this diameter and the nimble machine allows their production significantly faster than on an L20, while also freeing the three larger lathes for other, more appropriate work.

In common with the more recent Cincom deliveries, it also has the LFV chip breaking software, as will all future models destined for the Halstead factory, such is the advantage it provides when machining malleable materials.

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Purchase of an XYZ 2010 super heavyweight VMC opens opportunities for Alan Dick Engineering

Managing director Steve Evans, Alan Dick Engineering.

With an annual growth of approximately 10 percent year on year, Alan Dick Engineering, based in Heysham, Lancashire, have made an investment in an XYZ 2010 super heavyweight vertical machining centre. This machine will enable the company to open up opportunities that will allow them to continue that ongoing growth.

Established in 1975, Alan Dick Engineering offer a wide range of subcontract machining and fabrication services. With this "one stop engineering" capability, it specialises in bespoke, quick turnaround services for the nuclear, offshore, marine, food, construction and chemical industries.

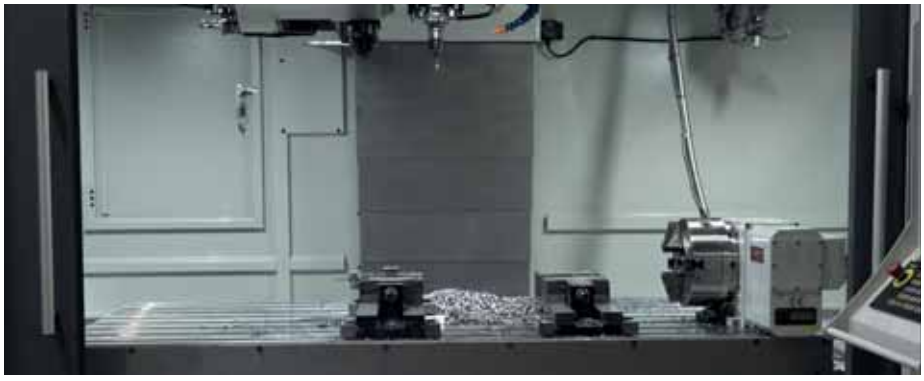
The investment made by managing director Steve Evans, is seen by him as being a fantastic opportunity to not only support his existing customer base by offering greater capacity than he can already offer but also create an opening to offer the services of Alan Dick to a wider audience. Steve Evans says: "Over the last few years we have worked hard at continuing to grow our business 10 percent year on year but, we need to make investments in our capabilities to ensure the growth continues. This XYZ 2010 machining centre is one small part of a recent spend which has included building a dedicated fabrication workshop at the side of our main factory. Investing in this workshop and machine has given us greater capacity and capability.''

The purchase of the 2010VMC which offers 2,000 mm x 1,000 mm X and Y travel complements other XYZ machines which Alan Dick already have in the workshop. When asked about the purchasing process for the machine Steve Evans adds: "We are very happy with our XYZ products, ProtoTRAK controlled turret mills, ProtoTRAK controlled flat-bed lathes and a CT65 LTY, in terms of both the machine range that is on offer and the service that XYZ provide. The reliability has been superb and this is born out with the XYZ CNC 4000 bed mill that we have in the shop. This machine, which was supplied back in 1999, is still going strong and is testament to the quality of the XYZ products.''

But it is not just Steve Evans who sees the opportunities available now this machine is installed and running. Mike Prady one of the machine operators at Alan Dick is already seeing the advantages of purchasing this machine. He comments: "The machine is allowing us to be more efficient in the work we do. The Siemens 828D control that is fitted with the Shopmill conversational software is taking away a lot of the programming tasks that we had to do on our old large mill. In terms of cutting performance, the BT40 spindle with its 42 kW motor has allowed us to decrease cycle times by increasing the cutting data that we can use.

"Where we are really seeing the savings on this machine is in the manufacture of larger parts where the 1,000 mm Y axis travel on the machine eliminates the multi setups we had to do previously. The extra handling to machine the large rings we often process added throughput time which we will now eliminate as we can produce the features from one setup. The 30-station arm type tool changer is also offering an unexpected benefit as we can hold tools in the machine to cover the common features we machine on a regular basis.''

Steve Evans concludes: "This is a large investment for our business, but I know it was the right machine to help our continued growth. I also see that it will help us when it comes to enticing skilled machinists and apprentices to Alan Dick by opening the appeal of working in our machine shop. All our machinists want to get on this machine to be able to use the latest technology and although we have 2 apprentices working here at present, we do see the long-term future of the business by developing our own staff through our apprenticeship program. Seeing this machine here, we hope to inspire young people to come and learn their trade in our workshop on the XYZ 2010 VMC".



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Subcontractor invests in first 5-axis machine

When Andy Battensby and Dale Robson launched North Axis Engineering in Cramlington, Northumberland to fill a gap in the North East for high-precision, quick-turnaround subcontract work targeting the subsea, aerospace and automotive sectors, the owner-directors could hardly have predicted the pace at which their new venture would accelerate. Yet just a short time later, the company's growth tells a story not only of ambition, but of calculated investment and deep-rooted expertise.

With more than three decades of combined CNC machining experience gained at established engineering firms, Andy and Dale brought confidence and credibility to their start-up. Their ability to take on subcontract milling and turning across a wide range of materials was never in doubt. Customers evidently agreed, swiftly entrusting North Axis with a steady stream of work that kept the spindles turning from the outset.

North Axis was founded on a clear and focused vision: to deliver a responsive, versatile machining service capable of producing precise, high-quality components, whether one-offs, small batches or large production runs. For the directors, investing in the right CNC technology was non-negotiable. Even within the constraints of a start-up budget, they understood that reliability, accuracy and ease of use would be critical. Having worked extensively with Hurco equipment in the past, they knew where to turn.

The business opened its doors at the start of 2025 equipped with a used Hurco VM10i 3-axis machining centre and a TM8i CNC lathe. Compact yet powerful, the VM10i offers impressive metal removal rates and the performance of a machine that would normally occupy a larger footprint on the shop floor. The TM8i, with its 2-inch bar capacity and maximum turning length of 525 mm, provides robust and accurate turning capability. Central to both machines is Hurco's intuitive Max5 control, enabling rapid programming, reduced setup times and swift progression to first-off components, which is an essential advantage in subcontract environments.

By March 2025, demand had justified further expansion. To broaden its machining capabilities, North Axis purchased a new Hurco VM30i directly from the manufacturer, complete with the supplier's own H200 rotary table. With generous travels of 1,270 x 508 x 508 mm, the VM30i accommodates larger components, while the integrated fourth axis opens the door to more complex rotary work and efficient second operations on turned parts. Hurco's conversational programming for the rotary axis ensures that increased capability does not come at the expense of simplicity.

North Axis directors Andy Battensby (left) and Dale Robson (right) with Jack Brown (centre), Hurco Europe's sales engineer for the North East of England. They are pictured at Hurco's Open House last December with the 5-axis VM10Ui machining centre the subcontractor has purchased.

North Axis has also positioned itself as more than a machining services provider. CADCAM programming, MIG and TIG welding and a range of engineering and fabrication services sit comfortably within its expanding portfolio. This breadth allows the company to respond flexibly to customer requirements and strengthens its role as a trusted manufacturing partner.

However, it is the next step in the company's journey that signals its boldest move yet. With efficiency and single-hit machining increasingly a priority, North Axis confirmed the purchase of a 5-axis VM10Ui at Hurco's year-end open house last December. For a business barely a year old, the decision speaks volumes about the directors' confidence and forward planning.

Dale Robson says: "We're delighted to be investing in our first 5-axis machine within our first year of operation. We already have work lined up that requires simultaneous 5-axis cycles. Because we're so familiar with Hurco machines, we know the learning curve will be quick and we're excited to get started."

Strategic investment in optimal technology propelled North Axis Engineering through a remarkable first year. With new projects on the horizon in 2026 and a clear commitment to capability-led growth, the trajectory appears set. If the company's early momentum is anything to go by, North Axis is only just beginning its ascent.

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Loads better

Mills CNC, the exclusive distributor of DN Solutions' and Zayer machine tools in the UK and Ireland and a supplier of high-productivity automation solutions to component manufacturers, has recently supplied Bindon Engineering Ltd, a leading precision subcontract specialist based in Poole, Dorset, with a new, bespoke SYNERGi Sprint automation system.

The system, designed by Mills CNC's automation application engineers and installed at Bindon Engineering's 36,000sq. ft. facility in July 2025, has significantly improved an existing machining process previously developed by the company, some years earlier, to machine high-precision centre column, activator, parts, in small-to-medium batch sizes, on one of its existing multi-tasking turning centres.

The integration of the SYNERGi Sprint automation system with a, Doosan, 10" chuck Puma TT 2500SY twin-turret, twin-spindle turning centre with Y-axis capabilities, supplied by Mills CNC in 2019, has helped create a new, more efficient automated machining process that is far less labour intensive and is geared to continuous production.

Since being installed, the SYNERGi Sprint automated manufacturing cell has been operating to full capacity and has helped Bindon Engineering improve its productivity, increase process efficiencies and achieve faster turnaround times.

Bindon Engineering, established in 1966, and employing 50 people, is a private, family-owned precision subcontract specialist renowned for the quality and reliability of its machining and inspection services.

The company, committed to continuous improvement, regularly invests in new CNC machine tools to increase its machining capacity and capabilities with many of the machines acquired having some element of built-in automation.

Ian Lawrence, Bindon Engineering's managing director states: "Improvement is the name of the game and we are always looking at ways to increase our productivity and reduce inefficiencies. Machines with built in automation and multi-tasking capabilities characterise many, if not most, machine tool investments we have made over the last 25- to 30-years."

Bindon Engineering has developed strong relationships with Mills CNC over the years and, since the late 1990s, has acquired over 25 machines from the company. In 2022, Bindon Engineering also made its first robot acquisition when it invested in a Doosan M0617 cobot from Mills and integrated it with one of its existing Doosan milling machines.

Ian Lawrence says: "We have a good relationship with Mills CNC. The machines they sell and support deliver excellent cutting performance and are reliable and competitively-priced. Furthermore, they are often available from stock facilitating their immediate delivery. Mills' technical, applications and after-sales service and support are also worthy of special mention and cannot be faulted."

Bindon Engineering machines high-precision valve and actuator parts for customers across a range of processing industries and sectors including oil and gas, petrochemical, water/wastewater treatment and pharmaceutical

These parts are machined to tight, tied-up tolerances, +/-0.02 mm and high surface

finishes, Ra 0.4µm and are typically processed in small-to-medium batches up to 7,000-off at the top end.

Ian Lawrence explains: "We regularly monitor and benchmark the performance of our machine shop in order to identify production bottleneck and pinch points. So, at the tail-end of 2024 when a long-term customer announced that it would be renewing and indeed would be ramping up its requirements for its high-precision centre columns, we reviewed our existing machining capacity and capabilities to make sure we would be able to meet the increase in demand."

Bindon Engineering determined that the machining process it had previously developed and that was already in place, using the full multi-tasking capabilities of its twin-turret, twin-spindle TT 2500SY machine could be made more efficient and improved through automating the part loading and unloading elements of the process which were deemed to be 'too labour intensive'.

Ian Lawrence continues: "Owing to our well-established and long-standing relationships with Mills CNC and the fact that the TT 2500SY was acquired from them in the first place, we contacted Mills in January 2025. Following several discussions, it was agreed that they would design and develop a robot load/unload solution for us based on their SYNERGi Sprint system and integrate it with our TT 2500SY."

Centre columns machined on the TT 2500SY are made from different length and diameter pre-cut EN 8 steel tube and, utilising the full multi-tasking capabilities of the lathe, are machined to completion in one hit. Part cycle times are typically around 10 minutes long, with accuracies hitting 0.03 mm on selected features.

Ian Lawrence says: ''The process is repetitive and labour intensive and requires an operator being available to load individual steel tube blanks, at the start of the process, into the machine's left spindle and, when machining operations have been completed, to unload finished parts from the machine's right spindle. Because part cycle times are short, the operator is virtually tied-up, all day, tending the machine."

The new process centres around the recently-acquired SYNERGi Sprint system that comprises the following elements: FANUC 25 kg payload capacity industrial robot with a 2-jaw pneumatic gripper end-effector positioned in front of the TT 2500SY; Industrial safety guarding and SICK light curtains/barriers that enclose the cell and provide a reliable, non-intrusive and efficient safety solution.

Two, separate, input (load) and output (unload) stations, with a 20-socket laser-cut fabricated, zinc-coated grid plate sitting on top of each; 17" touchscreen HMI powered by Mills' proprietary SYNERGi software.

The newly-designed automated machining process begins with the operator loading the left grid plate with 20 steel tube blank workpieces. Then, a robot picks up each workpiece in a programmed sequence and, taking advantage of the TT 2500SY's auto door opening facility, loads individual parts in the machine's left spindle. The door then closes, automatically, to enable all machining operations to be undertaken seamlessly and in one hit.

Once completed, the robot takes the finished machined part from the machine's right spindle and places it in a predetermined, designated position on the output grid plate and the sequence begins again until the 20-part batch has been machined.

Bindon Engineering's SYNERGi Sprint automated manufacturing cell is fast, productive and efficient, enabling, virtually, continuous centre column batch production to occur with significantly reduced labour involvement.

Ian Lawrence concludes: "With labour costs being as high as they are and with no sign of them reducing, UK component manufacturers need to fully embrace automation and the unmanned operation of their machines in order to improve productivity and maintain their competitive edge. The investment in the SYNERGi Sprint system provides further evidence that this is the direction of travel for Bindon Engineering."

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The best things come in small packages as RoboTrex Compact headlines MACH 2026

A 'UK' first was unveiled at MACH 2026 in April when Lang Technik UK delivered its latest space-saving automation solution.

Visitors to the firm's stand (18-448) during the five-day show in Birmingham received a live demonstration of the RoboTrex Compact, which packages all the advantages of its big brother but is specifically designed for small component applications.

It has been developed to deliver unmanned production of workpieces with a size ratio of 65 x 50 x 95mm and a maximum weight of up to 7kg. Impressively, the technology is packaged into a 2-metre squared footprint, making it an ideal partner to a busy production floor.

Bosses are promising that it can work with almost any machine tool, and its simple operation will mean minimum training requirements and the equipping of automation within just a few seconds – delivering up to eight hours more production time per day.

Danny Brook, Sales Director at Lang Technik UK, commented: "Our philosophy is based on providing products that reduce set-up times, increase productivity and boost manufacturing capacity.

"This is exactly what the RoboTrex Compact delivers in a uniquely small footprint. We are delighted that we secured one of the systems to be a focal point for our stand at MACH and that the UK market really welcomed the technology."

He continued: "Visitors were able to speak to our experts and experience our latest automation set-up and run complex parts. We believe this solution will be extremely popular in the UK, especially for manufacturers looking to boost productivity through automation."

The RoboTrex Compact houses an already installed FANUC M-10iD-16s industrial robot, which efficiently transfers the 5-axis vices between the rack and the machine tool.

Thanks to various loading options via the machine door or a side window, the system can be easily connected to almost any machine tool.

Impressively, up to 100 Makro-Grip® vices can be stored in the specialist vice handling system, whilst the option of changing grippers manually gives the user the opportunity to automate larger vices from the Makro-Grip 77 series.

Danny went on to add: "All of our automation systems are set-up to be plug-and-play solutions, and the RoboTrex Compact is no different.

"This ensures fast installation, commissioning and minimal training, with the user-friendly operation meaning no specialist robot knowledge is required to operate it. Essentially, what this does is ensures all staff can quickly get to work on the system, supporting improvements in production and increasing productivity."

Lang Technik UK, which was formed in 2019, also showcased its full range of zero-point clamping, workholding and pre-stamping technology at MACH 2026, with experts supporting existing and new clients to address emerging pain points.

For further information, please visit www.lang-technik.co.uk or follow the company across its social media channels.

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Subcontractor automates high-accuracy prismatic machining

A bespoke robotic handling cell has been retrofitted to a DMG Mori 5-axis Vertical Machining Centre (VMC) at the Redditch factory of Optimal Manufacturing, a contract machining company that was established in December 2022. Supplied by Whitehouse Machine Tools, the Tezmaksan CubeBOX is unusual for a 6-axis robot cell in that it is designed to exchange components mounted in vices on pallets, rather than the billets, castings or forgings themselves.

Joint owners and directors of Optimal, Will Cooper and Tom Slimm, decided to adopt this manner of automation, which requires a robot of 70 kg capacity, due to the frequent need to hold tolerances of less than 10 microns. In their opinion, it would not be possible to achieve the required level of repeatability if the individual components were to be handled, especially if they need to visit a turnover station prior to a second operation.

Instead, workpieces need to be fixtured in vices mounted on zero-point pallets that locate into a pneumatically actuated clamping station on the table of the DMG Mori CMX 70 U machining centre, one of two 5-axis models on site. In this instance, the workholding and location equipment was sourced from CERATIZIT.

Tezmaksan, the Turkish manufacturer of the robotic machine tending cell, undertook major adjustments to the CubeBOX Blues DR MAX, one of the more heavy-duty plug-and-play configurations in its product portfolio. The three storage shelves, which would normally be stationary and holding unclamped workpieces, were fitted with motors and actuators so that they are able to slide horizontally towards the robot and back again to facilitate manual loading and unloading of fixtured parts, four of which are stored on each shelf.

If the drawers were not able to move, the robot gripper would not have enough space to gain access to the two lower shelves to pick up any of the four vice-mounted billets, or return machined component afterwards. It is because the shelf separation is small relative to the nominal 300 mm cube profile of the payload. The machine tending cell was commissioned in August 2025.

Choice of the Tezmaksan handling solution was down to system flexibility and price, as well as the directors' confidence in Whitehouse as a machine tool and production equipment supplier. During the time they previously worked together at an engineering firm in Birmingham, Whitehouse delivered a Brother 30-taper machining centre, which proved to be a significant asset on the shop floor and one that received exemplary service backup. Then, after starting Optimal, they purchased a Taiwanese Leadwell 5-axis VMC with compound rotary table from the same source in February 2024, an experience that also proved seamless.

For more open-tolerance machining, they decided six months after inauguration of the automated prismatic machining cell that it would be expedient to load and unload some raw material individually, rather than in the zero-point pallet-mounted vices. For this purpose, three thin plates were machined in-house and permanently mounted on each shelf. Large holes in the plates accommodate the zero-point locations and a grid of small holes drilled at 50 mm centres facilitate fixturing multiple components, typically up to 36 or perhaps even more.

As with all CubeBOX installations, the Blues DR MAX was supplied with Tezmaksan's RoboCAM intelligent automation software, so there is no need for expensive third-party robot integrators. The system allows an operator without any robot programming experience to set up a new part in two to three minutes.

It is possible to load a DXF file directly, from

which the software reads the part geometry and automatically calculates grip points and the positioning cycle.

Tom Slimm concludes: "With some machining cycles lasting well in excess of two hours and our ability to gain 14 hours' production overnight virtually for free, we are not chasing small reductions in cycle times. The over-riding need here is for high levels of machining accuracy and the bespoke Tezmaksan cell supplied by Whitehouse meets that need precisely.

"Particularly in view of its simplicity of integration, compatibility with any brand of machining centre and the difficulty in finding and recruiting skilled shop floor staff, this type of easy-to-use automation is a big asset for any manufacturing organisation and particularly for subcontractors."

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Brazed end mills for high-speed HRSA machining

The leading CERAMIC-SFEED milling line from TaeguTec has now been significantly expanded with the introduction of ceramic brazed end mills and MAXI-RUSH heads. This expansion delivers a comprehensive high-speed milling solution for heat-resistant superalloys in the aerospace, offshore and power generation sectors.

The enhanced range addresses the demanding requirements of nickel and cobalt-based alloy machining, where conventional solid carbide tooling witnesses rapid performance deterioration. It is here that the new CERAMIC-SFEED system excels. It exploits the fundamental thermal properties of ceramic cutting materials to achieve dramatic productivity improvements in heat-resistant alloy applications.Whereas carbide tools experience rapid wear at elevated temperatures and require conservative cutting speeds around 50m/min, TaeguTec's TC3030 SiAlON ceramic grade maintains exceptional hardness at temperatures exceeding 1000°C. This thermal stability enables cutting speeds beyond 700m/min, dramatically improving productivity and reducing cycle times. The impressive CERAMIC-SFEED generates sufficient heat to soften the workpiece material and this subsequently facilitates aggressive material removal with extended tool life.

The newly introduced ceramic brazed configuration addresses a critical limitation of monolithic ceramic tooling. By brazing ceramic cutting heads to carbide shanks, TaeguTec has substantially reduced the brittleness inherent in all-ceramic designs whilst maintaining thermal performance characteristics. The hybrid construction delivers superior vibration damping during operation. It enables more secure toolholding, factors that prove essential when operating at the elevated spindle speeds required for optimal ceramic tool performance. Stability of ceramic tooling has long been a concern for manufacturers; TaeguTec dispels this concern with its hybrid solution.

The expanded product portfolio comprises five distinct configurations addressing specific machining requirements. The CRFB 6 is a 6-flute ceramic brazed end mill presented in diameters from 6 to 16 mm with corner radii of 0.5 to 2 mm that has been optimised for shouldering, facing and ramping operations.

The MXCRF ceramic brazed MAXI-RUSH heads provide identical cutting geometries with the added versatility of interchangeable head systems that are compatible with multiple holder configurations. Standard ceramic end mill variants include both 4-flute CRF 4 design for slotting applications and the 6-flute CRF 6 for high metal removal operations, whilst the CRH 4 series delivers specialised geometry for high-feed facing operations at shallow axial depths. Recent comparative trials demonstrate the technology's substantial performance advantages in production environments. Shouldering operations in nickel alloys using a 16 mm diameter MXCRF tool achieved productivity improvements of 1,580 percent compared to conventional carbide end mills. Tool life simultaneously increased 400 percent from single-part capability to five components per cutting edge.

The machining methodology requires specific operational protocols to maximise ceramic tool performance. Down milling remains essential to prevent rapid cutting-edge deterioration, whilst maintaining cutting speeds above 700m/min ensures sufficient heat generation to soften workpiece material. Coolant application should be avoided to prevent thermal shock and edge cracking. However, an air blast may be employed where swarf evacuation proves problematic.

The complete CERAMIC-SFEED expansion is available now in TaeguTec's TC3030 grade, which is suitable for nickel alloy applications with impressive performance characteristics in cobalt alloys. The technology specifically targets roughing operations in turbine components, combustor housings and other critical aerospace and power generation applications.

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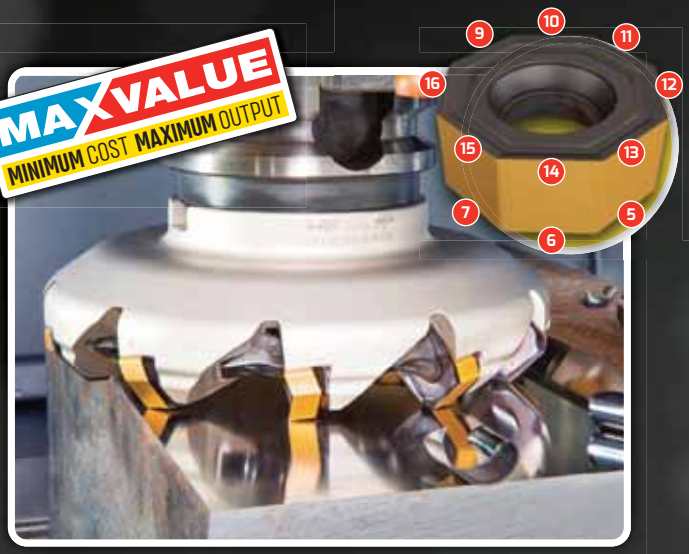

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Choosing the right ISCAR insert geometry for difficult to cut materials

Machining difficult to cut materials such as stainless steels, Heat Resistant Superalloys (HRSA), titanium alloys, hardened steels and abrasive cast irons requires more than selecting a tough carbide grade.

Insert geometry plays a critical role in controlling cutting forces, heat generation, chip formation, tool life and surface integrity. As a leader in cutting tools, ISCAR has developed a broad range of insert geometries specifically engineered to address the challenges presented by these demanding materials.

Many difficult to cut materials share common characteristics, including high strength at elevated temperatures, poor thermal conductivity, strong work hardening tendencies, abrasiveness and the formation of long, stringy chips. Insert geometry directly affects how these characteristics are managed during machining. Cutting forces and heat generation, chip control and evacuation, the balance between edge sharpness and strength and resistance to vibration and chatter are all influenced by geometry selection. Choosing the correct ISCAR geometry allows manufacturers to strike the right balance between sharp cutting action and the edge robustness needed to prevent premature tool failure.

For materials such as titanium alloys and HRSA, reducing cutting forces is essential. ISCAR's positive rake geometries are designed to minimise heat buildup and limit work hardening by using thin, sharp cutting edges that promote smooth chip flow and lower power consumption. These geometries are commonly applied in finishing and semi finishing operations, where controlled cutting action and surface quality are critical. At the other end of the spectrum, tougher applications such as hardened steels or abrasive cast irons require reinforced cutting edges. Moderately positive or neutral rake angles, combined with edge honing or chamfering, improve resistance to chipping and notch wear. ISCAR achieves this balance through carefully engineered chipbreaker designs that maintain cutting efficiency while strengthening the cutting edge.

Material specific geometry selection is especially important in stainless steel machining, where work hardening and long chips can quickly degrade tool life. Medium positive rake geometries with effective chipbreakers help prevent chip wrapping and maintain stable cutting conditions, even in interrupted cuts. ISCAR solutions such as LOGIQ...TURN MF and MM geometries are widely used for finishing and medium machining, while HELI TURN inserts, featuring a helical cutting edge, reduce cutting pressure and improve surface finish. These geometries are often paired with grades like IC907 and IC908 to enhance wear resistance and reliability.

Heat resistant superalloys present even greater challenges due to their ability to retain strength at high temperatures and generate extreme heat at the cutting zone. Very sharp cutting edges, high positive rake angles and smooth chip evacuation are essential to reduce heat concentration. ISCAR's HELI TURN geometry helps lower radial forces, while LOGIQ-6-TURN M3M and F3M geometries provide multiple cutting edges with optimised chip control. These solutions (Fig. 1) are frequently combined with advanced grades such as IC806 or IC907 to achieve stable performance in HRSA applications. Titanium alloys demand a similar emphasis on sharpness and low cutting forces, as their poor thermal conductivity and notch sensitivity can quickly lead to tool failure. Highly positive rake geometries with a narrow contact area at the cutting edge help control chip thinning and heat buildup. ISCAR's positive LOGIQTURN geometries are well suited for these conditions, and WHISPERLINE turning tools (Fig. 2) further enhance performance by suppressing vibration, a common issue in titanium machining. Optimised edge preparation also helps prevent built up edge and extend tool life.

Grooving and parting operations in difficult materials place additional stress on the cutting edge due to full width engagement. ISCAR addresses these demands with the CUT GRIP system (Fig. 3), which offers dedicated F, M, and R geometries optimised for different materials and cutting conditions. Narrow inserts with high rigidity and efficient chip evacuation are particularly effective in stainless steel and HRSA applications, where chip control is critical.

Ultimately, selecting the right ISCAR insert geometry requires careful consideration of the operation type, machine stability, depth of cut, feed rate and coolant strategy. Lighter or less rigid machines benefit from more positive geometries, while heavier cuts demand stronger edges. High pressure coolant can further enhance chip control and tool life. ISCAR's application specific geometries are designed to operate within defined cutting windows, delivering predictable and repeatable results.

Fig.1

Fig.2

Fig.3

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Co-engineering by bavius and MAPAL

Strategic aircraft component with all the trimmings

As part of a joint project, MAPAL and machine manufacturer bavius designed and manufactured a demonstration part for the aerospace industry. The aluminium component, measuring approximately three by one metres, is based on a real rear spar from aircraft manufacturing enhanced with a variety of complex features.

Besides its complexity, the component is also impressive due to the short machining time of ten hours thanks to the productivity of the bavius AeroCell and the special MAPAL tools used for aluminium machining.

bavius technologie, based in Baienfurt in Southern Germany, is specialised in the high-speed volume machining of structural components made of aluminium, which are typically required in the aerospace industry for wings and fuselages. Previously known as Handtmann A-Punkt Automation, bavius has been active as an independent family business since 2017, concentrating on two product lines: HBZ and AeroCell horizontal machining centres and the PBZ profile machining centres. With around 120 employees, bavius generates more than 80 percent of its turnover in the aerospace industry. As an OEM or supplier, its customers produce components for commercial and military applications. Components for satellites or rockets like the Ariane 6 are also produced on their machines.

Most bavius machines are located in Europe, but they are also strong in North American and Asian markets. While the company has offices in the United States, production for all markets worldwide exclusively takes place in Baienfurt in two air-conditioned halls with a production area of approximately 10,000 sq m².

A particular strength of bavius's 5-axis machining centres is that they are extraordinarily dynamic, which ensures high productivity during high-speed machining. To get every last drop of productivity out of their machines, bavius manufactures its own milling heads. The flagship of its product range is the bavius AeroCell 160 | 400 with a spindle power of 140 kW and top speeds of 30,000 rpm. The 140 kW are already reached at 18,000 rpm, i.e. the maximum power is available over a wide range of speeds.

The rear spar is selected as a demonstration part because it fits perfectly on the machine with a table height of 1.6 metres and width of 4 metres. The rear spar is a common structural component in wings. Ribs run between the rear spar and front spar, which are arranged perpendicularly to the spars. These structural components define the geometry of the wings. The outer skin is riveted onto them. The completed component is made of 7075 aircraft aluminium and measures 2,977 × 748 mm. Its flat form measuring 138 mm high is typical of aircraft components. From one ton of starting weight, only 70.61 kg remain after machining. This is a proportion that is quite common in the aerospace industry.

Among other factors, legal reasons prevented bavius and MAPAL from using a real aeroplane component for the machining. This however gave those responsible the freedom to use the design for a variety of applications. As a result, this demonstration piece is much more complex than any normal rear spar. It includes features that are not necessarily associated with a spar but could be useful for other components.

Machining takes place in Baienfurt in two clamping setups. While setup 1 uses low tension, setup 2 harnesses vacuum for secure hold. At first glance, the front looks simpler than it actually is. The surface is not flat but curves slightly outward over a radius of 9.5 metres. This means that the component cannot simply be

face milled. Instead, 5-axis machining is necessary. For roughing and finishing, MAPAL employs the NeoMill-Alu-QBig with a 50 mm diameter and the OptiMill-Alu-Wave with a 25 mm diameter. The surface finish is performed by a PCD custom milling cutter.

The machining of the back is particularly sophisticated. It is separated in nine different sections, each with its own special features. Like any rear spar, the demonstration part has many pockets. They are however completed here in all sorts of forms: rectangular, triangular, round, open, closed, some with inclined or curved bottoms. The ribs are very thin; the walls are mostly inclined. The pockets are up to 137 mm deep.

After pre-machining with the NeoMill-Alu-QBig, the pockets are cleared out by an OptiMill-Alu-Wave of various lengths. The

semi-finishing is performed by a shoulder milling cutter modified specifically for aerospace applications. Thanks to its special geometry, the tool is particularly suitable for machining residual material in the corners as well as subsequent finish milling of the floors and walls. The special core rise ensures optimal stability during the machining process. To machine all the areas efficiently, MAPAL experts use different diameters and lengths of the modified shoulder milling cutter.

MAPAL also sets great store by efficiency during programming

At top speeds, the OptiMill-Alu-Wave achieves a feed of 12 m/min at a cutting depth of 48 mm at 29,000 rpm. The bigger NeoMill-Alu-QBig achieves a feed of 25 m/min at 10 mm cutting depth. Alone in the first 55 minutes of machining of the second clamping, 425 kg of aluminium are thus machined. At its peak, this results in a chip volume of more than 14 l/min.

The various pockets are not the only challenges on the component: The bores on the four lugs can only be reached via an angled head. Undercuts are required elsewhere. A T-stiffener, which is common for structural components and provides rigidity, is also found on the demonstration part and is machined with a special PCD tool. Bore and reaming operations are also called for in certain areas.

For the involved partners' customer presentations and as an eyecatcher for trade fairs, five of these rear spars are produced in Baienfurt. Much to the satisfaction of all those involved, the machining of a part takes a total of almost precisely 10 hours. Structural parts are usually machined vertically on gantry machines with big tools and cutter heads with diameters of 125 mm are normal.

Together with powerful tools that enable high cutting data, the dynamic AeroCell 160 | 400 opens entirely new possibilities thanks to its extreme acceleration.

MAPAL and bavius have been profiting from their close cooperation for many years. While MAPAL was developing the NeoMill-Alu-QBig and OptiMill-Alu-Wave, it was able to test and further optimise prototypes of the new tools in Baienfurt. As a tool manufacturer, MAPAL doesn't have equally powerful machines in Aalen. On the other hand, bavius depends on innovative tools.

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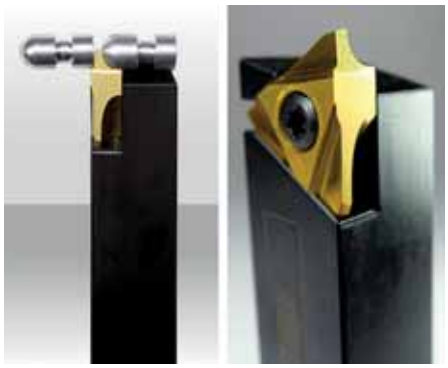
Floyd demonstrates its impressive range of products at MACH

MACH 2026 once again provided an opportunity for Floyd Automatic Tooling to demonstrate why it is the industry authority on cutting tools and machining solutions for the sliding head turning and the small part machining industry. Sharing a stand with parent company Helix Tool Ltd, Baldock-based Floyd Automatic presented an incredible range of innovations that were introduced alongside complementary technology from Helix Tool, which made its MACH exhibition debut.

As always, the longstanding partnerships that Floyd has with leading machine tool manufacturers enabled engineers to witness the latest cutting tools undertaking live demonstrations on the stands of leading sliding head lathe brands and many other machine tool partners. The partnerships that Floyd Automatic has with the leading tool brands for this niche segment include MASA Microconics, Mikron Tool, Madaula, Schaublin, Ifanger, Schwanog, Applitec, Alesa and many others. At this MACH, the technical support and diverse solutions were strengthened by the presence of Helix Tool and its unparalleled range of product lines, vending solutions and ancillary equipment.

Some of the impressive products on show included the CrazyMill Cool Micro series of micro end mills for micromachining applications from Mikron Tool. Perfect for operations as diverse as side milling, helical interpolation, slot milling and drilling, the CrazyMill Cool Micro is part of the wider CrazyMill portfolio that has delivered astounding productivity gains for Floyd Automatic customers in recent years.



Floyd presented the Madaula driven tools for sliding head machines. Part of the extensive range of Madaula products at MACH were the mechanical spindle speeder that works on a 1:4 ratio to provide machines with higher torque and spindle speeds up to 24,000 rpm.

To machine at the precision levels required for micro-machining, manufacturers require industry-leading clamping systems. At MACH, Floyd presented the latest MASA Microconic workholding systems. The MASA Microconic system is for holding small workpieces in any machine that has a collet-type chuck. The Microconic system has unsurpassed concentricity of no more than 5µm runout in production environments. This system and the over-grip collet capabilities have presented a whole new world of time-saving opportunities for manufacturers.

Also appearing at MACH was the Ifanger MicroTurn internal boring tool system that removes swarf to prevent re-cutting. This means that lost production time, poor surface finishes and the inability to conduct long-running unmanned machining are now eliminated when conducting internal turning and boring operations.

Many customers of Floyd Automatic will be familiar with Applitec's TOP-Line twin screw insert program, which is the industry's top-performing solution. This incredible line of high-performance turning tools and insert geometries once again impressed manufacturers with compact turning centres that are looking for quick-change solutions.

Concerning form tools solutions, Floyd presented the latest product lines from Schwanog. The machining of complex forms can be a significant challenge for manufacturers, but luckily, Floyd Automatic can now provide remarkably precise form tools for even the most challenging of materials. The scope for the Schwanog form tools extends way beyond 'cut-off' tools and the series is suitable for external and internal turning, grooving and much more. Regarding external turning, grooving has emerged as a more efficient solution compared to single-point turning for almost all machine types in numerous industries.

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Workholding device raises precision and efficiency in medical component production

A new workpiece clamping system that secures four components at a time for machining, intended primarily for the economical manufacture of medical components such as bone nails and other small-diameter orthopaedic implants, has been introduced by the German company Simon Nann GmbH. It is available to UK and Irish manufacturers through sole sales agent GEWEFA UK (***www.gewefa.co.uk***).

Equipped with four draw-back collets that are opened and closed by a single clamping/unclamping screw, the adaptable 349E offers a robust holding force and high accuracy for retaining sensitive components during demanding machining processes. The clamping fixture has been engineered to withstand exacting conditions and is well suited to complex applications where the highest standards of repeatability and quality are imperative.

By integrating the EROWA pallet system, the fixture is optimised for automated environments, allowing rapid workpiece changeovers via a zero-point clamping system to significantly boost production efficiency. The standard interface is suitable for use in metal and plastic machining centres as well as in measuring stations, ensuring concentricity is maintained between the production and metrology departments.

Likewise the in-situ components can visit other stations, either manually or automatically, for additional operations like welding, assembly and laser marking before being released from their collets. Straightforward integration into existing manufacturing systems helps to reduce setup times.

In an industry where choosing the correct workholding arrangement is a strategic decision affecting long-term cost-efficiency and stability, Nann's expertise provides the robustness and precision required for reliable production. The 349E fixture addresses manufacturing difficulties, including material biocompatibility issues and complex component geometries, by offering a stable, user-friendly platform that minimises downtime and increases production output.

Top: The Nann 349E four-station workholding unit for clamping small-diameter components for machining and other production processes. The integrated EROWA pallet interface is at the rear of the unit.
Below: Cross section of one of the collet assemblies used to hold components securely and accurately.

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CoroDrill DE10: A complete, easy-to-use solution for high-volume hole making

Cutting tool specialist Sandvik Coromant has announced the completion of CoroDrill® DE10 assortment with the introduction of two new geometries, -M5F and -M5C. These additions expand the drill's optimisation potential and strengthen its position as a versatile, plug and play solution for short-hole drilling across all materials.

CoroDrill DE10 is an exchangeable-tip drill built around a unique pre-tension interface enabling fast, secure tip changes and exceptional ease of use. Designed for drilling solid materials with consistent surfaces, the concept delivers high productivity, predictable performance and a large application window making it ideal for mixed-material production environments.

The -M5F geometry is engineered for flat-bottom holes and advanced applications. It excels when creating start holes on complex components or when a flat-bottom profile is required. It is also ideal for stepped holes, using -M5F for the largest diameter followed by any of the geometries in our assortment.

The -M5C geometry is optimised for cast iron, featuring reinforced corners and increased wear resistance thanks to grade GC3334. It is also a strong companion to the -M5 geometry in ISO P, M and S materials where additional corner strength is needed.

The concept's large application window is one of its defining strengths. The original -M5 geometry already enabled customers to use a single tip across multiple materials, reducing tool inventory. The expanded assortment now allows even finer optimisation without sacrificing ease of use.

"CoroDrill DE10 contributes to lower cost per hole and reduced CO_2 emissions by enabling higher cutting parameters, faster penetration rates and lower cutting forces. Customers have also reported significantly longer tool life compared with previous solutions, reducing carbide consumption and supporting manufacturing wellness.

Together with its customers and partners, Sandvik Coromant leads the way toward a sustainable future, supplying tooling solutions to the world's engineering industries. Over eight decades of hands-on experience have given the company a wealth of knowledge in metal-cutting and machining.

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Rising carbide prices shouldn't cut into your profits

MAXOUT
MAXVALUE
MINIMUM COST MAXIMUM OUTPUT

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 optimised 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 utilisation 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 minimise machine shop inputs.

Stop profit erosion, **MAXOUT** your machining performance with ISCAR.

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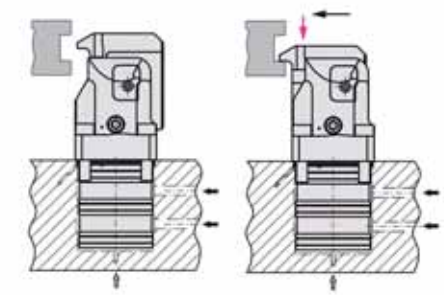
Compact clamp has patented kinematics

A new, compact, hydraulically-actuated clamp suitable for securing workpieces and fixtures in confined spaces, repeatably and with high force, has been introduced by Roemheld (UK). The B 1.8270 workholding system is particularly well suited to clamping castings, dies, moulds and fixtures prior to metal cutting, especially those that need to be held on narrow grooves, recesses or pockets.

The design of the kinematics that allows such high holding force in a constricted area are sufficiently innovative to have been granted a patent. Rather than swinging or rotating into position, the clamping lever first moves horizontally to the point on the workpiece where it is to be held and then moves vertically downwards to complete the operation. This movement sequence allows space-saving, precise workpiece clamping for machining. The high holding force means that fewer clamps are needed to secure a part, saving both setup time and expense.

The product is supplied in a low-profile, plug-in design that does not need external pipework. Users can select from several configurations, including models with a standard short lever, a lever blank for custom adaptation, or without a lever to suit specific workpiece geometries. A quick-change mechanism allows easy lever exchange, providing flexibility for different workholding tasks.

With a clamping force of 6.5 kN at the maximum operating pressure of 220 bar and a horizontal stroke of 8 mm, the hydraulically double-acting clamping element offers high performance, despite its small footprint. The workholding action can be effected at any point along the subsequent vertical stroke of the lever, which is up to 4 mm. This enables the machining of a batch of workpieces that may have slight dimensional differences.



Constructed from hardened stainless steel and with nitrile butadiene rubber and polyurethane seals, the device is built to withstand rigorous industrial conditions up to 80°C. To ensure process reliability in automated production environments, the unit is available with optional pneumatic position monitoring to confirm either clamped or unclamped status. A third variant may be supplied without position control.

Volker Schlautmann, head of value stream at Roemheld comments: “With this clamping element, we have solved a problem that many manufacturing companies are familiar with. The kinematics enable clamping operations that were previously not technically feasible or only possible with considerable effort.”

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New Parting System completes the Walter Groov·tec program

Walter is completing its Groov·tec™ GD grooving tool range with a new offering that makes it universally applicable for all applications in grooving/ parting-off, groove turning, and copy turning. Reinforced G5041 and neutral G5042 Parting blades are new to the range and both variants are available with or without integrated precision cooling.

The G5111 axial grooving system complements the exciting new range and Walter Capto™ C3-C6 turning holders for the G5011 Groov·tec GD grooving system for radial grooving. Walter now offers users a particularly flexible solution for radial and axial machining in all common materials, from steel and cast iron to difficult-to-cut materials, making this range the perfect all-rounder. The system also impresses with high process reliability and performance for deep grooving operations and complex geometries.

The comprehensive product portfolio enables the user to select a universal tool for almost all diameter ranges and machining requirements. The stable Groov·tec GD serrated profile sets new standards for maximum process reliability and stability. The system increases the tool life of the indexable insert and toolholder by up to 50 percent, according to Walter. At the same time, the double-serration profile enables simple and secure installation of the cutting insert and prevents it from being pushed out sideways during the operation, which is often a common problem in groove turning.

The combination of integrated precision cooling and double-serration also allows significantly higher cutting parameters and thus contributes to increased efficiency. The same applies to the seven available, highly wear-resistant Tiger·tec® Gold grades (3 CVD, 4 PVD), which further increase productivity.

Walter offers new Walter Capto turning tool holders G5011-C for radial machining with insert widths of 3 to 6 mm. Axial machining operations up to a cutting depth of 25 mm can be carried out precisely and reliably with the new G5111 tool. Walter offers the new G504 parting blades in neutral or reinforced versions, with self-clamping or screw clamping to expand the flexibility for end users.

About Walter AG

Walter AG was founded in 1919 and is now one of the world's leading metalworking companies. As a provider of specialised machining solutions, Walter offers a wide range of precision tools for milling, turning, drilling and threading applications.

Walter works together with its customers to develop custom solutions for fully machining components for use in the aviation and aerospace industries, as well as automotive, energy and general engineering.

The company demonstrates its Engineering Kompetenz at every stage of the machining process. As an innovative partner capable of creating digital process solutions for optimal efficiency, Walter is pioneering Industry 4.0 throughout the machining industry. With over 3,500 employees worldwide, together with its numerous subsidiaries and sales partners, Walter AG serves customers in over 80 different countries.

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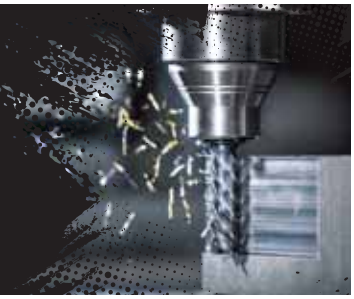

Slot broaching of small holes

Horn is expanding its slot broaching system with new type 117 inserts, which are suitable for internal diameters from 9 mm.

German tooling manufacturer Horn has expanded its slot broaching system with a large range of new type 117 inserts, which are suitable for internal diameters from 9 mm. The company has developed a new carbide blank specifically for the insert family. The tool system is sustainable thanks to the low carbide content and it has an advantageous price per cutting edge. The tools are suitable for numerous processes including gear broaching, polygonal broaching and the broaching of keyways.

Horn product manager Andreas Härle says:

Close-up of a type 117 broaching insert.

"Development of the new carbide blank required new approaches in production and metrology. Due to the small size of the inserts, we had to make significant adjustments in handling, fixture grinding and measuring."

The new system has an advantage over solid carbide broaching tools in that the tool shanks enable the broaching of longer and deeper grooves. Tool lengths are 20 mm, 30 mm and 40 mm. The shank diameters of the toolholders are 16 mm and 20 mm. All types offer internal coolant supply directly to the cutting zone. Horn also offers special holders for mounting in broaching units from various manufacturers.

The portfolio of broaching tools has already demonstrated its capability during initial applications. One user previously achieved a tool life of 120 pieces when broaching a serration in a component made of hardened steel. By switching to the new Horn system, tool life increased to 1,040 parts, while maintaining the same cutting parameters. In addition to the significantly higher tool life, production costs fell due to the lower cost per cutting edge compared to that of the previously used carbide inserts.

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NTR'S TOOL HOSPITAL: Saving global production one tool at a time

Deep in the industrial North, nestled within the high-tech walls of Wetherby, lies a sanctuary for the broken and a forge for the new: NTR's Tool Hospital. Here, a specialised team of Tool Health Heroes stands in eternal readiness. They exist to answer the inevitable cry of the fallen: the sickening "CRUNCH" of a shattered carbide tip, the grinding halt of a seized bearing, or the eerie silence of a production line whose critical tool has been discontinued.

When the call for help comes in - or the legendary NTR signal is written large in the clouds above a factory in need - these heroes don't just clock in; they launch a high-stakes rescue mission.

Founded 48 years ago and now operating as a proudly Employee-Owned Trust (EOT), NTR Ltd has evolved from a traditional engineering firm into a full-scale heroic operation. From their West Yorkshire base, they serve the UK and 14 countries across Europe, boasting an enviable customer list that reads like a "Who's Who" of global manufacturing.

Every hero needs a headquarters. The NTR Tool Hospital is that fortress - a facility designed to battle the two inescapable villains of modern manufacturing: The Dreaded Downtime and The Scrapper's Waste. Within these walls, three distinct specialists lead the charge...

1. THE TOOL SURGEON:

The Architect Of Adaptation

The Episode: The Porcupine's Revenge

When standard tools fail, or worse, the original manufacturer vanishes into the shadows, you need more than a repair; you need a specialist to reconstruct the very DNA of your process. Enter The Tool Surgeon, the hero of the NTR Tool Hospital tasked with the design and manufacture of bespoke metal cutting tools.

The Crisis: In the high-pressure world of global engine manufacturing, our customer was facing a catastrophe. A vital "porcupine" cutter, essential for their engine block line, had been discontinued. The manufacturer was gone. The stock was dry. To make matters worse, the original tool was plagued by "glitches" - vibrations that ate away at productivity like a virus. Without this tool, the line would die. The stakes? Total production paralysis.

The Surgical Intervention: The Tool Surgeon didn't just replicate the old tool; they performed a radical "DNA Reconstruction." Stripping the design back to its core geometry, the NTR team identified the flaws in the original "bloodline." With the precision of a laser, they designed out the glitches. They optimized coolant flow and recalculated pocket geometry to ensure a cut so stable it felt like magic.

The Heroic Result: The new bespoke cutter didn't just replace the dead tool - it evolved it. Productivity skyrocketed by a staggering 200 percent. By designing a tool that stayed sharper for longer and cut faster than its predecessor, the Surgeon helped the client slash downtime and keep their engine lines humming.

"The Tool Surgeon didn't just save our production line; they upgraded it! We went from a discontinued, problematic tool to a bespoke solution that doubled our output. It's not just engineering; it's a life-saver for our schedule!" - ***Production Manager | Global engine manufacturer.***

2. THE TOOLING DENTIST:

The Reclaimer Of Rage

The Episode: The Track-Profiling Terror

In the dark corners of many workshops, a villain lurks: The Scrapper. This villain thrives on waste, convincing businesses that once a tool is chipped, it is worthless and fit only for the bin. This is where The Tooling Dentist strikes, proving that even the most damaged "teeth" can bite again.

The Crisis: A major rail infrastructure giant in the UK was locked in a battle with rising costs. Their massive, specialised cutting tools - used to profile rail tracks and cast wheels - take a phenomenal beating. When these tools break, the cost of a replacement is a soul-crushing £1,200 per unit. With hundreds of tools in the rotation, the "scrapping" mindset was burning a hole in the annual budget large enough to derail production.

The Dental Work: NTR's Tooling Dentist treats every damaged tool like a patient in a high-tech ICU. Each tool is checked in, its "medical history" recorded, and a thorough assessment of the trauma performed. Using TIG welding to rebuild the original structure and precision milling to restore the geometry to its prime state, the Dentist brings the "bite" back to the tool.
The Heroic Result: The villainous Scrapper was defeated. The client now pays only 25 percent of the cost of a new tool. But the victory wasn't just financial. Last year alone, NTR helped recycle upward of 300,000kg of metal, contributing significantly to the client's ISO 14001 environmental targets.

"It's a no-brainer! Why would we pay £1,200 for a new tool when the Tooling Dentist can make our existing ones 'good as new' for a fraction of the price? They are the guardians of our bottom line and our planet." - ***Procurement Lead | Rail sector.***

3. THE DRIVEN TOOLING DOCTOR:

The Guardian Of The Heart

The Episode: **The Heartbeat of the Excavator**
If the cutting tool is the "tooth," then the Driven/Live Tooling unit is the "heart" of the CNC machine. When the heart stops, the machine dies, and production flatlines. The Driven Tooling Doctor was born to answer the call for high-standard repairs and maintenance of these complex units within the NTR Tool Hospital's dedicated surgery.
The Crisis: For a world-famous excavation machinery giant, keeping the "heart" beating is the difference between meeting a deadline and losing a contract. Their first encounter with The Doctor was an emergency. A production-critical CNC driven/live tooling unit had seized. The bearings had failed, the spindle was mangled, and the seals had perished. The machine was down. The deadline was looming like a dark cloud.
The Doctor's Diagnosis: The unit was rushed to the NTR surgery under blue lights. It was dismantled, ultrasonically cleaned, and pre-inspected by the Doctor's elite team.

Bearings and seals weren't just replaced; they were upgraded. Every unit underwent a 10-step recovery process, including speed-step verification and rigorous rig testing for concentricity and alignment.
The Heroic Result: The unit returned to the factory floor stronger than ever. But the real victory was what came next. The customer moved from "Emergency Care" to a "Preventative Health Plan." They now send their units to NTR on a scheduled 6 or 12-month MOT. By spotting the symptoms of failure before the machine flatlines, The Doctor ensures zero downtime.

"We used to wait for a disaster before we called for help. Now, thanks to NTR's MOT service, our units have a clean bill of health all year round. We haven't missed a deadline due to a seized unit since!" - ***Maintenance Manager | Heavy machinery sector.***

THE FINAL STAND:

Will You Join The Green Revolution?

Behind every great hero is a guiding light, and at the NTR Tool Hospital, that light is Nurse N. Viro. She is the champion of the EnvironmenTOOL Service, reminding us all that the greatest superpower of all is Sustainability.

While some manufacturers are content to plunder the planet's resources, NTR is leading a rebellion. With a collective 700 years of engineering experience, the team is proving that "Green" is not just a colour - it's a competitive advantage.

Managing Director Chris Weeds sums up the mission: "For all of us at NTR, it's about changing the mindset. The message is simple: stop wasting money and precious resources by throwing away broken tooling. Together we can make a small difference that results in great change."

The shadows of downtime are long, and the villains of waste are many. But as long as the heroes of NTR Tool Hospital are on the watch, your production is safe.

Remember: ***The next time you have a tooling crisis, the tool health heroes are ready and waiting to save your world!***

Call To Action: Summon the heroes
Don't let your production flatline. Don't let the Scrapper win. Contact **NTR Ltd** today for a free quote or to discuss your bespoke tool rescue plan:

Tel: 01937 845 112
Email: Chris.Weeds@ntrltd.co.uk
www.ntrltd.com




A new standard in portable laser marking

GX Mate from Technomark

Industrial marking technology continues to evolve toward greater flexibility, safety and performance – and the GX Mate from Technomark is a clear reflection of that trend. Designed as a fully portable laser marking solution, the GX Mate expands the company's Graphix.series range with a tool that provides mobility without compromising precision.

Innovative solution for modern industry

The GX Mate can mark large, heavy or awkward shaped components. The system is built for true mobility, allowing the operator to move around the factory enabling marking in situ.

Its compact and lightweight head weighs in at only 3kg and, combined with a flexible 3 metre cable linking it to the controller, enables easy handling and freedom of movement across the workspace. This makes it valuable across a wide range of industry sectors including aerospace, oil and gas, automotive and heavy manufacturing where components are often large or already installed and need to be marked in place.

Fibre laser technology for precision

At the heart of the GX Mate is fibre laser technology, a well-established standard for high-quality industrial marking. Operating typically around 20W (higher options available), the system delivers fast, precise and permanent marks on a wide range of materials including metals and most plastics including ABS, Polyamide and Polypropylene. The non-contact process ensures minimal wear on the the machine whilst producing clean, high contrast marks suitable for traceability, identification and compliance applications.

Designed to be flexible and adaptable

One of the GX Mate's standout features is its interchangeable nose system, which allows the marking head to adapt to different surfaces and profiles. Operators can easily and quickly switch between nose configuration, or even use custom designs to access awkward marking locations or irregular shapes.

This adaptability is important in real-world industrial environments where marking conditions are often not uniform. Whether working on flat plates, curved surfaces or recessed areas, the GX Mate can be configured to maintain optimal marking quality.

Built-In safety

Safety is often a challenge in portable laser systems, however, the GX Mate addresses this with a patented protection system. Using an air-pressure based mechanism, the system contains the laser beam at the marking point and automatically stops operation if a fault, such as pressure drop, is detected.

Intuitive software

The GX Mate integrates with Technomark's Graphix.series software suite, offering a user-friendly interface for creating and managing a wide range of marking jobs. It is easy to create alphanumeric data, logos and graphics, 1d and 2d barcodes including datamatrix. The two standard window sizes of 25mm x 25mm and 100mm x 30mm allow room for both small and larger marks.

The system is designed to streamline

workflows, reduce setup time and make it accessible even for users with limited experience in laser marking.

The GX Mate manufactured by Technomark and supplied and supported by Universal Marking Systems Ltd in the UK represents a significant step forward in portable laser marking technology. By combining mobility, precision, safety and adaptability, it provides a flexible solution to a wide range of users. As industries continue to prioritise efficiency and traceability, solutions like the GX Mare are well placed to become a useful addition where flexibility is just as important as performance.

For more information and to discuss your application requirements please contact Universal Marking Systems Ltd on 01420 565800, email info@ums.co.uk or visit our website.

Universal Marking Systems brings over 60 years of expertise to designing, supplying and supporting an extensive array of marking systems, from handheld devices to fully integrated solutions.

It's mission is to provide you with the best equipment tailored to your specific marking needs. Marking specialists are always ready to offer technical support and assist with any general or sales inquiries. The company is committed to ensuring you have the tools and support you need for optimal marking.

In the early 1960s UMS started with a few engineers who busied themselves pioneering electrochemical marking technology, which at that time revolutionised the possibilities for traceability and identification of components. It soon took off and the 1960's technology was quickly adopted by many companies including leading aerospace companies, using some of the original electrochemical marking kits for marking engine parts.

During the 1970s and 1980s the technology continued to develop, introducing new stencil technology and more fully featured marking kits, including strain grid marking for stress analysis in sheet metal forming as well as semi automated systems.

During the 1990s, UMS got involved in production line integration projects primarily in the automotive sector. It now works with some key integrators to fulfil the larger integration projects.

Distributors were introduced around the globe at this time to sell the electrochemical range. The 90s saw a new marking technology developed called Dot Marking or Dot Peen. This indent form of marking was better suited as a fast and versatile marking option that marks a wide range of materials. Today, the company sells the Technomark range of dot markers due to their reliability, robustness and excellent results.

Electrochemical marking has undergone significant development, introducing software driven systems that comply with Aerospace and Nuclear standards, automated versions and ongoing development of even better stencil technology.

Laser marking was introduced to the range of solutions after the turn of the millennium and have since supported the Technomark Graphix laser.

Products range from handheld dot peen, to fully integrated systems to lasers and the company strives to accommodate every specification of your marking requirements.

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Choosing the right marking technology

In the domain of direct part marking, dot peen and laser marking stand out as leading technologies with each presenting unique advantages for diverse industrial applications. Navigating the choice between these options requires a comprehensive understanding of their strengths and specific use cases. Whether you prioritise the lasting impact of dot peen's precise, indented marks or the contactless, high-precision capabilities of laser marking, the decision hinges on your specific marking requirements.

Pryor Marking takes a look into the comparative strengths of dot peen and laser marking, providing a valuable insight to help you make an informed choice of which is the best option for you.

Dot peen marking overview:

Precision with impact

Dot peen marking, also known as pin marking or stylus marking, is a process where a pneumatically or electromagnetically driven stylus rapidly strikes the material's surface, creating a series of dots. These dots collectively form alphanumeric characters, symbols, or codes.

Advantages

Low stress: Dot peen marking is known to be the process that introduces the lowest stresses into a component.
Durability: Dot peen marks are deeply etched, ensuring durability and resistance to wear and environmental factors.
Versatility: Suitable for various materials, including metals, plastics and composites.
Cost-effective: Dot peen systems are generally more affordable than laser marking systems.
Speed: Offers high-speed marking, contributing to efficient production processes.

Common dot peen marking applications include: Aerospace; Part numbering; Label marking; Date coding; Serialisation and traceability in manufacturing.

Laser marking:

Precision without contact

Overview: Laser marking uses a laser beam to mark or engrave the surface of a material. It's a non-contact method, utilising lasers to remove or alter the material to create marks.

Advantages

Non-contact process: No physical contact with the material, minimising the risk of damage.
High precision: Allows for intricate designs, including 2D codes, logos and fine details.
Clean and permanent: Laser marks are clean, high-contrast and permanent.
Wide material compatibility: Suitable for various materials, including metals, plastics, ceramics and more.

Common laser marking applications include: Automotive VIN marking; Medical device marking; Part numbering; Logo and image marking and fine arts and jewellery.

Choosing the right technology

Considerations

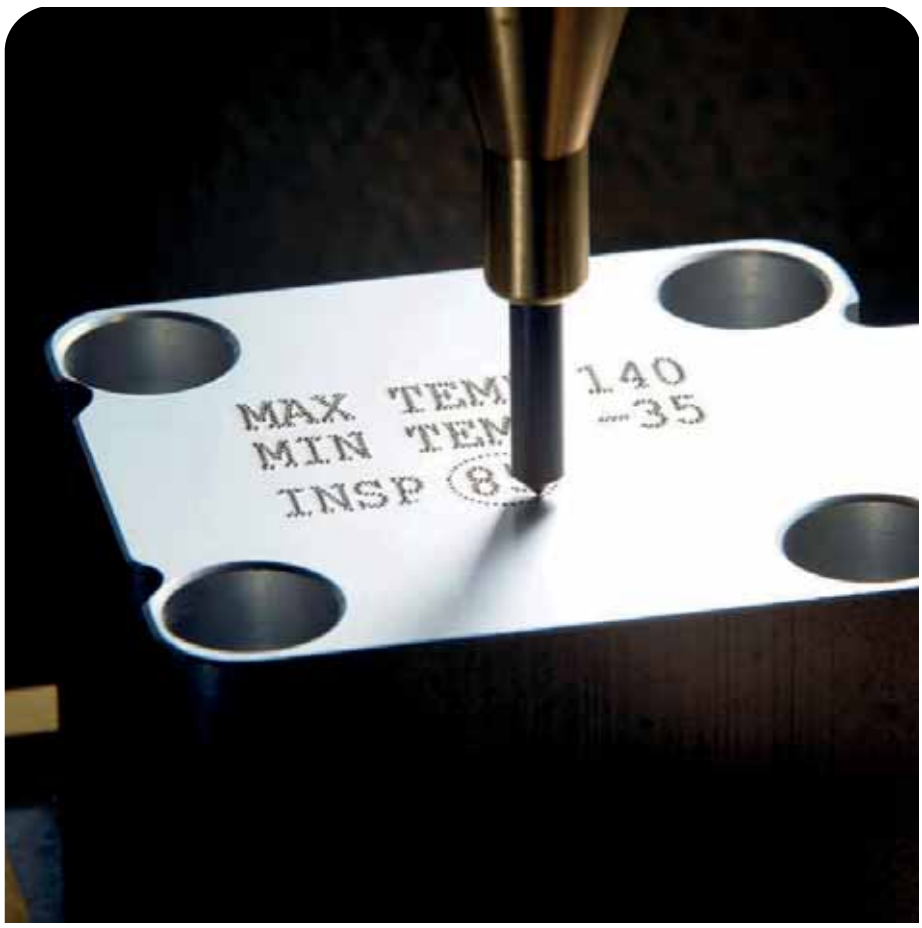
Material compatibility: Both methods are versatile, but the nature of the material can influence the choice.
Marking specifications: Some industries have strict specifications restricting what method can be used.
Precision requirements: Laser marking excels in intricate designs and fine details.
Marking speed: Laser marking can offer much quicker cycle time.

Integrating dot peen markers or Laser markers in an automated production line

Both dot peen markers and laser markers can be integrated into an automated high-speed production line for marking and identification purposes. The choice between the two technologies depends on various factors including the material being marked, the required marking depth, speed of marking and the desired permanence of the mark.

Laser markers generally offer higher marking speeds compared to Dot Peen markers. However, the choice between the two technologies will depend on various factors including the specific requirements of the production process, the type of material being marked and the desired quality of the marks.

Pryor have many years' experience and many examples of successful projects with the largest names in the automotive and aerospace industries where they have integrated both types of markers into automated production lines while working to a very high degree of accuracy.



Dot peen and laser marking vs just sticking on a label

In today's manufacturing landscape, tracking parts and ensuring compliance with industry standards is crucial, in many cases it's a legal requirement. Pryor specialises in direct part marking technologies such as laser marking and dot peen marking. These methods both offer permanent, readable marks that outlast alternatives like printing and labels. With advantages including durability, speed, flexibility and minimal maintenance, investing in direct part marking ensures a higher ROI and reduces waste.

Permanence: Laser and dot peen marking offer permanent marks that endure harsh environments and years of regular use. This helps to ensure the durability of your marking.

Speed: These machines mark quickly, enabling more parts to be marked in less time with less waste.

Sustainability: Constantly needing new ink and labels adds extra cost to both the bottom line and to the environment.

Flexibility: Mark virtually any material, from metals to plastics to wood, with a range of machine configurations.

Quality: Both technologies can be tied down

with checks and instructions on Pryor's control systems to ensure the correct data is marked first time, every time.

Minimal maintenance: Avoid downtime associated with unclogging printers or fetching more labels or refilling your ink.

Higher ROI: With fewer consumables and greater efficiency, most companies find that permanent marking pays for itself.

Conclusion

In the dot peen vs. laser marking debate, the right choice depends on the specific needs of your application. If durability, speed and cost-effectiveness are paramount, dot peen is an excellent choice. On the other hand, if you require high precision, intricate designs and the ability to mark a wide range of materials without contact, laser marking might be the better fit.

Understanding your unique requirements and the strengths of each technology will guide you toward the best solution for your direct part marking needs. Whether you opt for the impact of dot peen or the precision of laser marking, both technologies contribute significantly to enhancing traceability, quality control and overall efficiency in the manufacturing processes.

If you're still not sure, get in touch with the Pryor Marking team and see how the company can help. Pryor have been at the cutting edge of marking and traceability technology for 175 years from manual hand stamps and pioneering dot peen marking to the latest in laser marking technology.

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The art of leaving a mark, yesterday and today

Before it became a cutting-edge technology, marking was first and foremost a human story. From symbols carved in stone to today's industrial lasers, one idea has endured through the centuries: leaving a lasting mark and ensuring the traceability of the objects we create.

Why this story matters today

Traceability safeguards product quality, supports recall procedures, prevents counterfeiting and ensures regulatory compliance.

Direct Part Marking (DPM) connects each component to its own identity, from the production floor all the way to after-sales service.

Modern technologies don't replace one another; the right method depends on the material, the marking depth, the production pace and the required code readability.

Commitment since 1986

For nearly forty years, SIC MARKING has been advancing the art of industrial marking with one clear objective: making every part traceable, unique and durable.

Its mission is to transform operational needs into reliable, sustainable and fully integrable solutions, combining technological innovation with robust industrial expertise.

Key applications

Marking plays a critical role wherever a part must be clearly identified or validated for compliance, whether it is a serial number, a DataMatrix code, a UDI, a VIN or a tool used in maintenance.

It also needs to remain readable in demanding environments, such as after painting, heat treatment or intensive use.

As production lines become increasingly connected, marking integrates more and more into automated workflows, vision systems and real-time data monitoring to ensure consistent traceability throughout a product's lifecycle.

Take the next step

To go further, users can explore our full range of marking solutions, from portable machines to workstations and fully integrated systems. It's also possible to speak directly with an expert to study an application, run material tests or define a specific requirement in more detail.

With 30 years' experience, Sic Marking are experts in a number of marking technologies: Dot Peen marking, Laser marking and Scribe marking.

Its solutions are robust, technically advanced and tailored to our customers' challenging industrial environments.

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Contract manufacturing company enters F1 and secures future growth

Design and contract manufacturing firm ActionPlas Group, Pudsey, which specialises in machining and fabricating mainly plastic but also metal components and assemblies for a wide variety of industries including automotive, food and drink, pharmaceutical and power generation, has upgraded its quality control department with the purchase of an Altera M 20.12.10 Coordinate Measuring Machine (CMM), built by LK Metrology at its factory near Derby, UK.

The machine is supporting pre-delivery inspection of the subcontractor's high-value, complex machined and additively manufactured parts, including most recently numerous critical items for a well-known Formula 1 team. This latest association was the trigger for the new CMM acquisition, which forms part of a £1 million investment programme focused on the F1 customer. Improved inspection capability was driven by increasing complexity of contract production requests, particularly for demanding, low-volume, high-tolerance plastic components for the energy recovery system in race cars.

ActionPlas technical director Jonathan Wray says: "Previously we were struggling to measure these components, which feature complex geometry and demanding tolerances, using an ageing CMM from another manufacturer. The challenge was compounded by the fact that components used in F1 race cars must be accurate and fit correctly first time, as failure at the racetrack is simply not an option.

"We need to specify the exact form, orientation and location of features such as bores, aerofoils and wall thicknesses, typical part-to-CAD tolerance being 10 microns. Without the new CMM, we would have struggled to measure these features to GD&T (Geometric Dimensioning and Tolerancing) requirements."

The solution supplied by LK Metrology included an Altera M 20.12.10 CMM, which offers a working volume of nominally 2.0 x 1.2 x 1 metres, allowing the measurement of large components and assemblies. The machine was equipped with a Renishaw SP25M Scanning Probe Kit 2, which is capable of both high-speed scanning and traditional touch probing. The fine controllability of the LK CMM's axis movements ensures that scanning and probing forces are light so as not to damage some ActionPlas parts that are particularly delicate.

The complete inspection package also included LK CAMIO 2025 R2 programming and reporting software, which is fully compatible with GD&T, together with comprehensive training and consultancy services. ActionPlas had considered buying a handheld probing system, but this was dismissed due to its limited measuring capability compared to the CMM's higher accuracy, repeatability, ability to program from CAD and automated inspection.

LK was able to provide quick CMM delivery from stock, supplying the machine just two weeks after the order was placed and even assisted with measuring some initial components on their demo machines as part of the initial training. ActionPlas found the approach very accommodating and consultative and was impressed with LK's UK manufacturing facility in Castle Donington. The CMM is in daily use at the Pudsey manufacturing facility across the R&D, quality control and production departments.

The most significant outcome is not just the ability to save time, but the elevated level of confidence ActionPlas can now provide to its customer base, convincing the F1 client and others that it has the definitive capability to produce conforming parts to meet the most stringent tolerance requirements. This capability has enabled the subcontractor to successfully take on more complex and higher-value work, paving the way for strong business growth. Furthermore, there is potential to add laser scanning to the CMM to investigate even more complex components and features in the future.

LK Metrology is renowned for innovative metrology solutions and services. The company's products, including CMM, portable measuring arms and metrology software, are used worldwide to control and improve the quality of manufactured components. Its precision technology underpins the process chain from design, development, production and assembly through to quality assurance in global industries such as automotive, aerospace, defence, motorsport, energy, medical and contract inspection.

Established in England in 1963, LK Metrology has an impressive heritage in metrology dating back to the birth of CMM technology. Founded by CMM pioneer Norman Key and his father-in-law Jim Lowther, LK Metrology is credited with many of the CMM industry's firsts.

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Unlock faster inspection cycles and greater process insight

with 5-axis measurement

Mitutoyo

Advanced Mitutoyo CMM technology featuring the Renishaw REVO probing system.

Combined with our MCOSMOS software, you'll experience streamlined measurement processes, faster inspection, and unparalleled precision.

Visit us online at www.mitutoyo.co.uk/revo

PRECISION IS IN OUR DNA

Quality is essential in the manufacturing of detectors for Electron Microscopes

Crytur is based in Turnov, Czech Republic, in the region called the Bohemian Paradise. In addition to the beautiful nature and historical monuments, this place is also known as a deposit of semi-precious stones. Agates, jaspers, amethysts or rock crystals are the remnants of Permian-Carboniferous volcanic activity.

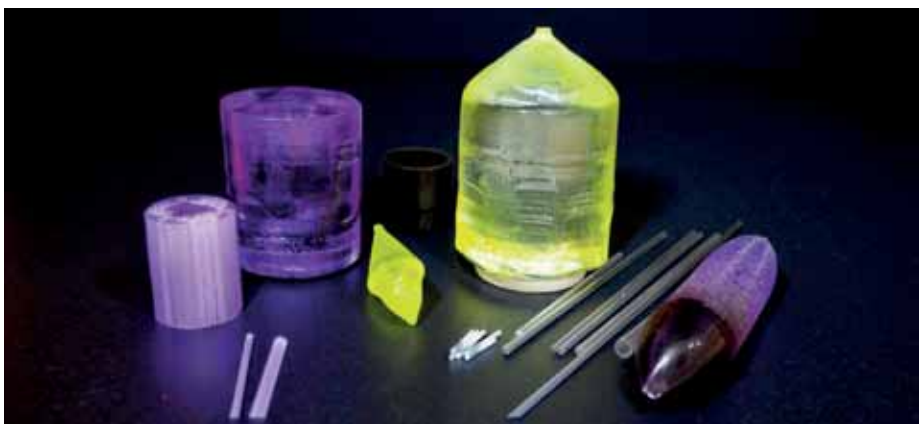
The experts at Crytur are trying to mimic natural processes and produce synthetic crystals for technical applications. Synthetic garnets and perovskites are used as active media in lasers or for X-ray imaging and electron microscopy. Lead-tungstate crystals are scintillation crystals used in high energy physics experiments. At CERN, the European Centre for Nuclear Research, this type of crystals made a major contribution, for example, in proving the discovery of a new elementary particle, the Higgs boson, in 2012. Although Crytur did not produce lead-tungstate crystals for CERN for this particular project, all new key experiments at CERN are currently built on thousands of these crystals from Turnov.

The company also produces sapphire profiles, which are used, for example, as protective thermocouple housings for the glass industry or petrochemistry. The range also includes optical elements with thin layers: the functional layers are applied to the optical surfaces by vacuum evaporation.

However, the largest part of the production currently consists of detection units for electron microscopy. Detectors, especially those for back-reflected electrons and secondary electrons, are one of the key elements of the microscope. Without them, it is impossible to display extreme detail in the nanometre range. "Crytur cooperates with Czech and foreign manufacturers of electron microscopes," says Jan Bitman, marketing manager of Crytur. "The high-end detectors manufactured at Crytur are not only supplied to laboratory instruments but are also used extensively in industrial electron microscopes for quality control in microchip production. It is no exaggeration to say that the high-end detection units manufactured for customers in the semiconductor industry are one of the few direct Czech footprints in the production of microchips as such.''

The expansion of Crytur's product range to include complex optoelectronic and optomechanical assemblies has brought new requirements in the field of quality control. "The manufactured parts are very precise and have to fit together very precisely. When we talk about very precise dimensions and tolerances, we are talking about tens of micrometres and in shape and position tolerances we are talking about sub-micron values," says Gabriela Tausig, head of quality management at Crytur. The need to accurately measure each part and check correct assembly has led to Crytur buying an impressive fleet of measuring machines and equipment from Mitutoyo.

Coordinate Measuring Machines (CMMs) are the basis of production quality control. First, these are STRATO-Apex CMMs in two sizes, STRATO-Apex 574 and STRATO-Apex 9106. They are high-end machines of bridge-type design with air bearings on all axes and high-precision measuring rulers with low temperature expansion. The smaller STRATO-Apex 574 has a travel of 500 × 700 × 400 mm while the larger STRATO-Apex 9106 can measure parts up to 900 × 1,000 × 600 mm and both have a resolution of 0.02 µm. The company has two of each of these machines in two measuring laboratories.



Other equipment includes CNC CMM's CRYSTA-Apex S 574 and CRYSTA-Apex V 544 designed for measuring small and medium-sized parts. The fleet is completed by two CRYSTA-Plus M 443 machines, compact manual measuring machines for smaller parts with simple operation.

Mitutoyo ROUNDTEST RA-2200 CNC and ROUNDTEST RA-1600 are also among the top measuring instruments. These devices can measure circularity or concentricity deviations very accurately.

Crytur appreciates the very good price/quality ratio of Mitutoyo measuring machines and equipment. This was the first reason why the company decided to use this brand. But that's not all. "We have a great relationship and whenever we are dealing with a job and we don't know what to do, Mitutoyo's engineers are there to help. They are helpful in terms of service, calibrations and in dealing with any faults if it occurs. Their response time is very short," says Gabriela Tausig, adding: "What is also important: the Mitutoyo brand is a guarantee of quality even for our demanding customers."

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Renishaw introduces its true-absolute multi-DoF encoder system

Renishaw, a leader in engineering technologies, has launched its absolute multi-DoF, multiple degrees of freedom, optical encoder system, that combines one or more of the company's RXMA30 1.5D scales with its market-proven RESOLUTE™ absolute encoder readheads. This versatile system offers advanced multi-DoF position measurement in up to six degrees of freedom, 6DoF, making it well-suited to high-performance motion systems, where accuracy, speed and repeatability are critical.

The RXMA30 scale is designed to ensure highly repeatable metrology under demanding thermal and dynamic conditions. With dedicated, separate scale tracks, machine designers can directly measure motion in the X and Y axes, without the need for complex signal processing. Absolute encoder technology removes the need for homing routines, which are often difficult on the Y axis because users have limited control of motion.

The technology allows machine builders to detect and compensate for error sources, such as the straightness of linear guideways, small translational deviations and rotational errors, which are often unavoidable in precision motion systems. By enabling in-process

compensation of these errors, Renishaw's multi-DoF encoder solution supports improved process capability and higher component yields.

Renishaw's multi-DoF encoder approach streamlines system architecture while maintaining compatibility with a wide range of serial interfaces and motion control platforms. The system provides significant versatility, enabling designers to tailor scale and readhead configurations to meet specific application requirements.

For further information on the multi-DoF encoder system and RXMA30 1.5D scale, visit ***www.renishaw.com/multi-dof***

Renishaw is a leader in measuring systems and manufacturing systems. Its products give high accuracy and precision, gathering data to give customers and end users traceability and confidence in what they're making. This technology also helps its customers to innovate their products and processes. It is a global business with over 5,000 employees located in the 36 countries where it has wholly owned subsidiary operations.

The majority of R&D work takes place in the UK, with the largest manufacturing sites located in the UK, Ireland and India.

The company is guided by its purpose: **Transforming Tomorrow Together**. This means working with its customers to make the products and materials that will define our world in the decades to come and touch billions of lives.

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Aberlink Measur3D manual Coordinate Measuring Machine

The Aberlink Measur3D manual CMM is the successor to the hugely successful Fulcrum 3D manual CMM. Today, the need for a low-cost, easy-to-use 3D manual measuring machine has never been greater. 3D manufactured parts need 3D measurement, not with hand tools. Hand tools, height gauges or profile projectors force you to measure the real world in fragments, one dimension at a time, or flat 2D shadows. A 3D CMM is faster, simpler and more accurate because it measures parts the way they exist. The Aberlink Measur3D manual CMM fills this need perfectly.

Since the launch of the Fulcrum in May 2023, Aberlink has listened to customer feedback and has extended the easy-to-use measurement capability of the bespoke Aberlink software and Measur3D user interface.

The Fulcrum has been renamed the Measur3D because the new name reflects what it does, as opposed to the mechanical design, fulcrum pivot point, of the CMM. Due to the unique design of the Fulcrum CMM, it wasn't immediately obvious to visitors at exhibitions what the Fulcrum machine did. Changing the name to Measur3D addresses this confusion.

Listening to customer feedback from early adopters of the Fulcrum, Aberlink has significantly improved the mechanical design, ergonomics and aesthetics of the new Measur3D CMM. A new, externally adjustable, counterbalance now enables customers to quickly and easily adjust the counterbalance weight needed to set the balance point of the stylus being used. The main chassis of the Measur3D CMM is now more compact than its predecessor, further improving its ability to be put where it is needed on the shop floor. The Measur3D CMM now has easy-to-fit

transportation pins that protect the X-Y-Z axes when customers want to move the Measur3D to a different place on the shop floor.

The Aberlink software used with the Measur3D CMM now has new, easy-to-use, scanning measurement functionality. "Scan In Plane" enables the customer to scan a 3D free-form surface and, as the stylus passes through a defined, plane, section of the 3D surface, the software captures the measured point as it passes across the defined section. "Circular Projection" of a Curve measurement enables the customer to scan a complex turned profile and have the points projected tangentially around the part onto the centreline. This has proved invaluable when wanting to measure and dimension complex turned internal and external profiles using the Measur3D CMM. The Aberlink software now automatically switches between "Touch-mode" and "Scanning-mode" when using any of the measurement features, including Aberlink's unique "Automatic Feature Predict" function. All these software improvements have made the Measur3D CMM more versatile and even easier to use than before.

The look of something is significant and has an influence on our buying decisions. Aberlink has recognised this and the Measur3D CMM has improved aesthetics when compared to its

predecessor. The sharp grey on blue design of the new Measur3D CMM will appeal to all that see it at the various exhibitions and events planned throughout this year.

The use of new materials and economies of scale has enabled Aberlink to adjust the selling price of the Measur3D CMM. It is now priced at the "sweet spot" between a high-end height gauge and a traditional cartesian manual CMM, such as Aberlink's acclaimed Axiom manual CMM.

Summarising the Measur3D CMM, Chris Davies of Aberlink states: "Having sold nearly 200 Fulcrum CMMs since its launch at the Control exhibition and listening to our customer/distributor feedback, the new Measur3D CMM is a marked improvement on what was already a remarkable manual CMM. The significantly improved measurement capability, ergonomics, aesthetics and selling price will ensure the Measur3D CMM will become synonymous with customers wanting an easy-to-use shop floor manual CMM. That and the 3-year warranty, makes the Measur3D manual CMM the right choice for anyone needing an easy-to-use, affordable shop floor CMM."

Now the largest UK owned CMM manufacturer, Aberlink's comprehensive range includes 23 standard sizes of both CNC and manual CMM variants. Aberlink CMMs enable the precise measurement of the smallest of components, to parts of over three metres long and up to six tonnes in weight.

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Starrett modernises precision metrology with the launch of the HDV250 digital comparator, supplied and supported by Optimax

The HDV250 updates the industry-standard optical comparator by replacing traditional projection screens and manual overlays with a high-resolution camera and digital monitor keeping the trusted crosshair-based measurement method but providing sharper visualisation, reliable feature identification and improved inspection consistency.

At the core of the HDV250 is an integrated LED ring light-based surface illumination system. The advanced lighting is designed to provide enhanced contrast and clear edge definition across a wide range of part finishes, particularly for complex surface features that cannot be backlit. The advanced lighting system improves image clarity, allowing operators to inspect with greater confidence and micron-level precision.

The HDV250 provides micron-level accuracy, advanced measurement algorithms, digital traceability for validation and reporting and inspection integrity that supports compliance requirements.

It also benefits manufacturers with:

- Easy transition with minimal training when upgrading from a traditional comparator.
- More reliable inspection of surface features or features that cannot be backlit.
- Floor-ready, compact footprint.
- Full digital documentation for quality assurance.
- An accessible price point for small and mid-scale operations.

By combining engineering credibility with commercial accessibility, the HDV250 brings large-system performance to real-world shop floors without the complexity or cost barriers.

Starrett products are available in the UK and EU from Optimax.

Born in 2002 in the city of York as a calibration organisation, Optimax identified a gap in the market for independent, credible and cost-effective calibration services, primarily to the precision manufacturing sector, across the UK. Incorporation and relocation to Northampton in 2005 followed, providing enhanced access to its large Midlands based, aerospace, automotive and autosport customers. Growth then provided the opportunity for a further move in 2017 to the current purpose-built premises in Market Harborough. Its UKAS laboratory, customer application suite, engineering team, admin and technical sales team all now operate from this location, with regional sales and support technicians spread around the country.

The organisation now provides both UKAS calibration and all types of inspection and metrology products, with a bias towards optical methods.

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Salvagnini introduces AU-TO FAST in the B3 press brake range

Salvagnini has strengthened its B3 press brake range with AU-TO FAST, the new AU-TO tool identification system designed to make automatic setup faster, safer and more reliable. Designed for dynamic production, the B3 range includes press brakes with table length from 2,040 to 6,100 mm and maximum bending force from 80 to 400 tons, while B3.AU-TO models are available in 4,250 mm length with 170, 240 and 320 tons bending force. The range is built to support changing batches, kit production and batch-one manufacturing with a tailored, modular, scalable approach to bending automation.

The B3 combines the features and benefits of electric and hydraulic press brakes with Salvagnini expertise in automation, software, mechanics and electronics. The full range is available in standard configurations, while more demanding production environments can adopt customised automated versions. The Salvagnini scalable automation architecture allows companies to configure the machine according to actual production needs: ATA automatically adjusts the upper tool length, ATA.L and MVM support automated lower-tool management, and AU-TO handles automatic tool change to prepare the machine according to the production flow. This approach increases machine availability, reduces low-value manual activities and helps make bending more predictable in terms of times, costs and production planning.

With AU-TO FAST, Salvagnini adds a new level of control to automatic setup. The system enables the upper and lower locks to recognise each punch and die segment automatically, so the press brake can verify the tool configuration on the bending line in real time without manual intervention. The result is a faster and more robust setup process, with improved protection against anomalies such as unexpected tools or incorrectly assembled tools. This evolution reduces setup times by up to 30 percent compared with the previous version.

The AU-TO device works together with ATA and does not replace it: it prepares the machine by maximising the potential of automatic tool setup and applying the most suitable strategy according to the production flow. The covered rear tool store can hold up to 24 metres of tools up to 1,000 mm in length, even without segmentation and the operations take place in-cycle and in masked time to further improve efficiency. The B3 also supports mixed tooling, allowing the manual integration of standard WILA tools or special tools when required.

Beyond automation, the B3 range stands out for high configurability, a broad set of standard and optional features and a strong focus on safety and ergonomics. Available equipment includes multiple backgauge types, front sliding shelves, sliding doors, data part reader, STL lighting and FLW sheet follower. Safety is supported by the LSB system and, on machines equipped with automatic ATA and AU-TO tool change, by the radar safety system, which helps balance safety, ergonomics and performance.

B3 press brakes also integrate adaptive technologies that improve consistency and reduce corrections: S-CROWNING ensures uniform bending along the full length, AMS measures angle variations caused by springback and TFC2.0 compensates in-cycle structural variations. Direct Drive technology optimises energy consumption in real time and enables fast approach and return speeds of up to

250 mm/s. On the software side, B3 can be equipped with STREAMFORMER, OPS and connected to LINKS, while P-PB-CXN enables direct integration between the press brake and a Salvagnini panel bender, automatically loading the B3 program at the end of the panel bending cycle.

With its wide dimensional range, scalable automation options and the introduction of AU-TO FAST, the B3 confirms its role as a flexible bending platform for manufacturers seeking higher autonomy, more reliable tool management and better control of increasingly dynamic production flows.

Salvagnini press brakes are intelligent, high-performance machines designed for manufacturers who demand precision, repeatability and advanced process control. They feature high-end technologies such as S-Crowning which actively compensates for deflection during bending and TFC2.0, an intelligent control system that ensures consistent quality across batches. These features minimise operator intervention, enabling efficient production even with complex geometries or material variations. Positioned at the upper end of the market, Salvagnini's press brake machines combine structural rigidity, smart software solution and a compact footprint to deliver superior results across a broad spectrum of applications.

Thanks to Salvagnini's unique solutions, the press brake can adapt itself in setting up and managing the tools on the basis of what it needs to produce. Adopting scalable and modular automation in bending brings significant improvements in the machine's availability, extending its independence and flexibility.

For more than sixty years, Salvagnini has been designing, producing and selling flexible systems for sheet metal processing. Its panel benders, punching machines, press-brakes, fibre laser cutting machines, FMS lines, automatic store-towers and software have found application in a wide range of industries.

The global presence of Salvagnini enables it to maintain extensive local coverage through its service centres located in key manufacturing regions around the world. It supports your business, assisting you when you need it, where you need it.

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AMADA machines give iron clad benefits

Whether it is beads or profiles for external wall insulation, external rendering, roofing or architectural cladding and facades, the quality and lead-time performance of Kidderminster-based Protektor Group UK Ltd has placed this progressive manufacturer in a leading position. Sitting at the heart of the company's current success and future ambition are a selection of automated laser cutting and punch press machines from AMADA. Indeed, Protektor Group UK Ltd is currently looking to continue its growth journey by upgrading the company's fleet of AMADA press brakes.

Who are Protektor Group UK Ltd?

Founded as Wemico in 1984, it is today known as Protektor Group UK Ltd, which is German-owned by Protektorwerk Florenz Maisch GmbH. The group has a presence across Europe, with Protektor Group UK Ltd specialising in bespoke architectural finishings such as flashings, cladding, copings, louvres and soffits as well as standard off the shelf beads, trim and flashings. The Protektor Group UK Ltd brand is synonymous with quality, knowledge and service. Offering a comprehensive range of products, the company is a preferred supplier for system designers, installers and specifiers up and down the UK. Furthermore, in the retrofit segment, Protektor Group UK Ltd is leading the way with specific profiles built to meet the technical requirements of PAS2035.

"Around 95 percent of our machinery on site today is from AMADA."

A member of INCA (Insulated Render and Cladding Association), Protektor Group UK Ltd is witnessing considerable growth, driven by significant capital investment in AMADA machines. The company has EMZ-3610NT and EMZ-361NT CNC punch presses, both with automated sheet load/unload systems and an LC-3015 F1-NT CNC laser cutter featuring ASL tower automation. Protektor Group UK Ltd also takes advantage of AMADA VPSS 3i Blank software for its laser and punch presses, which the company describes as "very user friendly". Protektor Group UK Ltd's production manager Richard Hill says: "Around 95 percent of our machinery on site today is from AMADA. We believe heavily in automation which, in truth, probably stems from our German parent company. There are some limitations, mainly due to the large number of bespoke profiles we manufacture, but for stock beads and trims, automating our punch presses and laser cutter provides us with obvious gains."

AMADA machinery gives Protektor Group UK Ltd the ability to run whenever necessary. "That's where our automated punch and laser machines come into their own," he says. "We can gain a shift through the night." Processing mainly aluminium, other materials passing through the state-of-the-art manufacturing facility at Protektor Group UK Ltd include stainless steel and galvanised steel, typically from 0.7 to 3.0 mm thick. The company can also handle heavy-gauge mild steel, as demonstrated by a recent contract that required parts up to 15 mm thick. For stock profiles, typical batch sizes through the laser and punch are around 500-off. Bespoke fabrication is somewhat different, with lot sizes as small as 1-off.

"AMADA's service is incredible"

"Automation becomes more difficult with press brakes because we probably need thousands of the identical profile to make automated folding worthwhile," explains Richard Hill. "Many of our parts feature a bespoke form." That said, Protektor Group UK Ltd's next investment project could well be upgrading the company's six AMADA HFE series press brakes, possibly to the new HRB range. "AMADA has a new control that we think is really interesting. It will allow us to program offline and lessen our reliance on highly skilled operators. Finding press brake skills is

becoming increasingly difficult. We want a shop floor with less limitations, with every operator able to fold every part, where they simply scan a barcode to see how to bend a component."

Protektor Group UK Ltd operates in a competitive market, both locally and nationally. Short lead times are paramount in order to win contracts. Construction projects often evolve as they progress, prompting late orders for products such as copings or corners.

"Customers frequently want products almost immediately, which is why we ensure that our lead times are extremely competitive without compromising quality: our plant is ISO9001 accredited for quality management," explains Richard Hill. We also work with high-end 3D CAD modelling software and invest continually in our future."

By way of example, this ambitious company recently purchased an additional site on the same trading estate, refurbishing the facility to serve as its flagship head office. Protektor Group UK Ltd also insists AMADA will play a major role in its growth journey moving forward, not simply because of the quality and performance that AMADA machines provide, but the levels of service and support available.

Richard Hill concludes: "AMADA's service is incredible. We get really good uptime from our

AMADA machines but occasional issues are inevitable in such a hard-working industrial setting, so having access to first-class support is vital. We've never been let down by AMADA and have no reason to look elsewhere for our future machine investments."

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INVENTAIR sharpens it's competitive edge with twin Accurl investment from Axe & Status

A strategic investment in an Accurl Smart Cube Compact 3015 CNC fibre laser cutter and an Accurl Genius Plus CNC press brake, both supplied by Axe & Status, is delivering measurable gains in quality, speed and competitiveness at Inventair Ltd. While the Bridlington-based manufacturer's long-serving CNC plasma cutter remains in occasional use, the new fibre laser now processes virtually all profiling work at Inventair, marking a decisive step forward in performance and efficiency. From its purpose-built facility, Inventair designs and manufactures dust extraction systems for the joinery/woodworking sector, while also producing spray booths, transport fans and waste-wood bagging units. In addition, wood-waste heating systems, manufactured in-house but sold under the CAS brand, further extend the company's reach. With a strong and diverse order book, production capacity and capability play a critical role in maintaining competitiveness.

Elevating bending precision

Alongside the new laser cutter, Inventair opted to upgrade its forming capability with an Accurl Genius Plus CNC press brake, replacing an earlier press brake model.

Bob Griffiths, managing director of Inventair states: "The previous machine was good but compared with the Accurl it seemed a little 'entry level' if I had to describe the difference. It was an opportunity to buy a press brake with a specification comparable to the so-called big players, but without spending the money those companies ask."

The result is a tangible uplift in bending quality and repeatability, complementing the enhanced profiling performance delivered by the Accurl fibre laser. The press brake's hybrid 'ECO' configuration represents a further benefit. Here, the innovative Delta servomotor ensures precise control of ram motion using a minimum amount of oil and energy.

The latest Genius Plus series of hybrid servo CNC press brakes from Accurl offer increased working speeds, stroke, daylight and pressing capacities. With advanced motion technologies and impressively quiet running, the Genius Plus is adept at bending complex parts.

Together, the two new Accurl machines at Inventair create a cohesive cutting and forming

platform that improves consistency from flat sheet to finished component.

A trusted machinery partner

The relationship between Inventair and Axe & Status dates to 2014 with the purchase of a guillotine shear. Over the years, the partnership has continued to flourish based on machine reliability and responsive support.

For Inventair, the twin Accurl installation represents more than a machinery upgrade. It signals intent: sharper quality, faster throughput and stronger competitiveness in demanding markets.

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50 years in waterjet

For half a century, Flow has led the way in waterjet technology, transforming industries and shaping the world through the power of water. Flow manufactures the entire waterjet system, including the pump, cutting head, XY table and software. This means it has got a seamlessly integrated configuration specifically for your cutting and business needs.

Paul Castle has been a business manager for Flow for 28 years looking after key markets including the UK and North West Europe. He explains why the company continues to lead the way in waterjet: "Continued investment in R&D has meant that industry changing products such as Dynamic Waterjet and 6,500 bar pumps keep Flow and our customers at the forefront."

There are major advantages to cutting with waterjet, like the fact that it's a cold cutting process, virtually eliminating secondary processing and delivering smooth edge quality and how any setup changes are minimal when pivoting between parts, as well as how easy waterjets are to program and operate. Yet, the number one advantage of waterjet technology is its ability to cut all types of materials, on the very same system. Virtually any material and virtually any shape, waterjet can cut it.

Sébastien Dumortier, marketing manager for Flow EMEA confirms: "Waterjet technology is very versatile, it can cut anything that you want. At the moment, we are developing a completely new waterjet with wet abrasives rather than dry abrasives."

Flow has a long history in the world of waterjet, dating back to the invention of the first abrasive waterjet in 1979. To this day, its team of engineers, designers and application experts continue to drive the industry toward the future of waterjet, improving the technology for the owners and operators that it partners with every day.

So what is it that sets Flow apart from its competitors? Paul Castle notes: "Technology leadership and OEM customer support. The technology levels allow our customers to be competitive and provide more capabilities in the market. Flow's investment in people enables a network of support over the long term. The Flow Technology Centre in Europe is also a very important resource for customer demonstrations, test cuts and training. Our highly skilled team of applications engineers provide a wealth of knowledge which is unsurpassed in the waterjet industry."

Flow is a leader in the development and manufacture of ultra high-pressure waterjet technology. With the addition of fibre lasers and press brakes, Flow provides leading solutions at every price point within a single, integrated ecosystem.

Headquartered in Kent, Washington,USA, Flow employs approximately 700 employees with offices in North and South America, Asia, and Europe. Globally, its focus is on technology leadership, a full continuum of products that provide complete manufacturing solutions, application expertise and unmatched service with a commitment to customer success across the world.

Sébastien Dumortier adds: "Flow Europe has subsidiaries in the UK, in France, in Germany, which is our headquarters also, in Italy, in the Czech Republic and in Spain."

Innovation in motion

The company has spent over five decades helping fabricators solve problems, push boundaries and build stronger businesses. Whether you're cutting, forming, or scaling up, Flow brings unmatched engineering experience, proven platforms and responsive support that keeps you moving forward.

So what can Flow customers look forward to in the future as the company continues to innovate? Paul Castle provides some insight: "Breakthrough waterjet technology with the NX Pro models of system. This is an enclosed machine with Abrasive Recycling and energy efficient pump. This technology will be the biggest industry development since Dynamic Waterjet in terms of lowering operating costs and being environmentally friendly."

It is clear that the future remains bright for Flow as it looks ahead to the next 50 years.

Paul Castle concludes: "Flow would like to wish our new and long term customers success in their various industries as we continue our partnership with them."

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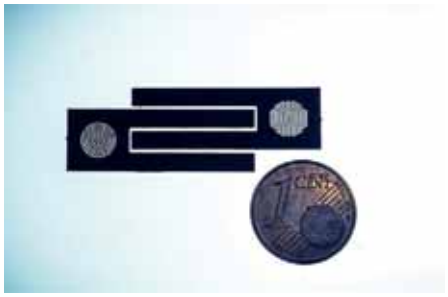
Precision and automation in micro waterjet cutting

WatAJet, an Italian excellence in micro waterjet cutting, has transformed an academia-developed technology into a unique production process. Thanks to Mitutoyo's Quick Vision Apex, the company has revolutionised its quality control, taking precision, automation and reliability to the next level.

Specialising in micro waterjet cutting, WatAJet is one of the finest examples of Italian manufacturing excellence; it stands out for its ability to combine cutting-edge technology and extreme precision, while processing materials that would otherwise be impossible to handle without compromising quality. Founded as a spin-off of the Politecnico di Milano, the company has been able to transform an academia-developed technology into a distinctive industrial competence. WatAJet is presently the only company in Italy and one of the very few in Europe to use this revolutionary cutting technology on a production scale.

"Given the very tight tolerances we are used to working with, compromises are not acceptable," says Francesco Arleo, head of R&D at WatAJet. "We needed a tool that was precise, flexible and reliable over time. Mitutoyo's Quick Vision Apex was a real game changer."

WatAJet operates in a specialised production niche. With waterjets measuring 0.2 mm in diameter, high pressures and ultra-fine abrasives, the company is able to cut extremely hard or extremely delicate materials without altering them. Special steels, titanium, ceramics, multilayer composite materials, engineering plastics and glass are just some of the materials that WatAJet can process, guaranteeing exceptionally tight tolerances on even very small parts.



Micro waterjet cutting is a unique technology. Unlike laser or electroerosion, it does not thermally alter the material and allows any surface to be processed, even composites or layered materials with different mechanical characteristics. Each component requires care not only in terms of dimensions but also aesthetics, because many parts intended for biomedical use must be flawless both technically and visually.

It is not only a technical challenge, but also a manufacturing one. An increasing number of customers wish for WatAJet to provide full control of the parts, a request that would traditionally involve hours of manual work or the use of multiple measuring instruments. For a company that works with high-precision microcomponents, it could have been a significant limitation, which has, however, been overcome thanks to the introduction of Mitutoyo's Quick Vision Apex.

Mitutoyo's machine has revolutionised quality control management. The main advantage is the ability to combine three technologies in a single system. High-resolution optical vision allows two-dimensional components and micro-profiles to be measured, the contact probe allows three-dimensional elements or cylindrical surfaces to be measured and the laser acquires profiles and height measurements with extremely high precision. All within a single, fully programmable cycle, just like a numerically controlled machine tool.

The ability to program complete measurement cycles and let the machine operate autonomously has allowed WatAJet to manage even very large batches while maintaining consistent precision and ensuring full data traceability.

Every day, Quick Vision Apex starts up at the beginning of the shift and works for hours without interruption.

It is no longer just a measuring tool, it has become an integral part of the production flow. Automatically generated reports, structured management of measurement cycles and the ability to repeat complex checks without errors make metrology an ally of production, rather than a separate and potentially critical step. This level of automation has enabled WatAJet to satisfy customers with stringent requirements, comply with complex control plans and focus on its technological growth by reducing repetitive manual tasks.

Quick Vision Apex has also paved the way for machining and checks that were once very difficult to manage. Particularly complex three-dimensional components, deep micro-holes, intricate profiles on extremely hard materials: everything can be measured with precision and repeatability. For a company like WatAJet, where quality is central to its offering, such reliability is an indispensable asset.

Thanks to Quick Vision Apex, WatAJet is now able to guarantee 100 percent dimensional checks even on complex batches, to significantly reduce measurement times, to increase process repeatability and tackle difficult parts with the confidence of a system that never fails. The machine has made it possible to scale up production without compromising quality, allowing the company to grow while remaining focused on high value-added machining.

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Waterjet vs laser:

What UK manufacturers need to know in 2026

As UK manufacturers continue to navigate increasing pressure on cost, precision and material performance, the choice of cutting technology has become more critical than ever.

Across industries including aerospace, automotive and general fabrication, the debate between waterjet and laser cutting remains a key consideration, with each technology offering distinct advantages depending on the application.

This shift comes at a time when UK manufacturers are facing continued pressure from rising material costs, tighter tolerances and the need to improve efficiency without compromising quality. As production demands become more complex, the limitations of traditional cutting approaches are being reassessed.

One of the most notable trends is the growing demand for flexibility in production. Manufacturers are increasingly working with a wider range of materials, from metals and composites to ceramics and plastics.

In this environment, waterjet cutting continues to stand out. Unlike laser systems, which rely on heat, waterjet technology uses a high-pressure stream of water, often combined with abrasive, to cut through materials without generating a heat-affected zone.

This enables manufacturers to process heat-sensitive materials, laminates and composites as well as thick or reflective metals, all without compromising structural integrity.

Industry trends indicate a growing uptake of waterjet technology in applications where material flexibility and precision are critical, particularly in sectors such as aerospace, defence and advanced manufacturing.

Waterjet cutting eliminates this issue entirely. As a cold cutting process, it avoids warping, micro-cracking or changes to material properties. This is particularly valuable in sectors where performance, reliability and consistency are essential.

Laser cutting continues to offer advantages in high-speed processing of thinner materials, making it well suited to high-volume, standardised production. However, for applications requiring complex geometries, tight tolerances and/or multi-material capability, waterjet systems provide a level of versatility that is increasingly valued in modern manufacturing environments.

Rather than a one-size-fits-all solution, the decision between waterjet and laser cutting is becoming more application-specific. Manufacturers are placing greater emphasis on material type and thickness, required edge quality, secondary finishing requirements and overall production efficiency. As these priorities evolve, waterjet technology is playing an increasingly important role in helping reduce rework, improve yield and maintain consistency across a broader range of applications.

Recent developments in high-pressure pump technology, software control and multi-axis cutting systems are further enhancing the capabilities of waterjet solutions.

Improved accuracy, faster cutting speeds and greater automation are enabling manufacturers to integrate waterjet systems more effectively into modern production environments.

With ongoing advancements in cutting technology and increasing demand for precision and flexibility, waterjet systems are well positioned to support the next phase of UK manufacturing.

Water Jet Sweden UK continues to work closely with customers across a wide range of industries, supporting them in selecting the right cutting approach for their specific requirements.

Whether complementing existing laser capability or enabling new material applications, waterjet technology offers a proven, reliable solution for manufacturers looking to enhance performance without compromise.

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Smarter sawing software from Kasto

Digitalised and networked sawing is an indispensable part of efficient metal processing in warehouses and factories. The German manufacturer of bandsaws, circular saws and hacksaws, Kasto, is at the forefront of the technology. Through its subsidiary in Kibworth Harcourt, Leicestershire, the group offers to the UK and Irish markets intelligent solutions such as system connectivity through KASTOlink, optimised cutting plans with KASTOoptisaw, mobile control via KASTOapp and automated cutting optimisation with KASTOrespond. Users benefit from maximum operational efficiency, lower costs and high process reliability during sawing operations.

Sönke Krebber, member of the management board at Kasto says: "In discussions with customers, we no longer focus solely on an individual machine but instead consider the entire material flow. Our engineers develop solutions that optimise cutting strategies, automate processes and intelligently network machines.

"Interfaces play a vital role. We have been offering OPC UA and various other standards for more than a decade. Integration turns every saw into a component of a well-designed digital process chain, ensuring maximum efficiency, safety and transparency for our customers."

KASTOlink enables seamless networking of Kasto saws with other machines, storage systems and warehouse management and ERP systems. It ensures a continuous, digital process chain from order to production and on to dispatch. The versatile interface enables integration not only with Kasto equipment but also machines from other manufacturers. Users can efficiently and transparently network their Kasto products with the entire IT and machine environment through interfaces such as OPC UA, MQTT, REST API, DSTV+, CSV or KASTO's own HOST link.

KASTOoptisaw optimally assigns stored long stock to specific sawing orders.

During the sawing process, users face the challenge of maximising material usage while minimising waste to minimise resource consumption and costs. This is where KASTOoptisaw software comes into play. Integrated into the KASTOlogic warehouse management software, KASTOoptisaw optimally assigns stored long stock to specific sawing orders, taking into account various machine parameters such as kerf width and minimum trim cut length.

It can handle bars, tubes, profiles of different lengths and various mitre angles. This not only reduces costs but also saves storage space, as unusable remnants no longer need to be returned to storage. Additionally, KASTOoptisaw assists by automatically determining the most efficient cutting plan by repeatedly exploring various possible arrangements, combining them to find the optimal solution. Users can also create cutting plans manually using a graphic wizard based on geometric data. The wizard allows further optimisation by selecting optimal lengths of a given stock type to complete an order.

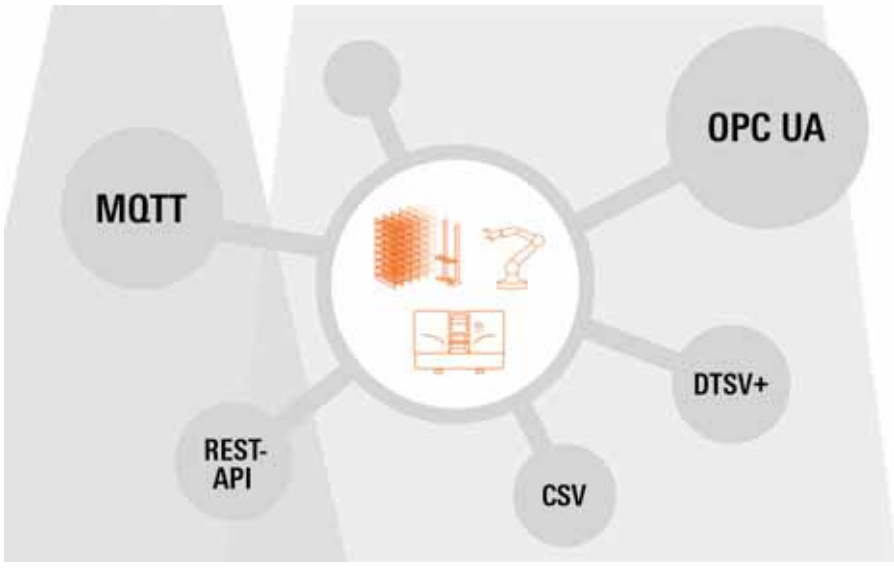
KASTOapp provides a real-time overview of the status of all Kasto sawing machines within a network.

KASTOapp provides a real-time overview of the status of all Kasto sawing machines within a network. When a saw is operating in automatic mode, the app accesses the information stored in the respective machine control system. One or more users can receive information about all relevant parameters, including data relating to the component type, cut length, target quantity and actual parts sawn, as well as feed rates and cutting speeds.

In the event of an error during operation, the app promptly displays the relevant error message, allowing users to respond quickly and minimise downtime. To ensure security, Kasto protects a user's information from unauthorised access by transmitting it through encrypted connections using HTTPS and utilising its own servers located at its head office and main factory in Achern, Germany.

KASTOrespond optimises the settings of the sawing machine to maximise blade downfeed, according to whether it is processing solid material, tube or profile, individually or in bundles. The system continuously measures the forces acting on the blade, without the need for additional sensors and uses the information to determine the appropriate feed rate.

The software can detect variations in wall thickness, differing contact lengths and particularly hard areas in the material, adjusting automatically to accommodate these factors. For the operator, it means that only a few



KASTOlink enables seamless networking of Kasto saws with other machines, storage systems and warehouse management software.

Kasto is rolling out new versions of its ProControl, seen here, and its high-end ExpertControl.

relevant parameters need to be input, such as cutting length, quantity and material type. As a result, production time is reduced and the service life of the blade is significantly extended.

Kasto is currently rolling out a new control generation as part of its comprehensive package of intelligent solutions. ProControl technology, previewed at EMO 2025 in Hannover, has been developed from the ground up to streamline daily operations, making them easier, faster and more efficient. The new user interface features a modern design, smart functions and a role-based user guide, all designed to enhance clarity and efficiency.

A Simple Mode allows rapid and secure processing of sawing orders with fewer clicks, while access via a browser provides flexible and convenient machine control via a PC or tablet. Various different lengths of the same material can be bundled in one cutting plan, allowing multiple orders to be processed automatically, one after another. Important statistics are clearly displayed on a dashboard and, if questions arise, context-related help is available to provide targeted assistance, exactly where it is needed.

KASTOrespond continuously optimises the parameters of the sawing machine to maximise blade downfeed, according to the material cross section the blade encounters and any hard spots in the material. Left: prior to starting the cut. Centre: Without using the software. Right: With KASTOrespond switched on.

New also is an updated version of Kasto's high-end ExpertControl for users requiring integration of robotic handling, for example KASTOsort, complex material and parts tracking and deep integration with large-scale automated warehouses.

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How do I choose the right circular saw blade for metal cutting?

Anyone who has spent time on the shop floor knows that the wrong blade choice costs far more than the blade itself. Time lost, poor cut quality, broken teeth and machines running harder than they need to all follow from a poor blade choice.

Whether you are cutting mild steel, stainless steel, exotic steel, aluminium profiles or structural sections, the blade you choose is one of the most consequential decisions in your cutting setup. This guide breaks it down clearly, covering blade types, materials, tooth geometry and the specific questions you should be asking before you buy.

What is a circular saw blade for metal cutting?

A circular saw blade for metal cutting is a toothed disc designed to cut ferrous and non-control. Unlike abrasive chop saw discs, which grind through material and generate significant heat, metal cutting circular saw blades, often called cold saw blades, use a slicing action that keeps the workpiece and blade cool during the cut.

This is important. Heat is the enemy of both dimensional accuracy and blade life. A cold saw blade working correctly should leave a cut that you can touch within seconds of the blade stopping.

The two primary blade types you will encounter in industrial metal cutting are:

- HSS (High Speed Steel) circular saw blades
- TCT (Tungsten Carbide Tipped) circular saw blades

Each has a distinct role. Choosing between them is the first decision you need to make.

HSS vs TCT Circular Saw Blades: Which do you need?

	HSS Saw Blades	TCT Saw Blades
Best for	Best for Solid steel bar, structural sections, high-volume production Non-ferrous metals, aluminium, thin-walled profiles, stainless	Non-ferrous metals, aluminium, thin-walled profiles, stainless
Cutting action	Aggressive, high feed rate	Precise, low noise, very clean finish
Blade life	Blade life Shorter per blade, but can be resharpened Longer per blade, carbide holds edge well	Longer per blade, carbide holds edge well
Cost	Lower upfront cost	Higher upfront, lower cost per cut over time
Resharpening	Yes, extends blade life significantly	Yes, but requires specialist equipment
Typical RPM	20–100 RPM (slow speed cold saw)	Variable, check manufacturer specification

A general rule worth keeping in mind: if you are cutting solid steel in volume, you almost certainly want an HSS blade on a cold saw. If you are cutting aluminium extrusions, PVC profiles or thin-walled tubes, a TCT blade is likely the better tool for the job.

Understanding tooth count and tooth geometry

Once you have settled on blade material, tooth configuration is the next variable and it matters more than most people realise.

Tooth Count (TPI)

Tooth count is not a case of more-is-better. It is about matching the blade to the cross-section you are cutting.

- **High tooth count:** cleaner finish, better for thin material and tube
- **Low tooth count:** more aggressive cut, better for thick, solid sections
- **Too many teeth on thick material:** chips cannot clear fast enough, heat builds, blade wears prematurely
- **Too few teeth on thin material:** blade grabs, rough finish, risk of material movement

Tooth geometry: Set, pitch and rake angle

These are the finer details that most buyers overlook until something goes wrong.

Rake angle: Positive rake cuts aggressively and is suited to softer metals like aluminium. Neutral or negative rake is used on harder materials such as steel and stainless steel to reduce the risk of tooth chipping.

Pitch: Variable pitch blades reduce harmonic vibration during the cut. This is particularly useful when cutting tube or profiles where the blade is intermittently engaged with the material.

Tooth set: The degree to which teeth are offset from the blade body. Wider set produces a wider kerf, which is good for chip clearance in deep cuts. Narrow set gives a tighter, cleaner kerf on shallow cuts.

What material are you cutting?

This is the single most useful question to ask before selecting a blade. The material dictates almost everything else.

Mild steel and structural steel

This is the heartland of the HSS cold saw blade. Mild steel responds well to high-speed steel at low RPM with cutting fluid. For solid bar and structural sections in production environments, this is typically the most cost-effective setup when you factor in resharpening cycles.

A metal cutting cold saw running an HSS blade at the correct feed rate should produce a clean, burr-free cut with a finish that often needs no secondary processing.

Stainless steel

Stainless is harder on tooling than mild steel and work-hardens quickly if the cut stalls or the blade rubs rather than cuts. This makes blade selection and setup more critical. You need a blade with the correct rake angle for stainless, sufficient cutting fluid and consistent feed pressure.

Aluminium and non-ferrous metals

Aluminium is soft but presents different challenges. It is sticky, tends to load up the blade and requires good chip clearance. TCT blades with a positive rake angle and wide gullets are the standard choice here.

Tube and hollow sections

Tube presents a specific challenge: the blade enters and exits the cut with

each rotation, meaning engagement is intermittent. Variable pitch blades handle this better than uniform pitch equivalents. Wall thickness determines tooth count, as thin-walled tube needs more teeth in contact with the material at any given moment.

One of the most overlooked aspects of circular saw blade economics is saw blade resharpening. An HSS blade that is allowed to run to failure costs more per cut than one that is resharpened at the right point in its life cycle.

The signs that a blade needs resharpening are usually obvious if you know what to look for:

- Increased cutting noise or chatter
- The machine working noticeably harder than usual
- Burring on the cut face that was not there before
- The cut taking longer than expected at normal feed pressure

Keep it right and keep it running

Choosing the right circular saw blade for metal cutting is not complicated once you have the right framework. Start with the material, match the blade type and geometry to that material, check compatibility with your machine and build resharpening into your tooling maintenance cycle.

Get those basics right, and you will cut more accurately, more consistently and at a lower cost per cut than you are probably achieving now.

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How to choose from a single pivot (hinged) bandsaw and a double column bandsaw?

Bandsaws have long been among the bestselling machines for cutting metal materials, mainly because they allow large material cross sections to be cut.

The machines are relatively affordable, tooling costs are low and their energy consumption is modest. Despite the seemingly simple principle of a continuous blade, the design of a modern bandsaw is the result of a complex engineering process that must respect the physical limits of the saw blade itself. A saw blade is a tool with very sharp but also brittle teeth. Excessive vibration can cause teeth to break off or even destroy the entire blade. For this reason, the saw's design is always subordinated to the requirement of minimising vibration during the cutting process.

In this context, two main design platforms differ fundamentally: hinged, single pivot, bandsaws, where the arm moves along a circular path around a single pivot and double column bandsaws, whose arm is guided linearly along a pair of parallel columns. These structural differences significantly affect stability, accuracy and cutting speed. The following text examines in detail the mechanical principles of both systems, the reasons for differences in cutting speed for solid and profile materials, the impact of vibrations on tool life and the overall optimisation of the cutting process.

Pivot (hinged) bandsaws and their design characteristics

Pivot (hinged) bandsaws use an arm mounted on a single rotating pivot. During cutting the arm moves along an arc, which simplifies and reduces the cost of the overall system. The arm can usually be tilted over a wide range, which is advantageous in job shop production where cutting angle and material type must often be changed.

However, this design simplicity leads to certain limitations in mechanical stability. Because the arm does not move linearly but along a circular curve during the cut, it is not possible to achieve the same downward speed of the blade across the entire width of the cut channel.

The result is a variable cutting force in different parts of the cut and an increased tendency to micro vibrations. These vibrations, although seemingly small at first glance, can be a significant source of destructive loading for the blade, especially with harder materials or when attempting higher productivity. When cutting thin-walled profiles this characteristic may not be critical. However, when cutting solid materials, it leads to a slowdown of the cutting process and increases demands on the operator and machine setup. This is also one reason why pivot (hinged) saws are slower in practice when cutting solid materials.

Pivot (hinged) band saws

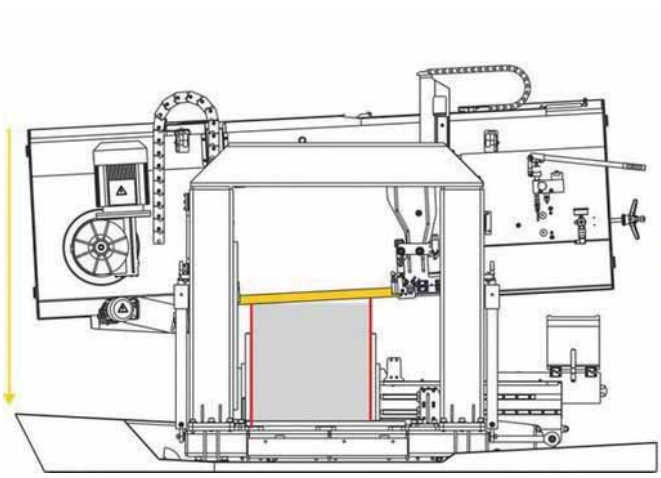
Although various types of bimetal saw blades can be used on pivot (hinged) bandsaws, their structural stiffness is often insufficient for the economical use of carbide (tipped) blades. Carbide blades do provide substantially higher cutting speeds, but they are significantly more sensitive to vibrations and irregularities in cutting load. For this reason, using carbide blades on pivot (hinged) band saws is technically possible but in the vast majority of cases uneconomical.

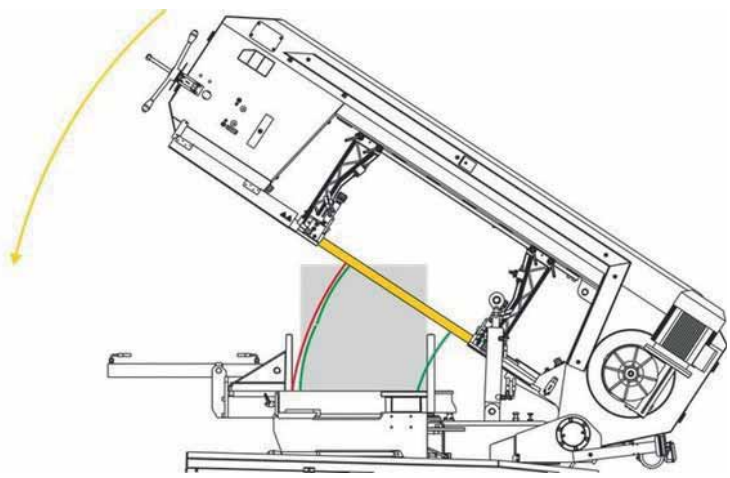
Double column bandsaws: stability, linear guidance and high productivity

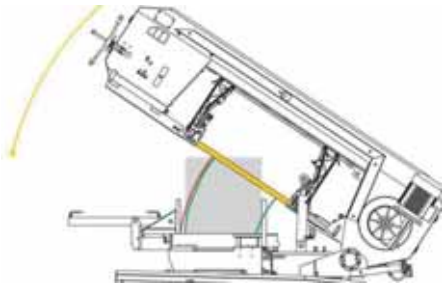
Double column bandsaws represent a design solution primarily focused on eliminating vibrations and maximising accuracy. An arm guided on two parallel columns moves in a precise linear path, ideally on linear guides, with almost no play. The two-sided support of the arm minimises mechanical oscillation and allows even distribution of the load on the blade throughout the cut across the full width of the cutting channel.

This stability is the key factor why double column saws can achieve many times higher cutting speeds when cutting solid materials compared with pivot (hinged) saws, even when both use standard bimetal blades.

Besides the higher structural stiffness, an important factor is the ability to maintain a constant linear downward speed of the blade into the cut. As a result, the cutting force is stable and the cut proceeds theoretically without micro vibrations that would otherwise damage the blade teeth or reduce blade life. The difference in cutting speed, however, varies by material type. While the speed increase for solid cross sections is very pronounced, even with standard blades, differences are smaller for profile materials, especially thin-walled profiles, often amounting to single digits or low tens of percent.





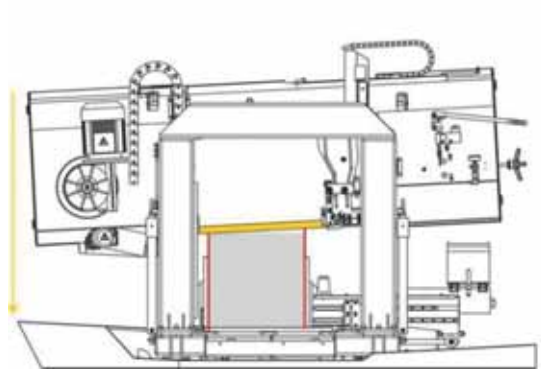


Thanks to their stiffness, double column bandsaws make it feasible to use carbide blades as a standard solution.

Cutting dynamics and the influence of vibrations

Vibrations are one of the main enemies of the saw blade. Besides negatively affecting cut quality, they cause local overloading of individual teeth. The sharp but brittle teeth of saw blades, both bimetal and carbide, have little tolerance for shocks and micro-oscillations that arise from uneven cutting forces. For this reason, from a design perspective the entire saw is engineered to minimise vibration generation: from a massive frame through blade guidance, precise bearing supports, geometric stability of the arms to vibration damping at the vice.

A hinged design with a single pivot point is inherently more prone to vibration because it allows more degrees of freedom of movement. In contrast, a double column design with linear guidance provides a significantly higher level of passive damping. This difference is so fundamental that it substantially affects the overall operating economy in practice, especially when using carbide blades, which are faster than bimetal blades but also more sensitive to damage.



Conclusion

Each of the bandsaw design concepts has clearly defined technical strengths. Pivot (hinged) bandsaws offer high flexibility, easy capability for mitre cuts and a simple construction suitable for general workshop use.

Double column bandsaws provide exceptional stability, accuracy, and high productivity, particularly when cutting solid and high strength materials, also thanks to the effective use of carbide blades. It should be noted, however, that double column machines are structurally significantly more complex and use more expensive technical solutions, which is reflected in their price, commonly 50-100 percent higher, and in some cases even more, than comparable hinged models.

SAWS UK LTD offers a wide range of both pivot (hinged) and double column bandsaws, and its sales specialists are ready to recommend the optimal solution with regard to the desired level of automation and the customer's budget. Proposals for suitable accessories, such as roller conveyors precisely designed for the given type of operation, are of course part of the service.

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Ficep UK helps Warrington Fabrications more than double output with latest investment

Ficep UK has supplied its Valiant CNC drilling line and Tipo D50 to Warrington Fabrication, helping the Cheshire-based steel fabricator modernise its production capabilities and more than double its output.

Established over 40 years ago, Warrington Fabrications employs over 50 people and works across a wide range of sectors, supplying secondary steelwork and bespoke metalwork for projects including hospitals, apartment blocks and major construction contracts. Its customers range from those requiring a single beam to large contractors with substantial steelwork packages and the business will fabricate anything in steel, from ornate staircases to full structural frameworks.

Warrington Fabrications has worked with Ficep UK for more than 20 years, originally investing in Ficep systems at the outset of that relationship. The business had been running a cutting and drilling line and a Tipo D8 punch and shear machine, equipment that had served the business well but had reached a point where production speeds were no longer meeting the pace required. The decision was made to modernise and Warrington Fabrications turned again to Ficep.

Whilst other suppliers were considered, the long-standing relationship and confidence in Ficep's quality and service made the decision straightforward. Ficep UK's approach was not simply to replace the old machines on a like-for-like basis. It worked closely with the Warrington team to understand the specific needs of the business and recommend the systems best suited to those requirements.

Chris Millington, production manager and buyer at Warrington Fabrications, also visited Ficep's parent company in Italy to see both machines in full operation before committing to the investment. This gave the team complete confidence in what they were purchasing and how it would perform.

The Ficep Valiant handles automated drilling, scribing, marking and sawing across a full range of rolled structural steel sections, freeing up skilled operators for more complex work. The automated Tipo D50 complements it by processing smaller profiles, flat bars, angles, channels, beams and tubes, including notching, scribing, cutting and drilling across a wide range of sizes. Its improved scribing capability, supported by new integrated Steel Projects software, has already reduced manual marking time and improved workflow across the shop floor.

Chris Millington says: “Our old machines were doing their job, but they were over 20 years old and we needed to update the technology. The new machines are faster, need less maintenance and we are already producing more than double what we did before. The difference has been significant.”

Installation went smoothly, with Ficep engineers on site to oversee commissioning, train the machine operators and ensure the systems were running at optimal capacity. Because the Warrington team was already familiar with Ficep technology, operators got up to speed quickly, a seamless transition that underlines the value of the long-term partnership built on shared knowledge and mutual understanding of the business.

Chris Berriman, sales director at Ficep UK, says: “Our goal is never simply to replace old equipment, it is to make sure the systems are right for the business and the work it carries out. We looked carefully at what Warrington needed and made recommendations. The fact that Chris came to Italy to see the machines in action before investing is exactly the kind of informed decision-making we encourage and it means the business has hit the ground running. We also provide ongoing support to make sure everything continues to run at its best.”

Alongside the machinery investment, Warrington Fabrications has also added a Ficep tool vending unit: a smart inventory system that tracks and manages consumables such as drill bits and scribers. Ficep manages stock levels remotely through integrated software, ensuring the team always has the right tooling to hand and freeing up staff time previously spent on manual stock management.

With the Valiant and Tipo D50 now in operation, Warrington Fabrications is faster, more efficient and is well-placed to take on an even wider range of projects, all supported by a partnership with Ficep UK that continues to support the business into its next phase of growth.

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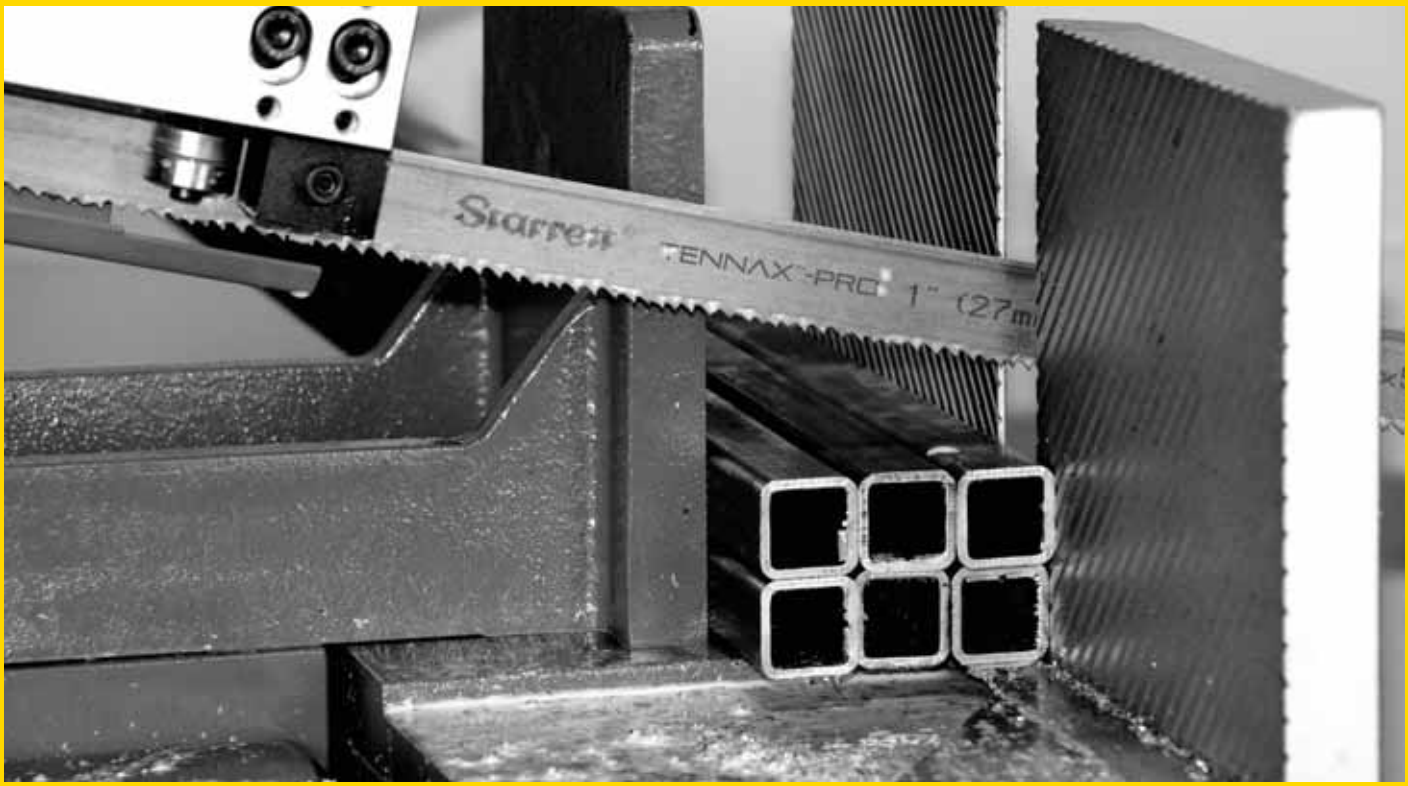

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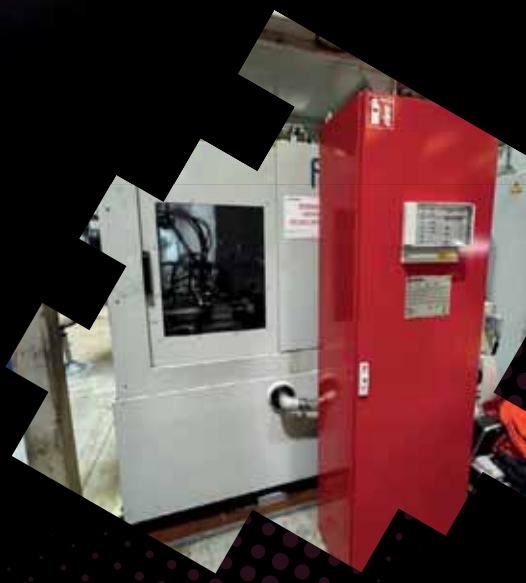

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