

# SUPPLY CHAIN SOLUTIONS

ISSUE 17

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**Tool codes** 698408, 698409, 698410, 698411, 698412



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**Description** Caiman solid carbide 3 flute high performance end mills  
**Material** Aluminium  
**Diameters** 6mm, 8mm, 10mm, 12mm  
**Tool codes** 698408, 698409, 698410, 698411



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**Description** Qplus solid carbide 4 flute variable end mills  
**Material** Multiple  
**Diameters** 6mm, 8mm, 10mm, 12mm, 16mm  
**Tool codes** 499025, 499030 499035, 499040, 499045



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#### Qplus 4 tool set (ordering code 499SET-4-SCS)

**Description** Qplus solid carbide 4 flute variable end mills  
**Material** Multiple  
**Diameters** 6mm, 8mm, 10mm, 12mm  
**Tool codes** 499025, 499030 499035, 499040

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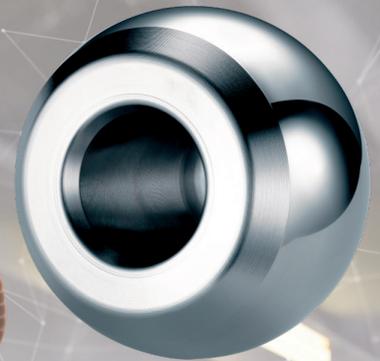
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Cover photo courtesy GSK (GlaxoSmithKline)  
 Page 19 photos: Courtesy (l to r): Medpharm, GSK and Lonza.  
 Page 20 photos: Courtesy Lonza and 3M Petrifilm  
 Page 21 photos: Courtesy (main picture) GSK and column 2, both from Electa.

Times of challenge and opportunity...



This is my first opportunity to provide a foreword to our fantastic Supply Chain Solutions publication. This edition focusses on the key areas of Medical, Manufacturing Solutions and Measurement.

The circulation of this high quality publication is valued amongst GTMA members and an extended audience up through the supply chain to Tier 1's and OEMs. We are continually evolving SCS to increase our market penetration and readership.

Many members are reporting high demand for products and services whilst they battle with the challenges of higher costs for material and energy. Retention and recruitment of staff is challenging companies to adopt different strategies to meet output demands. These are times of challenge and opportunity.

MANUFACTURING SHOWCASE

The timing of this SCS Issue 17 provides an opportunity to showcase our Manufacturing Solutions UK event at RAF Cosford focussed on Defence and Medical, incorporating Make Measurement Matter.

The line-up of speakers and breadth of services and products offered by the exhibitors will ensure that visitors benefit from knowledge sharing and networking. The keynote presentation from Rolls-Royce aerospace will be of particular interest and we also have presentations on SME entry to the defence supply chain.

Other events covered by this issue include Advanced Engineering UK, happening in November 2022. The events programme through the remainder of 2022 and into 2023 reflects significant interest across sectors and the ongoing interest amongst OEM's and Primes to bring work back to the UK.

The medical sector remains a target for many of our members and the complexity of packaging is an opportunity for high value design, tooling and production. It is a challenging element of future pharmaceutical and medical delivery requiring new partnerships to provide resilient supply chains.

**Alan Arthur**  
 GTMA Chief Executive Officer

# Julia Moore signs off as our CEO

## AFTER 25 YEARS A NEW CHAPTER BEGINS FOR GTMA

This is the letter Julia Moore sent to mark the end of her remarkable career as CEO of the GTMA. In it she outlines the many highlights within the association which has seen it grow in its offerings to its manufacturing members.

All at GTMA wish Julia a long, healthy and happy retirement.

**I am extremely proud to announce the appointment of Dr Alan Arthur who will be taking over the role of Chief Executive of the Association on the 1st July 2022.**

I have been CEO of the GTMA for almost 25 years and I am looking forward to handing over the reins to Alan. Alan joined the GTMA in January 2020 as Chief Technical Officer and brings a working knowledge of trade associations and a strong background in engineering which will be a great asset to the GTMA.

This year is the GTMA's 80th Anniversary and marks a wonderful opportunity to open a new and exciting chapter for the Association.

### SIX EU FUNDS

On joining the GTMA, I was initially responsible for delivering six EU funded research and development projects for the tooling industry. Technology has played an important part in the association's development programme throughout the years, and continues today with Additive Manufacture, Composite Tooling, Continuous Fibre Injection Process and Incremental Sheet Forming.

In 2008, the Association was able to relocate from Buckinghamshire to the West Midlands. This move has been instrumental in raising the profile of the Association and strengthened our connection with the manufacturing supply chain throughout the UK.

With technology moving forward into the 'digital marketing age' this was an opportunity the GTMA embraced. This has



gone from strength-to-strength through the resilience of David Beattie.

### GTMA WEBSITE

He is the driving force behind the ongoing development of the GTMA website, as well as setting up GTMA events, which has culminated in June this year with our fourth Manufacturing Solutions Ireland event - our largest show with over 120 exhibitors.

Roger Onions, a Past President of the GTMA, has been leading the technical and supply chain strategy in the GTMA for over 12 years. Our success has been in supporting manufacturers sourcing suppliers in the UK. His broad knowledge in engineering and key industry decision makers has unquestionably provided GTMA with a unique opportunity to forge links with industry.

Andrea Jerromes joined us seven years ago in Alcester and has been a marvellous contributor to our small team. To make everything work together, she brings exceptional administrative and organisational skills and continues to provide the cohesive support for us all to 'punch above our weight.'

More recently, Juliette Hollis joined Team GTMA and delivered a talented social media programme including videos and assisting member companies to see the benefits of a social media platform that the GTMA offers.

Karen Beattie tirelessly delivers another 'jewel', our analytics service for the members, driven through the success of the GTMA's website. The extensive list of testimonials we receive is rewarding and inspiring to us all.

### ISO 9001 IS HERE

In 2017 we gained ISO 9001 certification, and this has certainly contributed to us continuing to operate the Association during the pandemic. With procedures in place, we remained connected to cope with the two years of the Covid 'shutdown.' With our earlier decision seven years ago on our move to Alcester to go on the 'Cloud' we had

the advantage of an immediate and smooth 'plug in and play' on our transition to a home-based workplace.

With communication technology quickly available we were able to quickly adopt a new way of working, and soon we were holding regular online meetings with our members and remarkably able to recruit over 30 new members through these online resources.

### TEAM LEGACY

Our Board of Directors continue to support the team and provide the over-arching review of the Association and our Strategy.



But importantly they allow the team to react quickly to the needs of today's business world where speed of change is so important.

This shows what a legacy a team effort can really create. So, it is with enormous pride that I leave the GTMA, taking many fond memories of a wonderful career gathered over the past 25 years at the Association; and say a fond farewell to the terrific team and Directors at the GTMA, all of the members of the GTMA who are the people we are working for, and the many colleagues I have met and worked with over the years, all of whom have played such a significant part of my time with the GTMA.

**My very good wishes to you all.**

# FORWARD INTO THE FUTURE.....

GTMA'S new CEO promises to continue to partner companies as they move forward...

Picking up the challenging role as the new CEO of the GTMA, Dr Alan Arthur provides a glimpse of the path the Association looks to navigate in its quest for ongoing business growth and success for the membership.

Alan is a Chartered Engineer, embracing a range of technical disciplines across manufacturing, mechanical, and civil engineering.

Over 40 years Alan has worked on a wide range of products and services, with international experience in project delivery and supply chain management. He is an experienced tutor and mentor and has previously worked with other manufacturing trade associations.

#### He writes:

'Against a backdrop of global turbulence, GTMA has grown its membership and extended services through digital marketing and sector penetration.



It has established itself as the primary manufacturing supply chain partner helping OEMs and top tier companies to identify and access services in the UK.

The GTMA operates as a Partner to our members, providing additional resource and skills set to stimulate business growth. This will remain at the heart of everything we do.

My overwhelming aim is that we will continue to deliver a high quality service to our members and identify new areas of opportunity where and as they emerge.

The UK manufacturing supply chain is agile and well placed to deliver into high

performance technologies generating and delivering energy as demand for sustainability and reduced carbon grows.

UK supply chain companies will continue to exploit innovation and compete globally. The renewable energy sector is key now and moving forwards, requiring technology solutions around hydrogen, nuclear, wind, and other complementary energy sources.

It is an exciting time for manufacturers with demand for skills and services remaining high.

Cluster Groups have been a key element of the GTMA strategy, supporting members in horizontal business development into new sectors. Where appropriate we will form alliances to maximise opportunities for members to diversify.

It is an exciting time and I look forward to working with you as we identify and build on the many opportunities out there.'

[alan@gtma.co.uk](mailto:alan@gtma.co.uk)  
[www.gtma.co.uk](http://www.gtma.co.uk)

## Off to a flying start to see Midas carbon net zero success

**One of Alan Arthur's first supplier visits as GTMA CEO was to Midas Pattern Company Ltd to see the significant investment in new machinery and ongoing measures Midas has taken as a certified Carbon Net Zero business.**

The company pledged to become Carbon Net Zero in the middle of 2019 and had achieved Process Carbon Net Zero by June 2020. It took just six more months to become PAS 2060 Scope 1, 2 and 3 Carbon Net Zero as certified by NQA.

Since January 1, 2021, all Midas Pattern Co products, including their PU mouldings, MRIM & FASTrim tooling, foundry pattern equipment, and engineering models, have been delivered completely carbon neutral.

Alan said: "They have a highly impressive list of statistics to support their complete commitment to sustainability. It is great to see this pledge to Carbon Net Zero being carried out and maintained by one of our valued GTMA members."

Alan Rance, Midas MD, said: "On our journey to Carbon Net Zero one of the easiest wins from a carbon reduction perspective was the transition to truly green electricity and the procurement of 100% BioGas.

"Both made a huge indent into our carbon footprint and ultimately led to a decision to cover both of our factory roofs with 650 solar panels. That's 187,000Kwh p.a. of totally green electricity, or around 39% of our annual power consumption."

In addition to 100% green electricity and BioGas, Midas has 100% LED lighting, 100% recyclable packaging, zero single use plastics and zero landfill.

It has also entered into a five-year partnership with a local woodland trust, The Forest of Marston Vale, to support a forestation program that includes the purchase of pending issuing units (PIUs) and the planting of 500 trees a year.

- The two Alan's are seen together during the visit in the photo above.

[www.midass-pattern.co.uk](http://www.midass-pattern.co.uk)

## Rory the Lion helps Mazak celebrate

Rory the Lion was on hand to help GTMA supplier Yamazaki Mazak celebrate 35 years of UK manufacturing in August.

Rory was there at Drayton Manor Theme Park where 750 guests were treated to complimentary use of the theme park, a private lunch and where younger visitors had the chance to meet Rory.

The day also marked 35 years since the manufacturer first opened the doors of its European Manufacturing Plant in Worcester, in 1987, where it has produced over 30,000 machine tools.

It has helped Mazak become the world leader in the manufacture of CNC machine tools.

[www.mazakeu.co.uk](http://www.mazakeu.co.uk)

# £50 million investment by Renishaw to help meet Net Zero targets



**Global engineering company Renishaw is to invest over £50 million at its Miskin site in South Wales to increase manufacturing capacity and to help meet its Net Zero emissions targets.**



A vital consideration for the construction programme is the achievement of GTMA supplier Renishaw Net Zero Scopes 1 & 2 GHG emissions targets. The new facilities will be built with the latest technologies and materials to ensure they will be Net Zero in operation.

The build will also aim to minimise the amount of embodied carbon within the building materials used in construction. By the end of 2024, the company aims to have refurbished the two existing halls at Miskin to reduce their carbon emissions including new energy-efficient cladding and the replacement of existing heating systems.

These sustainability investments complement initiatives at the company's

other global sites, including large investments in roof-mounted solar panels, new car port solar panels, and feasibility studies to assess the viability of wind power.

The new facility will see 400,000 sq ft (37,000 sq metres) of additional low carbon buildings created at the 193-acre site west of Cardiff. There will be two new production halls and an employee welfare facility. The existing production halls will be refurbished to reduce their greenhouse gas (GHG) emissions.

Detailed planning permission for plans to almost double the footprint of the site was granted by the Vale of Glamorgan Council last year. With the company continuing to see strong business growth and having confidence in its long-term prospects, those plans will now be realised.

The investment will give Renishaw the additional manufacturing capacity to meet its forecast sales growth in the coming years and will help achieve its 2028 Net Zero target for Scopes 1 & 2 GHG emissions.

The construction will be completed in phases, with a 15-month programme of work which started in July to build the first of the new halls, the welfare facility and supporting infrastructure.

The basic shell for the second new production hall will be built by December 2024 and will be fully constructed when business levels require its use.

[www.renishaw.com](http://www.renishaw.com)



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# Manufacturing Solutions UK

with Make Measurement Matter

RAF Cosford, September 22



## MANUFACTURING SOLUTIONS IS BACK

Measurement and defence are twin focus areas at RAF Cosford

**For the first time since the pandemic GTMA's Manufacturing Solutions UK event is back.**

The prestigious event is at the RAF Cosford museum, 30 minutes from the centre of Birmingham and ten minutes from Telford (Sept 22, 9am – 2.30pm).

It will be a stunning backdrop to an occasion where GTMA suppliers will showcase their expertise in a range of engineering disciplines. Visitors will learn about the very latest tooling, precision machining, mould and die and other disciplines from GTMA companies, many of whom are UK, European and global leaders in their fields.

### IN THIS SECTION

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Sangha Metrology **17**

Main photo: The last Manufacturing Solutions event and, top and next page, courtesy RAF Cosford.

In previous years GTMA has run Manufacturing Solutions UK and Make Measurement Matter as separate events. This year they have been combined to fit into a busy events schedule. This means there will also be on show key measurement and inspection technologies and service providers.

"Knowledge that could provide your company with a vital competitive edge," says GTMA CEO, Alan Arthur.

"I am delighted at the quality of the suppliers exhibiting. They are a showcase of excellence in engineering and very broad in what they have to offer.

"The technologies and services being demonstrated are at the heart of the advanced manufacturing industry's drive to improve efficiency and productivity while reducing waste and environment impact."

Alan is also delighted at the speakers lined up for RAF Cosford on September 22. "They give us a twin focus on Defence and Measurement," he said.

### THE SPEAKERS

The speakers announced as we went to Press were:

**Rolls-Royce, Dr Phil Bamworth CEng MIMechE. Global lead for Manufacturing**

**Product Verification & Measurement, with Joe Green, Management Team Lead, Rolls-Royce Defence, Bristol.**

"Verifying the conformance of production products is a critical activity in every industry," says Phil. "Efficient and effective product and production design, supported by inspection (where required) are key to having confidence in the products an organisation delivers.

"I have spent my career working across these areas, aiming to ensure we have the right level of confidence at the right cost to the business."

In his current role he is responsible for leading the Rolls-Royce group-wide manufacturing product "verification strategy and metrology community to ensure it has the right capability for today and into the future."

Joe Green has been with Rolls-Royce for around 20 years, first as a Manufacturing Engineer and for nine years was in the Measurement Department specialising in CMM Programming.

He now leads the Defence measurement team and will speak on this.

**Hellios/Joscar, Didde Bjerlund-Martin, Joscar Sector Lead.**

continued from page 9



The Hellios SME Portal was created in collaboration with the JOSCAR Governance Group members in response to the Ministry of Defence's SME Action Plan.

Its purpose is to improve the visibility of SMEs to buyers across the defence, aerospace and security sectors.

**The Hellios SME Portal is a free gateway to help SMEs enter the industry as suppliers. This new, uncomplicated approach helps remove the barriers to entry for SMEs to get in front of major defence, aerospace and security organisations and promote their capabilities.**

It acts as a single repository for pre-qualification and compliance information. Using JOSCAR can determine if a supplier is "fit for business".

As a market intelligence tool, the Hellios SME Portal allows major defence and aerospace organisations to find SME suppliers in one place. Buyers can contact suppliers directly and invite them to join the JOSCAR community by completing the full questionnaire, opening up further business opportunities for SMEs across the JOSCAR buyer community.

<https://hellios.com/sme-portal/>  
[www.gtma.co.uk](http://www.gtma.co.uk)  
[david@gtma.co.uk](mailto:david@gtma.co.uk)

## Where we are meeting...

RAF Cosford, the venue for this year's GTMA Manufacturing Solutions UK event, opened in the 1930s when the RAF needed additional aircrew and technicians. The first trainees arrived in August 1938 and wartime training was intense with about 9,000 there in the war.

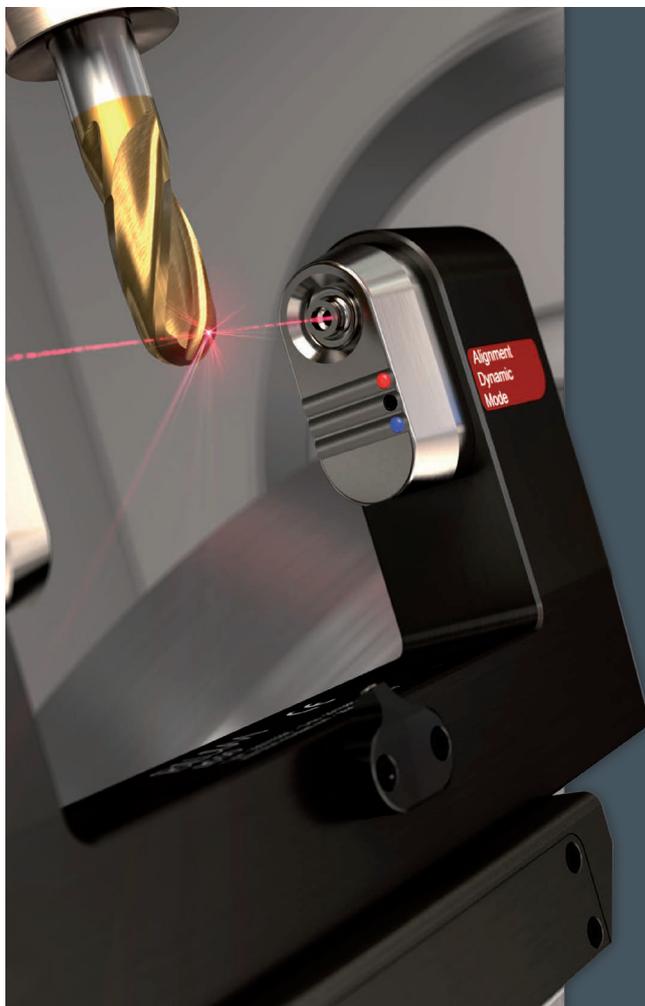
Post-war there was first a reduction but then the Cold War saw its role increase again until on May 1, 1979 it became the Aerospace Museum.

It has continued to grow and now houses a visitor centre, conference centre, art gallery, a temporary exhibitions gallery, two other subject galleries and in May 2002 a new Conservation Centre.

The National Cold War Exhibition was opened by Princess Anne in 2007. It houses exhibits in a landmark building with a unique design that has resulted in many awards and accolades. The Exhibition houses 19 aircraft, tanks, vehicles, models and memorabilia.

It is the only place in the UK where you can view Britain's V-Bombers: the Vulcan, Victor and Valiant.

[www.rafmuseum.org.uk](http://www.rafmuseum.org.uk)



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[BLUM-NOVOTEST.COM](http://BLUM-NOVOTEST.COM)



# THE EXHIBITORS

## **GTMA exhibitors confirmed at Manufacturing Solutions UK as we went to Press are here:**

### **Blum Novotest Stand 9**

[www.blum-novotest.com](http://www.blum-novotest.com)

Renowned manufacturer of innovative and high-precision measuring and testing technology. Develops and manufactures solutions to the highest quality standards with the aim of boosting customer productivity. More than 45 years experience in machine tool, automotive and aerospace, among others. 'Your productivity is what drives us,' Alexander Blum CEO. Also see page 15.

### **Central Scanning Stand 30**

[www.central-scanning.co.uk](http://www.central-scanning.co.uk)

One of the UK's leading 3D scanning and 3D printing companies offering 3D scanning, 3D printing, inspection and reverse engineering. As well as a comprehensive bureau service Central Scanning is a reseller of Artec 3D and Zeiss/Gom.

### **CGTech Stand 25**

[www.cgtech.co.uk](http://www.cgtech.co.uk)

CGTech is the developer of VERICUT, a world leading software for CNC simulation verification, optimisation, analysis and additive manufacturing. It protects CNC machine tools against crashes and collisions, and allows users to create a virtual machining environment.

### **Dayton Progress Stand 19**

[www.daytonprogress.co.uk](http://www.daytonprogress.co.uk)

As part of the Misumi Group, Dayton is one of world's largest manufacturers and distributors of high precision Punches, Dies and Die components for the press & mould tool sectors. Focus is on quality and delivery.

### **Desktop Engineering Stand 15**

[www.dte.co.uk](http://www.dte.co.uk)

Is a leading integrator and reseller of engineering software and systems, serving industries including automotive, aerospace, mechanical engineering etc. Customers include McLaren, ProDrive, BAE Systems, Agusta Westland etc

### **Faulkner Moulds Stand 22**

[www.faulknermoulds.net](http://www.faulknermoulds.net)

Faulkner Moulds has over 35 years' experience of high quality toolmaking and product and tool design and was awarded UK 'Toolmaker of the Year' at the 2019, 2018 and 2016 Plastics Industry Awards. Aims to always deliver the very highest quality precision tooling, efficiently and competitively priced. Combines latest technology with superb manual skills. Also see page 23.

### **Fenton Precision Engineering Stand 5**

[www.fentonprecision.co.uk](http://www.fentonprecision.co.uk)

UK market leaders for design, precision tool making, and injection moulding services. Over 49 years experience in precision injection mould tooling, press tools, jigs and fixtures. Also has two injection moulding factories.

### **Filtermist Systems Stand 11**

[www.filtermist.co.uk](http://www.filtermist.co.uk)

Filtermist efficiently removes oil and coolant mist, fume, steam, dust, smoke and vocs from the air in industrial workplaces. Part of the Absolent Air Care Group, the company is best known for the manufacture of a range of compact, quiet and efficient oil mists filters used and trusted by world leading manufacturers in 60 countries. Also see page 49.

### **GOM UK Stand 37**

[www.gom.com](http://www.gom.com)

A leading innovator in developing optical 3D metrology systems and measurement software. It develops, produces and sells software and systems worldwide for 3D coordinate measuring technology and 3D testing.

### **Guhring Stand 4**

[www.guhring.co.uk](http://www.guhring.co.uk)

World class manufacturer of precision cutting tools and allied tooling for engineering and manufacturing industries. Offers wide choice of standard drills, taps, milling cutters and countersinks all stocked in the UK.

### **Heidenhain (GB) Stand 13**

[www.heidenhain.com](http://www.heidenhain.com)

Leading developer and manufacturer of position encoders, digital readouts, touch probes and TNC/CNC numerical controls. Is the UK subsidiary of Dr JOHANNES HEIDENHAIN, the leading manufacturer of precision measurement and control equipment. Its superior technology is used in high-precision motors, motion control and machining systems worldwide. Also see pages 28-29



Courtesy Blum Novotest

### **IMSM Stand 3**

[www.imsm.com](http://www.imsm.com)

ISO standards consultancy serving customers across a wide range of business sectors in implementation of quality, environmental, health & safety, information security, business continuity management and many other ISO standards.

### **Indysoft Europe**

[www.indysoft.co.uk](http://www.indysoft.co.uk)

IndySoft is recognised as supplying the best 'commercially available' Enterprise-wide range of gauge management, instrument calibration and tool management software tools on the market today. Almost 20 years of continuous development, based

on thousands of global licence sales, has enabled Indysoft to understand industry requirements. Also see page 36.

### **Kemet International Stand 9**

[www.kemet.co.uk](http://www.kemet.co.uk)

Leader in precision lapping and polishing technology using diamond compounds and suspensions on Kemet composite lapping plates. Has four divisions supplying machines/equipment, diamond abrasives and other consumables for Lapping/ Polishing, Ultrasonic Cleaning, Precision Engineering Tools and Metallographic/Petrographic sample preparation/analysis. Also see page 35.

### **Masterflow Stand 28**

[www.masterflow.se](http://www.masterflow.se)

Part of the Ewebe Group, founded in Sweden in 1939. It has the slogan "Att lita på" or "To rely on", which are the company's watch words. Products cover Screwed-in Manifold Systems, Single and Manifold Valve Gate Systems, Cold-Half Manifold Systems, Bushing and End Caps, Floating O-Ring Manifold Systems and Round Manifold Systems. There is in-house development, manufacture and quality control. Also see page 16.

### **Meusburger Stand 24**

[www.meusberger.com](http://www.meusberger.com)

Market leader in high-precision standard parts for die, mould and jigs & fixtures construction. Product range of 93,000 items from high precision standard parts and workshop equipment to hot runner and control systems

### **Moldino Tool Engineering Europe**

**Stand 31**

[www.moldino.eu](http://www.moldino.eu)

Decades of experience in die and mould industry and with a range including solid carbide end mills, miniature and micro end mills, diamond coated end mills, indexable milling tools, non-step-carbide drills, and circle-segment 'barrel type' tools.

continued on page 12

continued from page 11

## National Physical Laboratory (NPL)

### Stand 18

[www.npl.co.uk](http://www.npl.co.uk)

NPL is the UK's National Measurement Institute. It is a world leading centre of excellence in developing and applying the most accurate measurement standards, science and technology available. Its world class capabilities provide support to industry.



Courtesy Quickgrind

## Optimax Imaging Inspection & Measurement

### Stand 26

[www.optimaxonline.com](http://www.optimaxonline.com)

Supplier of application specific inspection and measurement solutions for automotive, aerospace, engineering and electronics sectors and many more from plastics to ceramics. Passionate about metrology and helping its customers enhance their quality and production processes.

## Pemberton Engineering

### Stand 23

[www.pembertonengineering.co.uk](http://www.pembertonengineering.co.uk)

Pemberton Engineering offers a complete turnkey service for the manufacture of press tools, jigs and fixtures. With over 35 years experience it provides high quality at competitive prices and is the supplier of choice for many OEMs from a diverse range of industry sectors, notably automotive. Lead times and a prompt repair service are high priorities. Also see page 13.

## Petford Tools

### Stand 14

[www.petfordgroup.co.uk](http://www.petfordgroup.co.uk)

Petford is one of the UK's leading tool making and injection moulders.

Its specialist advice and unique, diverse production systems, allow it to offer straightforward, exciting practical tool making solutions. Its large skilled workforce can resolve any aspect of its client's complex needs.

## Quickgrind

### Stand 6

[www.quickgrind.com](http://www.quickgrind.com)

Quickgrind has an international reputation for the design, development and manufacture of solid carbide and high speed steel cutting tools either off-the-shelf 'standard' items or purpose designed and manufactured to meet customer needs. Sectors served include aerospace, auto, medical and general engineering. Quickvend ([www.quickvendsystems.com](http://www.quickvendsystems.com)) are inventory control specialists. Also see page 18.

## Roemheld UK

### Stand 25

[www.roemheld.co.uk](http://www.roemheld.co.uk)

Roemheld delivers high quality and high accuracy workholding and handling technology to companies around the UK. The company's diverse product range includes high and low pressure hydraulic clamps, work supports and accessories, zero point technology, vice systems including 5-axis clamping, magnetic clamping and modular handling technology for use in automated cells, etc. Also see page 13.

## RUD Chains

### Stand 16

[www.rud.co.uk](http://www.rud.co.uk)

RUD manufactures and supplies a range of high quality round steel link chains, components, lifting equipment and systems. Its product portfolio includes Lifting and Lashing equipment, and Conveyor and Drive technologies.

## Sangha Metrology

### Stand 19

[www.sanghametrology.com](http://www.sanghametrology.com)

For over 25 years Sangha Metrology has designed and manufactured three point bore gauges, calibration systems and hardness testers. Its internal

diameter bore gauges measure standard diameters as well as bespoke applications such as tapers, splines, slots, depths, O-ring grooves and spheres. The Sangha TruCal Calibration system is widely used to calibrate bore gauges. Also see page 17.

## Sprint Tool and Die

### Stand 41

[www.sprinttoolanddie.co.uk](http://www.sprinttoolanddie.co.uk)

Designs and manufactures precision injection mould tools and high pressure dies. All toolmaking processes are carried out in-house, ensuring total control over design, material specification and production methods.

## The 3D Measurement Company

### Stand 34

<https://t3dmc.com/>

A UK leading supplier of 3D engineering solutions and ISO9001 certified by Interface NRM, a UKAS accredited certification body. Specialises in 3D measurement, quality & inspection, reverse engineering and 3D measurement system solutions. Over 30 years combined experience.

## The Sempre Group

### Stand 38

[www.ThesempreGroup.com](http://www.ThesempreGroup.com)

Works with clients as partners to select the best solution from a comprehensive range of metrology systems and software. Provides tailored solutions to help business achieve tangible outcomes in industries from medical devices to aerospace.

## TLM Laser

### Stand 10

[www.tlm-laser.com](http://www.tlm-laser.com)

Laser sales, service and maintenance specialists providing industrial machines for laser cutting, engraving, marking, hardening, cladding, 3D printing and welding plastic and metal. TLM also provides laser safety equipment including glasses, goggles and windows as well as safety training and support. Laser services include Technical Support, Laser Maintenance and Training as well as a job shop

Laser Marking Service. Also see page 37.



Courtesy The Sempre Group

## Tri-Tech 3D

### Stand 8

[www.tritech3d.co.uk](http://www.tritech3d.co.uk)

UK leading supplier of Stratasys and Desktop Metal 3D print technology. Offers full range of Stratasys FDM and PolyJet technology, alongside 3D metal printing solutions as a Desktop Metal Platinum partner.

## Vision Engineering

### Stand 17

[www.visioneng.com](http://www.visioneng.com)

Global leading-edge manufacturer of patented ergonomic stereo microscopes, digital inspection microscopes, CMM and non-contact measuring systems. Its unique patented eyepiece-less microscopes save manufacturers many man-hours and ensure quality and conformance to required specifications. More than 500,000 measurement systems shipped to date. Also see page 27.

## Wenzel UK

### Stand 29

[www.wenzel-group.com/uk](http://www.wenzel-group.com/uk)

Innovation meets tradition at Wenzel – Precisely. The name stands for the highest precision, reliability and latest technology. Product range includes the new Generation LH CMM along with an extensive range of metrology machines such as mobile measuring arms, computed tomography systems and optical high speed scanning solutions for aero, auto and medical sectors etc. Also see pages 15 and 39.

# ROEMHELD PROMOTES INTELLIGENT WORKHOLDING PRODUCTS AT RAF COSFORD

**Manufacturing Solutions exhibitor Roemheld is highlighting various models within its large range of Hilma single, double and tower workholding systems and accessories.**

Most flexible is the GTMA Supplier's Hilma VarioLine vice, which may be used vertically or horizontally and is quickly adaptable to different workpiece sizes due to magnetically-secured, quick-change jaws that can be exchanged in a single action.

They can be individually configured using various parameters to adapt them to different machines and applications.

Another popular vice in the Hilma range is the MC-P, intended for securing parts during 5-axis machining.

It is able to grip on just 3 mm of stock, reducing raw material costs and offering excellent accessibility to the workpiece yet providing precise, stable workholding for completing first and second operations in a single clamping. The compact design enables collision-free tool paths and the use of short, standard tools.

If workpieces have to be produced on multiple different machines in succession, set-up times can be minimised using zero-point clamping systems such as those manufactured by Stark. One product is the 'SPEEDY connect' double-acting, pneumatic workholding arrangement.

An integral electronic sensor enables their incorporation into Industry 4.0 applications by indicating the clamping status via LEDs at the rear. The signals can be transmitted digitally to a higher level control system and clamping actuation can be integrated directly into a machine control.

Taking integration of workholding into an automated manufacturing process a stage further, STARK.intelligence is a new, modular, sensor-based system that can be combined with various STARK zero-point clamping systems.



The STARK.intelligence sensor system from Roemheld enables data on workpiece loading and unloading in a zero-point fixture to be integrated directly into an automated manufacturing process.

Easily retrofittable to machine tables and quick-release fixture plates, it digitalises the clamping process by enabling recording of the status of the workholding.

Each fixture is equipped with its own sensor box to measure position, temperature and pressure in real-time. Data is output to a master unit that communicates with various devices, such as the machine tool's control screen, computers in the quality assurance department or the service engineer's smartphone.



[www.roemheld.co.uk](http://www.roemheld.co.uk)

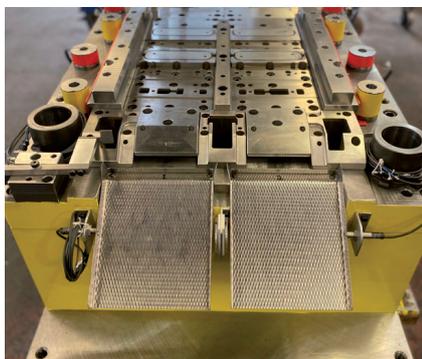
## PEMBERTON ENGINEERING – PUTTING CUSTOMER SERVICE FIRST...

**Formed almost 40 years ago Pemberton Engineering Limited has grown in capacity and stature in the press tool supply chain.**

Lead times are a high priority and its manufacturing expertise includes a complete turnkey service for the manufacture of press tools, jigs and fixtures, with high quality tooling at competitive prices.

The GTMA supplier strives to put customer service at the forefront of its business and is now expanding from its traditional base in the automotive sector after recent investments in plant, software and training of its younger team "who are key to the company's future."

The family run business, like many others, has seen how a strong balance sheet is needed to navigate the "choppy" waters of uncertainty. "We are proud to be a family business and like to ensure our customers receive a



friendly, helpful service backed up with great knowledge and experience," it says.

The company is now well placed to support the UK pressings industry and despite many headwinds over the past few years, including the pandemic, Brexit and supply issues within the automotive industry as a whole, Pemberton Engineering is now beginning to see a much more promising year ahead.

Managing Director, Darren Pemberton, points out: "We have been having some great conversations with exciting new customers that are now starting to convert into solid orders."

Its current customer base is starting to gain real traction and the company is excited for the next year with plenty of "irons in the fire."

More investment is planned in the next 12 months into the CNC side of the business. The company's tooling offering is constantly growing in both size and complexity, so the business is looking to add in the necessary machining capacity.

Re-shoring, it says, is making its diversification easier as more industries are looking toward shortening supply chains and sourcing more locally.



[www.pembertonengineering.co.uk](http://www.pembertonengineering.co.uk)

**Products to simplify processes and reduce costs**

MasterFlow UK is part of the Ewebe Group, formed in Sweden in 1939. Its slogan is Att lita på which means "To rely on."



Trust and reliability are at the heart of MasterFlow's service. See details on our website of products including:

- Single bushings
- Floating O-ring manifold systems
- Screwed-in manifold systems
- Round manifold systems
- Valve gate systems
- Zone controllers
- Sequential filling controllers

**MasterFlow UK – THE SUPPLIER YOU CAN RELY ON**

MasterFlow UK, 1 Midland Court,  
Central Park, Lutterworth, Leics LE17 4PN

01455 558 764

info@masterflowuk.com | www.masterflow.se

**Masters of Measurement  
Since 1990**

Sangha are the leading manufacturer of internal and external diameter three point bore gauges.



We are proud to have provided metrology instrumentation solutions across many sectors of industry including aerospace, automotive and defence.

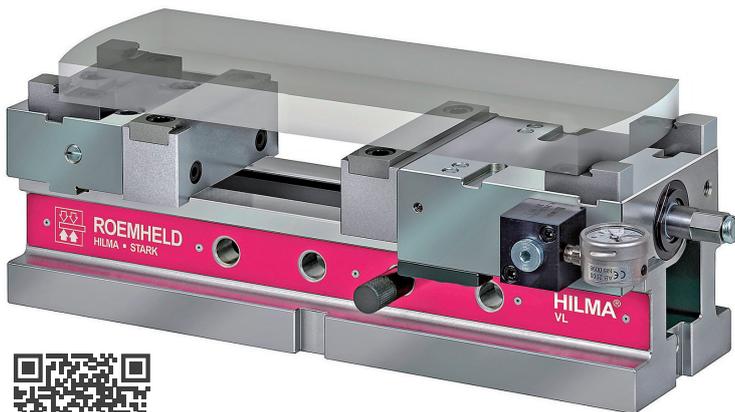


With over 30 years experience in the field and a global reputation for quality, excellence and innovation, Sangha are the trusted name in bore gauging.

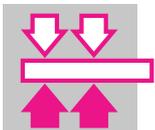
We look forward to discussing your metrology requirements.

+44 07708 967805  
www.sanghametrology.com  
sales@sanghametrology.com

# Flexible machine vice from Hilma



- Rapid adjustment to different workpiece sizes
- Magnetically secured quick-change jaws
- Exchange jaws in a single action
- Adaptable to different machines and applications
- Use horizontally or vertically



**ROEMHELD**

HILMA ■ STARK

Find out more at  
[www.roemheld.co.uk](http://www.roemheld.co.uk)  
or call **01462 459052**

**Roemheld workholding.** Driving Innovation through Manufacturing

# WENZEL FOCUS ON INNOVATIVE SOLUTIONS

## SURGICAL MEDICAL TEAM BENEFIT IN NEW MANUFACTURING FACILITY

**WENZEL UK is part of the WENZEL Group, the leading manufacturer of metrology systems.**

The company's focus is on innovative solutions in various fields of expertise such as Coordinate and Gear Metrology, Optical High-Speed Scanning and X-ray Computed Tomography.

The GTMA supplier and Manufacturing Solutions exhibitor prides itself on implementing these solutions in the precision engineering, aerospace and medical industries.

An example is a recent order from a global surgical robotics business for Wenzel's proven LH 87 Bridge CMM with granite reinforcement in all three axes.

This was Wenzel's second order and the machine will be stationed at the customer's



new metrology centre which itself will be housed in a new facility spanning 7,044 square metres.

There will be 200 skilled employees initially from production, quality, manufacturing engineering, supply, operations, and logistics in the facility close to the company's headquarters in Cambridge.

The LH 87 will be delivered with WENZEL's Active Damping System and Premium-

Select accuracy (1.2 micron +L/450) together with on-line temperature compensation.

The CEO said: "We continue to see strong demand for our medical robotics in markets around the world and our commitment to building a new manufacturing facility reflects this whilst

highlighting the scale of our ambition to transform surgery.

"The addition of the second WENZEL machine reflects the satisfaction and confidence of our metrology team and will be crucial in helping us deliver systems to benefit patients in all corners of the world."

[www.wenzel-metrology.uk](http://www.wenzel-metrology.uk)

Also see: Wenzel in medical sector, page 39.

# 'FOCUS ON PRODUCTIVITY' MAKES BLUM NOVOTEST A REAL LEADER...

**Blum Novotest is a renowned manufacturer of innovative and high-precision measuring and testing technology. It develops and manufactures solutions to the highest quality standards with the aim of boosting customer productivity. It offers:**



Systems from Blum Novotest focus on boosting productivity.

**Quality** – Advanced and absolutely reliable solutions that meet the highest quality standards are at the heart of the company. Its sole function is to "guarantee the efficiency of your manufacturing process."

**Innovation** – Blum sees itself as technological pioneers and innovators in the field of measuring and testing technology. "With us, you are always one step ahead."

**Reliability** – Its products stand for uncompromising precision in every

environment. This means you are always on the safe side.

**Personality** – Blum fosters long-term partnerships with its employees, customers and business partners. After all, fairness, trust and reliability are always built on mutual cooperation, it says.

**Commitment** – Blum's comprehensive service extends far beyond the normal and is fully focused on the individual needs of its customers. Your success is its success.

### MEDICAL LEADER

The Manufacturing Solutions exhibitor operates across sectors including medical. "To remain internationally competitive, the manufacturing processes of medical technology products such as implants and surgical tools are increasingly automated," it says.

The Blum Measuring Components division has supported numerous medical technology companies for many years with machine-integrated workpiece and tool measurement systems.

Implants or medical instruments always involve complex geometries and extremely fine tolerances in the  $\mu\text{m}$  range. Consequently, it pays to measure these workpieces, which are



made from costly materials such as titanium or Inconel, in the original setting in order to avoid rework and rejects.

Thanks to the touch probe series from Blum-Novotest, compromises between safety and machining time during the process are a thing of the past

But the measuring and testing technology by Blum-Novotest is used in the production of many everyday products.

Be it smartphones, watches, automobiles, medical implants, aircraft, rotors or even children's toys – the forward-looking technology presented under the slogan "focus on productivity" helps leading customers across a range of industrial sectors produce optimum quality at economic prices.

[www.blum-novotest.com](http://www.blum-novotest.com)





**Designer and manufacturer of press tools, jigs and fixtures**

Pemberton Engineering offers a complete “turn-key” service for press tool, jigs, and fixture manufacture. Providing high quality tooling at competitive prices.

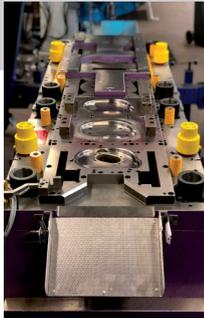
- ◆ Project & time management
- ◆ In house design and manufacture
- ◆ Product tracking system
- ◆ CNC machining & wire erosion
- ◆ CMM machine facility
- ◆ Reverse component engineering



**Products & Services**

Specialising in press tooling, we design and manufacture many different types of tooling for a wide and diverse range of applications, we specialise in the following types of tooling:

- Progression tooling (including in press fixings)
- Transfer tooling
- Single action suites of tools
- Assembly tooling
- Jigs and fixtures
- Inspection fixtures



t: 01902 603887  
 e: pembertoneng@btconnect.com  
 w: www.pembertonengineering.co.uk



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We also offer a comprehensive aftermarket service including COSHH compliant LEV testing



www.wenzel-group.com

# MASTERFLOW UK – WHERE ‘TO RELY ON’ DELIVERS COST SAVINGS AND QUALITY

**MasterFlow UK is part of the Ewebe Group and has been in the business of plastic material and machinery since 1939.**

Founded in Sweden it is family owned and with the sale, development and in-house production of the MasterFlow hot runner system is now expanding in Europe and Asia.

In the hot runner business since 1981 and with thousands of systems manufactured and delivered it guarantees the best assistance from mould design to production optimisation.

Many of its products help to simplify processes and reduce costs for the toolmaker and give the injection moulders process advantages.

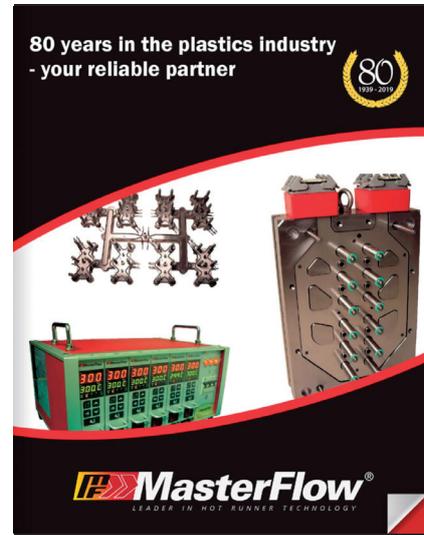
“Our engineers and skilled workers will not compromise with high quality and a MasterFlow mark should always mean fast and competent service, satisfied customers

and a reasonable price,” it says. Single bushings can be supplied for new tooling, or for retrofit to existing tools.

Its website has detailed information on product groupings under these headings:

- Screwed-in Manifold Systems
- Single and Manifold Valve Gate Systems
- Cold-Half Manifold Systems
- Bushings and End Caps
- Floating O-Ring Manifold Systems
- Round Manifold Systems

Since 1981, MasterFlow has manufactured and delivered thousands of systems. When the current owner and Managing Director took over the company many years ago, he coined the slogan “Att lita på” or “To rely on”, as the most single important characteristic and aim of the company. The successful MasterFlow brand was launched in 2002. “To rely on” was the motivation, and good design, quality and reliability were at the forefront of the engineer’s minds.



A tight control system is in operation with in-house development and manufacture in south Sweden. In the UK, sales, support and spares are all centrally based in the Midlands.



[www.masterflow.se](http://www.masterflow.se)

## SANGHA METROLOGY’S ENVIABLE RECORD IN THREE POINT BORE GAUGES

**Sangha Metrology has an enviable track record in the design and manufacture of internal diameter three point bore gauges.**

It has an enviable track record in the design, development, manufacture and distribution of world-class internal and external diameter measuring gauges with precision tolerances.

Since 1990, it has worked with global industry to design and develop exceptional performance and demonstrably accurate measuring instrumentation. Its global client base of small, medium and large blue chip companies is testament to its tried and tested capabilities in the area of precision measurement.

It has developed numerous bespoke and standard instruments which measure applications such as internal diameters, external diameters, slots, depths, o-ring grooves, tapers, chamfers, splines, deep bores and many more special requirements that demand bespoke applications as well



as standard range instrumentation. It has designed and manufactured three point bore gauges, calibration systems and hardness testers for over 25 years. Examples of its systems include:

The Sangha TruCal Calibration System which is a mainstay of laboratories and large scale users of bore gauges. It offers a simple way to quickly and accurately calibrate bore gauges.

The Sangha Portable Hardness Tester came from a collaboration with Mitutoyo resulting in an accurate, simple to use and affordable hardness tester for shop floors

and inspection areas. Sangha Metrology measurement ranges start from 1mm up to 500mm.

If you have a measurement problem that requires a fast turnaround with exceptional accuracy, effective and expert project management, and NABLE or UKAS certification, then Sangha can help you.

If its standard range of instruments cannot solve your problem, then its sought after Sangha Special Application may.



[www.sanghametrology.com](http://www.sanghametrology.com)

# New multi-axis machining centre is a medical hit at Limerick show

**The manufacture of components for robotic surgical components is just one of the areas benefiting from a recently launched multi-axis machining centre from GTMA supplier Starrag UK.**

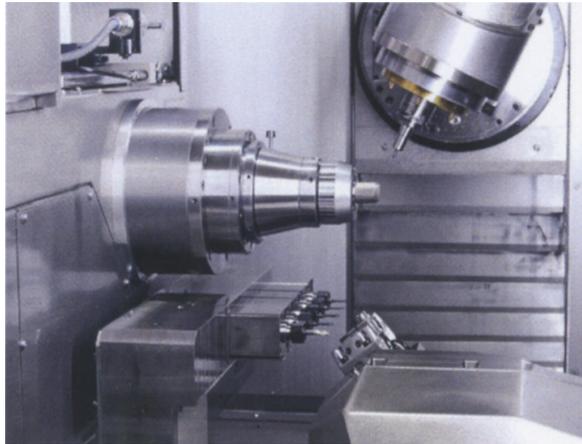
The company was one of the exhibitors at the Manufacturing Solutions Ireland event in Limerick earlier this year, where it reported it had “a long list of follow-up appointments with companies of every size.”

The event was jointly organised by the GTMA and TUS (the Technological University of the Shannon), It saw Starrag carrying out cutting demonstrations on its just-launched Bumotec 191neo multi-axis machining centre. “It attracted interested visitors non-stop throughout the two-day exhibition,” says the company.

Among those impressed was Galway-based precision engineering specialists Dawnlough Ltd which has now installed the Swiss-built, computer numerically-controlled (CNC) unit at its 50,000 sq ft site to enable the company to “create a more stable and more efficient process” for the manufacture of a variety of components for robotic surgical applications.

Dawnlough is a leading provider of precision engineered components, assemblies and custom equipment. In many cases it acts as a one-stop manufacturing service to medical device and aerospace companies in Ireland and further afield.

The Limerick the exhibition attracted more than 1,600 exhibitors, delegates, manufacturers and visitors “and it feels like most of that number



Photos courtesy Starrag. Its Bumotec 191neo multi-axis machining centre has attracted a lot of interest.

visited our stand,” says Starrag UK’s Director for Sales and Applications, Lee Scott.

“We were busy non-stop for both days discussing potential applications for the Bumotec and, as a result, we have a long list of follow-up appointments with companies of every size.

“It is no exaggeration to say that we had successful conversations with a tremendous number of medical device and aerospace OEMs and sub-contractors.”

As well as being a cost-effective route to the machining of small, complex parts (also for the luxury goods and micromechanics sectors), the popularity of the Bumotec machine for medical device manufacturing was undoubtedly bolstered by the fact that it was powered up and machining ‘live’ during the exhibition.

The machine – which combines a host of different operations such as milling and turning

with grinding, polishing, skiving, gear hobbing and diamond cutting – was producing lumbar interbody fusion cages, for spinal fixation, from 40 mm diameter polyether ether ketone (PEEK) bar, using up to 15 tools in a single set-up, including finishing the component fully deburred.

The ability of the nine-axis Bumotec 191neo to manufacture complex parts in a single set-up was the determining factor in Dawnlough Ltd becoming the first company in Ireland to install the machine.

Managing Director Brian McKeon said: “Compared to our existing five-axis machining route on particular processes – components for robotic surgical applications – we recognised how the Bumotec’s multi-axis, high-accuracy capabilities would enable us to create a more stable and more efficient process.”



[www.starrag.com](http://www.starrag.com)

## Less can be More at Quickgrind...

**GTMA supplier Quickgrind has been at the forefront of tool design and manufacture for almost 50 years.**

It has an international reputation for solid carbide and high speed steel-cutting tools for the extrusion die, fabrication, die and mould, medical, aerospace, automotive and general engineering industries.

Quickgrind is trusted for its expertise and responsiveness to help companies solve their solid carbide cutting tool challenges quickly and effectively.

It is experienced in developing high speed machining (HSM) strategies and has a track

record of turning its customers’ difficulties into opportunities to cut costs, improve productivity and raise performance, as well as manage supply chain risks.

Delivered by a highly trained and motivated workforce, Quickgrind products and services reflect the very best in British engineering heritage, quality and innovation.

They include:

- Immediate delivery of high quality off-the-shelf tools
- Advice on tool selection and handling to increase efficiency
- Design and delivery of tailor-made tools with the market’s shortest lead time

- Point-of-use tool vending for added security and productivity
- Re-manufacturing of tools to ‘as new’ standard – up to seven times.
- Medical and general engineering industries.

An example of its total solutions engineering approach was when it helped its client to reduce its tool inventory on one machine from 32 tools to just 9, while at the same time improving productivity and quality.

[www.quickgrind.com](http://www.quickgrind.com)



Quickgrind is also at GTMA’s Manufacturing Solutions event at RAF Cosford. See pages 9-17.

# GTMA'S MEDICAL CLUSTER - A BUYER'S GUIDE



## WE'RE HERE TO SERVE...

GTMA'S MEDICAL CLUSTER WAS FORMED IN RESPONSE TO THE NEEDS OF THE COVID PANDEMIC IN THE SPRING OF 2020.

In a stunning response 60 GTMA suppliers stepped forward to help the UK's effort to manufacture ventilators and personal protection equipment (PPE) in this hour of need.

Soon they were involved in a response to an approach for help from the University College, London, which formed a consortium based around the F1 teams. Its aim was to raise the capability/capacity to produce ventilators for the estimated NHS requirement of 30,000.

The result, with the help of GTMA suppliers, was a breathing aid

known as Continuous Positive Airway Pressure (CPAP), used since then extensively in hospitals in Italy and China to help Covid-19 patients to breath. The NHS ordered 10,000 within weeks.

The GTMA supplier efforts were recognised by the UCL. "We want to extend our deepest appreciation to the members of GTMA that have responded to our call for support. Over 60 have submitted named contact details and many of these have been actively engaged in our supply chains," it said.

What began as a response to an emergency has grown into the GTMA Medical Cluster - a valuable engineering resource with relevance right across the medical supply chains...

### FEATURED SUPPLIERS

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Suppliers continued on next page

## 100 suppliers now on call to fill manufacturing supply chain gaps

**There are now more than 100 suppliers in GTMA's Medical Cluster and it is increasingly being recognised as a valuable resource for medical device and related supply chains.**

The engineering pedigree is wide-ranging and the members are leaders both in the UK, Europe and worldwide.

Cluster suppliers include leading companies in precision machining, toolmaking, additive manufacturing, metrology, tooling technologies, component design and many others.

They can be involved at the very early stages of product development right the way through to specialised finishing

processes. Many have cleanroom facilities and almost all have ISO quality standard accreditations, including the key standards relevant to medical.

Buyers seeking suppliers who specialise in medical device design through to those offering prototyping and short run manufacturing are welcome as are those seeking specialised services such as help with attaining medical quality standards.

GTMA CEO Alan Arthur said: "I would urge companies in medical – in fact in all sectors – to contact us if they have supply chain problems. As we showed when Covid began our suppliers have a wealth of experience and importantly have the right accreditations.

Photos courtesy (l to r): Medpharm, GSK and Lonza.

continued on next page

continued from previous page



"Innovation is the key point in tooling to support global markets and customers, continuous training is a must to maintain leverage of knowledge within the most advanced fields of materials and technology application and investment is needed to maintain a competitive edge."

The medical know how within GTMA has grown over the past two years through a series of meetings, including webinars, and increasingly the association and large numbers of suppliers have been attending medical exhibitions around the UK.

Roger Onions, GTMA's Business Development Director, says: "Medical is a very important market now with the UK in a leading position globally. As demand grows for ever more complex devices the alignment and capacity of the manufacturing supply chain in the UK is vital.

"The exacting standards required by the medical sector are ideally suited to those companies currently operating in aerospace and other high tech industries."

**The in-depth resource of the Cluster's membership is underlined by the GTMA's current annual Supplier Directory. This is 458 pages and the Products & Services Index in it lists more than 1250 products with suppliers covering areas including:**

- Additive Manufacturing
- CNC Precision Machining
- Composites
- Electronics
- Forgings & Castings
- Hydraulics
- Metrology
- Mould & Die
- Moulders
- Pattern Making
- Polishing
- Power Transmission
- Precision Machining
- Press Tools
- Pressed Components
- Rapid Prototyping
- Software
- Special Purpose Equipment
- Specialist Welding
- Tooling Technologies & Materials
- Training
- Workholding, Cutting & Ancillary Equipment

The Directory is also on-line at [www.gtma.co.uk](http://www.gtma.co.uk) where buyers can search by product name or company name.

For more information about the GTMA Medical Cluster and how it can help your supply chain contact: [alan@gtma.co.uk](mailto:alan@gtma.co.uk)

[www.gtma.co.uk](http://www.gtma.co.uk)

## MEDICAL DEVICE PACKAGING IS DRIVING INNOVATION IN A CHANGING WORLD.....

As we move more towards self-delivery of drugs and treatment, and ever more complex orthopaedic solutions, the demand for effective and efficient packaging is driving innovation.

Across the wider medical and pharmaceutical industry packaging presents as much of a manufacturing challenge as the device or component it holds. The intricate systems for automated handling, manufacture and packaging present challenges across the manufacturing spectrum.

Typical applications include medication, syringes (both empty and filled), surgical instruments, surgery kits, artificial joints and implants.

**Here Alan Arthur, GTMA CEO, discusses some of the issues...**

**Every medical device is unique, both in terms of design and use. The packaging design and manufacturing used for distribution should also be chosen with the same level of careful considerations.**

The demand for accuracy and automation place emphasis on everything from material through design, and automated manufacture. Device components and parts for the automation processes on core production and assembly lines may need to be re-qualified for any major changes – a costly and time-critical consideration.

## FEATURED SUPPLIERS continued from previous page

<b>Indysoft Europe</b>		<b>Kemet International</b>	
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Photos courtesy Lonza and 3M Petrifilm



This area is of increasing interest to supply chain manufacturers, offering opportunities in the handling equipment alongside the moulding/forming of the packaging itself.

### Companies influencing this market

The market for devices is dominated by global companies including DuPont, 3M Company, Westrock Company, Amcor Limited, Berry Plastics Corporation, Avery Dennison Corporation, CCL Industries Inc., Bemis Company, Sonoco Products Company, West Pharmaceutical Services, Technipaq and Tekni-Plex.

In the UK significant processors and manufacturers also include CME Ltd, Coda Plastics Ltd, Mpac Group, PCI Pharma Services, Presspart Manufacturing Ltd, Skymark Packaging Int'l Ltd and Softbox Systems Ltd.

### Global medical packaging market segmentation:

By Type

- Medical equipment & tools
- Medical devices
- IVDs
- Implants

By Application

- Polymer
- Paper & paperboard
- Non-woven fabric
- Others

### Compliance:

Since its introduction in 2006, the international standard ISO 11607 has become the go-to guidance for sterile medical device packaging. Other packaging may not need the same level of sterile protection, and the array of medical devices encompasses non-invasive operational elements.

The most crucial element of ISO 11607 is its stringent requirements for testing of the materials used to maintain the sterile barrier systems and packaging systems, as well as the validation of packaging processes. Not only is it extensive, it also must be checked and rechecked throughout the product lifecycle.



Packaging validation is still important for non-sterile devices. Though rarely specified via safety standards like IEC 60601, there are standards such as ASTM d4169, ISTA2, ISTA2a, etc that could be followed.

Product lifetime can be affected by the components used, cleaning materials, use and environment etc. but may be overridden by sterile packaging limitations.

For new devices, there are three primary categories of package validation testing:

- Integrity, or the characteristics preventing the growth of micro organisms
- Strength, or the strength/force needed to open the packaging
- Microbial Barrier, confirmation that the chosen porous materials provide an adequate barrier.

For each category, there are multiple tests used to evaluate a pass or fail for the packaging. Manufacturers are required to choose at least one test from each category. Some of the primary tests are:

- **Integrity Tests:** Bubble Emission Test, Dye Migration Test, Dye Immersion
- **Strength Tests:** Seal Peel Test, Burst Test, Creep Test
- **Microbial Barrier Tests:** Microbial Ranking, Whole Package Aerosol Challenge.

Manufacturers are required to complete a validation report to confirm the forming, assembling, wrapping, and sealing of the medical device. Additionally, IQ, OQ, and PQ (installation qualification, operational qualification, and performance qualification, respectively) are all required for sterile barrier systems.

ISO 11607 identifies some basic standards medical device packaging should meet:

- Made of known and traceable materials
- Non-toxic, non-leaching and odourless
- Free of holes, cracks, tears, creases, and localised thinning
- Intended for use in medical applications
- Allow sterilisation
- Maintain sterility up to the point of use
- Allow aseptic presentation.

From there, manufacturers will need to consider the design and functionality of the device: the specific nature of the medical device. Some specific areas to address:

- What are the intended sterilisation methods?
- What is its intended use?
- Where will it be used?
- Who are the end-users?
- How will it be transported?
- How will it be stored and for how long?
- What is the device expiration date?

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**FAULKNER MOULDS**

# 'UK-FIRST' TECHNOLOGY FOR MULTI-CAVITY HIGH PERFORMANCE TOOLING

**Award-winning UK Toolmakers Faulkner Moulds has again installed trail blazing technology at its Yorkshire-based toolroom.**

The company's innovative robotic production cell is a 'UK-first', and further enhances the quality and efficiency of the mould tool manufacturer. The production cell particularly supports multi-cavity, high-production tooling.

The pioneering manufacturing cell will feed both the Mikron 5-Axis and Sodick spark erosion machines, enabling automated changes of electrodes and of workpieces, further increasing capacity for high cavity tooling, of which Faulkner Moulds has sound experience.

For example, the tool pictured has 16 impressions and is guaranteed for a million shots and moulds at an efficient 7 second cycle time. Faulkner Moulds recently reduced the cycle time on a new 12 impression packaging tool for a household name, from a target of 8.5 seconds to just 6.98 seconds.

Managing Director, Duncan Faulkner, says: "Our success lies in focussing on three things – customer service, skills and training, and technology. We never stay still – we are

constantly innovating and finding ways to move forward for our customers."

**This year, the three-times UK 'Toolmaker of the Year' winner has also taken delivery of a new Hurco TM8i 2 axis CNC turning centre (lathe) and Mitutoyo Crysta-Apex S CNC Co-ordinate Measuring machine.**

The CMM machine responds to increased demand for ever tighter tolerances in toolmaking, allowing highly accurate 3D measurements at high speed. Dedicated software algorithms guarantee high accuracy by eliminating even miniscule geometrical imperfections in the guideways. The versatile turning centre has in-built features to ease programming, enhance machine speed and ensure outstanding accuracy and surface finish. It is ideally suited to the fast-paced demands of modern toolmaking.

Faulkner Moulds' recent experience in high precision turning includes projects for the medical, packaging and industrial sectors.



Photo courtesy Faulkner Moulds, the award winning toolmaker serves multiple sectors including medical.

Other recent investments include a new wire erosion machine and a new CNC sparker that runs to a guaranteed 3 microns accuracy all day.

The three newest machines are already in daily use, helping Faulkner Moulds respond to increased demand for high precision multi-cavity toolmaking and extreme measurement accuracy.

More information from [info@faulknermoulds.net](mailto:info@faulknermoulds.net), on LinkedIn, Twitter and Instagram, or call 01422 371072

[www.faulknermoulds.net](http://www.faulknermoulds.net)



Faulkner Moulds is also at GTMA's Manufacturing Solutions event at RAF Cosford. See pages 9-17.

**ENGIS (UK)**

# PROVEN LEADER WITH MEDICAL KNOW-HOW

**GTMA supplier Engis (UK) offers medical device manufacturers precision finishes and tolerances through its surface engineering and diamond expertise.**

This allows it to work alongside its medical customers to achieve part quality, production and cost objectives.

Engis is the proven leader in the manufacture of diamond and CBN wheels used for grinding:

- Needles, sharps, sutures and blades
- Prosthetics, hip joints and knee slots
- Hip stems and bone screws
- Flex tube endoscope devices.

The company also provides end-to-end flat lapping systems for the finishing and

polishing of:

- Ventilator Components / Precision Valves / Precision Pumps
- Injector pressure valves for analytical instruments
- Transducers for ultrasound equipment.

In addition Engis hand polishing systems and products assist in the final finishing of Heart valves, Plastic injection moulding cavities and Prosthetic devices and implants.

Engis is a proven leader in grinding, lapping, and polishing systems for precision medical sharps, prosthetics, implants, heart valves, transducers, and more.

Engis (UK) is part of Engis Corporation, a worldwide organisation which manufactures and markets superabrasive finishing



systems for operations that demand precision surface polishing and closer tolerance requirements. Its expertise also extends into non superabrasive products and specialist grinding and polishing machinery.



[www.engis.com](http://www.engis.com)

## UK Manufacturing services delivering ease of communication and a smooth supply chain

Pentagon, pro-actively supporting you from the early stages of design assistance right through to mould tool manufacture and repeat production of your injection moulding project. Your new or existing plastic injection moulding project will benefit from years of technical moulding experience!

DESIGN

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TOOLING

BEYOND THE MOULD



ND PRECISION PRODUCTS

# THE THREE KEY POINTS TO FIND A GREAT TOOLMAKER



**Finding a good supplier for anything can be time consuming, but when searching for a toolmaking supplier this can be even more challenging due to the potential complexities of the project, says GTMA supplier ND Precision Products (NDPP).**

Some companies have a list of approved toolmakers they have good working relations with; for others this is not the case and the search for a new tooling partner will commence.

Each company will have a set of requirements for a new toolmaking supplier including UK or overseas, capability, capacity, price and lead time.

The importance of each of these factors should be carefully considered as they will influence the overall cost of the project; but ultimately finding a new supplier who can collaborate well with the company is key.

If you are looking for a new mould or press toolmaking partner, why not consider ND Precision Products (NDPP). The company is based in Barnstaple, North Devon and can offer a wide range of services including toolmaking design and manufacture,



Photo courtesy ND Precision Products, the GTMA supplier is successful across sectors including medical and has advice on how to find a great toolmaker.

precision engineering and laser welding for an array of market sectors (medical, automotive, defence, aerospace and more!).

**Why should you choose ND Precision Products?**

**First, experience.** NDPP has been trading since 1973 and employs highly skilled toolmakers who between them have a wealth of knowledge and experience. If a problem arises at any stage between design and manufacture, NDPP thinks innovatively to overcome this and find solutions.

**Second, investment.** NDPP continually invests in employee training and in its machinery. It is through this strategy that the

company remains at the forefront of industry developments, ensuring a wide range of services and high accuracy finish to tooling and parts.

**Third, quality.** NDPP prides itself on delivering high accuracy and quality tools and products to its customers. Furthermore, the ISO 9001:2015 accreditation ensures NDPP follows a consistent formal quality standard and demonstrates the company's commitment to maintain and improve levels of quality and service.

For more information on NDPP's services or plant list, please visit the website:

[www.ndprecisionproducts.co.uk](http://www.ndprecisionproducts.co.uk)

BROOMFIELD CARBIDE GAUGES

# WORLD LEADER IS GOOD FOR MEDICAL

**GTMA supplier Broomfield was the first company in the world to develop specific sets of tungsten carbide gauge blocks. Today it remains one of the few companies to specialise in the manufacture and calibration of gauge blocks.**

The company has been involved in recent medical activities and has been at the forefront of developments in the gauge block industry. It was one of the first companies to institute the use of computer controlled inspection processes for comparison and interferometric calibration.

Using only the finest grade tungsten carbide, Broomfield manufactures all grades of standard gauge sets in metric and imperial to meet any required standard (EN ISO 3650:1999, BS 4311:2007, American Standards).



Broomfield also offers customised gauge block sets or individual gauges as required in sizes ranging from 0.20mm to 100mm and from 0.010ins to 4.0ins.

With over 50 years of experience in the production and calibration of high precision gauge blocks, Broomfield offers unparalleled levels of service and quality.

To complement its range of standard sets to meet any required standard (ISO

3650, American standards and the proposed new European and International Standards in preparation), it boasts the ability to manufacture individual blocks and customised sets to any customer's requirements.

With Class 'A' accreditation verified by UKAS, the Broomfield calibration laboratory not only has the authority to calibrate grade K (calibration grade) gauges but also to validate the primary standards used in a vast number of other UKAS Laboratories.

Using only the finest grade tungsten carbide, Broomfield can manufacture gauge blocks in a range of standard sizes from 0.20mm to 100mm or 0.010 ins to 4.0 ins.

[www.broomfieldgauges.com](http://www.broomfieldgauges.com)



PENTAGON PLASTICS

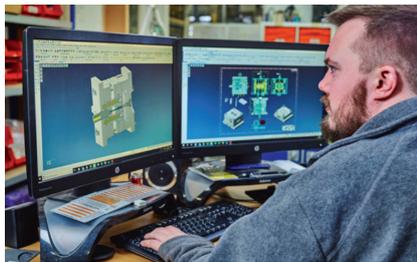
# A 40 YEAR STORY OF MEDICAL SUCCESS

## Mould tool manufacture and how to get it right

**Pentagon Plastics has been supporting customers in the medical sector for over 40 years now.**

With expertise in the manufacture of fluid draining, and other products which are used outside of the body, the group's toolmakers have a wealth of knowledge in the manufacture of bespoke tooling solutions for the sector.

With a depth of knowledge regarding anti-leak functionality and sound understanding of the processing of medical grades of thermoplastics such as EVA's and TPE's, customers can be confident in Pentagon's extensive scope of bespoke plastic injection moulding services.



When embarking on mould tool design for medical moulding there are several important factors that the technicians will consider. Here we look at just a few of the elements highlighted by the GTMA supplier.

**Evaluation of the material** data sheets, it says, is key as it identifies recommended shrinkage to be used on the mould form. As shrinkage rates are never guaranteed it is important to leave critical form metal safe for initial trailing. This can then be adjusted when required following the trailing stage. Material shrinkage is vital in the manufacture of fluid draining parts as excessive shrinkage can lead to product leakage when in use by the end user.

**Ejection method is a critical part** of the tool design. If this is not suitable to the product there may be risk of needing to remove the product by hand or making costly adjustment to the tooling further down the



line. Additionally, it can often help to build in an air blast feature which helps blow the part off if it sticks to the coring detail.

**Taking time to fully evaluate** the product features, such as undercuts, and coring out to ensure optimal mould tool functionality, is also important. So too are considerations about the best feed form for the type of product whether that is a hot or cold runner system.

HASCO

# STREAMRUNNER® WITH NEEDLE VALVE TECHNOLOGY OFFERS NEW OPTIONS

## It's the first additively manufactured hot runner on the market

**Multiple hot runner applications with a small nozzle pitch are, especially when using valve gate technology, a major challenge for designers.**



The Streamrunner® - making an impact in the market.

A needle drive needs space, which means that the distribution of the melt in the manifold is usually associated with restrictions when using a valve gating system. This leads to a greater space requirement and consequently also to larger mould sizes and injection moulding machines.

With the HASCO Streamrunner®, the first additively manufactured hot runner on the market, there are now completely new and space-saving options available for valve gate systems.

For many years HASCO has been intensively engaged in the application of additive manufacturing in hot runners.

The company aroused enormous interest on the market with the introduction of the Streamrunner®.

Since then, several customer projects have demonstrated the advantages of the system. With the addition of a subsequent version with needle valve technology, HASCO hot runner has gone one step further, breaking through



the previous limitations in the design of hot runners.

The GTMA supplier has now built a new system to demonstrate the impressive advantages of the Streamrunner®. This is a fully balanced 20-drop system, with needle valve technology, in which the outside dimensions of the hot runner are just 124 x 124 mm.

**Choosing the right material** to manufacture the tool plates and inserts out of is key. Ultra-low production tools will sometimes be made completely from aluminium, but Pentagon believes that the better option is for a steel bolster and inserts from pre-toughened steel and, where possible, fully hardened tool steel.

Mould Tool design and manufacture is a complex task and will ultimately dictate the overall success of the component production. Pentagon invests a lot of time at the early stages to fully understand the product and the demands of its environment to ensure customers receive the optimum tool design and manufacture.

All the medical moulding undertaken at Pentagon is non-intrusive to the body and therefore customers can benefit from reduced manufacturing costs where clean room manufacture is not a necessity for the product.

If you are looking for mould tooling solutions for your medical products, send your CAD data to [sales@pentagonplastics.co.uk](mailto:sales@pentagonplastics.co.uk) and the technical team will contact you further.



[www.pentagonplastics.co.uk](http://www.pentagonplastics.co.uk)

Thanks to the additive manufacturing technology, the flow channels can be optimally designed rheologically by completely avoiding sharp edges and areas with poor flow characteristics. This gentle passage of the melt results in considerably lower shear stress in the melt and consequently better quality of the injection moulded parts.

As absolutely no plugs are needed, this compact design of the hot runner enables in some cases a pitch of only 18 mm. The system is equipped with individually controlled, screw-in nozzles, which can also be used for engineering plastics. The needles are actuated via a circular plate that is driven by four pneumatic cylinders.

As with all other hot runner systems from HASCO, the Streamrunner® with needle valve technology is individually designed and adjusted exactly to the respective application. The hot runner specialists from HASCO develop tailor-made solutions for every project.



[www.hasco.com/en](http://www.hasco.com/en)

**VISION ENGINEERING**

# DRV-Z1 – TAPPING INTO THE WORLD’S MEDICAL DEVICES SECTOR...

**GTMA supplier Vision Engineering is playing a key role in the inspection regime at Surgiwear, the innovative medical devices and disposables manufacturer for the Indian market. The company is now in 50 countries worldwide.**

Established in 1982 Surgiwear manufactures almost 300 different products, including its highly regarded hydrocephalus shunt, which holds 25% of the global market in that product category.

Surgiwear’s success is founded on its focus on continued innovation and dedication to delivering products of exceptional quality. As an industry leader, it has comprehensive and detailed quality control processes, which are supported by its EN ISO 13485-2012 certification.

One of the ways the Surgiwear team keeps abreast of the latest technology and techniques is through visiting industry events and trade shows. It was at one of these that it first came across Vision Engineering’s DRV-Z1 3D digital inspection system.

**Non-destructive visual inspection**

One of the benefits of DRV-Z1 that appealed to Surgiwear was the option to share live or recorded 3D images. This lets them connect their team with other project groups, or supply chain members, in multiple locations to benefit from faster and better decision making.

Surgiwear immediately recognised its value in improving its inspection processes and the DRV-Z1 is used to examine Surgiwear’s range of titanium alloy self tapping screws. The inspection team undertakes 100% non-destructive visual inspection of self-tapping screws to ensure the product meets the acceptable finish dictated by quality control protocols.

The core of the self tapping screw is critical to maintaining the strength of the screw. It needs to be carefully checked to ensure the absence of quench cracks, wrinkles or other defects.

At the same time, the head of the screw is checked for surface defects and the cutting flutes inspected to ensure they have no

rough edges or nicks which might impact their ability to create a channel during insertion.

Finally, threads are visually inspected for surface smoothness to ensure there are no slivers, flakes or other defects. These could cause damage during the surgical procedure.

Surgiwear also uses DRV-Z1 to inspect the surface finish of neurosurgical plates.



**High speed optical inspection**

Accurate inspection is key in maintaining optimal high-speed production outputs high-speed. The excellent depth perception and clarity of the image delivered by DRV-Z1 allow faults to be identified extremely quickly and ensures the difference between shadows and imperfections is clear immediately.

This is further aided by the use of sub-stage illumination. Additionally, the wide field of view provided by DRV-Z1 offers the user a full view of the screw under magnification, further improving the rate of inspection. Since introducing DRV-Z1 the speed of inspection has greatly improved throughput. Surgiwear Managing Director, Mr, Aggarwal, said: “Investing in such innovative products is a key element in improving our manufacturing processes. The purchase of DRV-Z1 was an integral part of upgrading quality control methods, ensuring that our inspection teams have the best possible equipment at their disposal.”

[www.surgiwear.co.in](http://www.surgiwear.co.in)  
[www.visioneng.com](http://www.visioneng.com)



Vision Engineering is also at GTMA’s Manufacturing Solutions event at RAF Cosford. See pages 9-17.

HEIDENHAIN

# CUSTOMISED SOLUTIONS THAT GIVE DYNAMIC CONTROL WITH PATIENT COMFORT

**GTMA supplier HEIDENHAIN has a history of providing solutions for medical technology with products that are precise, reliable and long-lasting.**

The company's comprehensive range of linear, angle and rotary encoders for the medical sector can be customised for specific requirements. They offer:



- High positioning accuracy
- Measurement without backlash
- High reliability and availability
- High durability
- Compact design.

At the heart of HEIDENHAIN's product range is patient comfort and high-precision control.

Its absolute linear encoders fulfill all requirements for use in modern diagnostic equipment. Their fine graduations and photoelectric scanning principle transmit absolute, high-resolution position values in short cycle times.

This enables highly dynamic closed-loop control of the drive for the patient table, with very steady motions and barely perceptible acceleration and deceleration. Also, thanks to the absolute measurement, the position values are always available immediately.

**Rotary motions:** Depending on the diagnostic device and technology, the sender (source) and/or receiver (detector) move in a circle around the patient. To achieve a high resolution and excellent image quality, a defined rotational movement at constant angular speed is necessary, possibly also exactly coordinated with the linear motion of the patient table.

Absolute rotary encoders and angle encoders provide the necessary position data for controlling the rotational motion with a high resolution and in short cycle times. Absolute position measurement always provides measured values immediately.

A reference run of the diagnostic mechanisms to determine a reference position, i.e. a reset to the home position, is not required. HEIDENHAIN angle encoders are characterised by high accuracy values in the arc second range and better, down to  $\pm 0.4''$ .

Rotary encoders from HEIDENHAIN achieve accuracy grades as good as  $\pm 12''$ . The various designs versions, such as with



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mounted stator coupling or separate shaft coupling, ensure there are no problems in the mechanical mounting.

**Applications for therapy:** In radiation therapy, cancer cells are treated, for example, by bombarding them with high-energy photons. One method is to aim the beams at the tumor from different directions outside the body so they intersect exactly where treatment is necessary.

The sources of the beams must be aligned very exactly for the intersection point of these beams to lie precisely within the desired treatment area. Positioning errors of just a few angular seconds can exponentiate themselves and then, since the beams are all so narrow, there will be no optimal point of intersection.

The high reliability and availability of the linear and angle technology from HEIDENHAIN

is definitive here, in particular regarding the high dosages of radiation, which can influence or destroy electrical components.

**Guidance of instruments and seeds:** Robot-assisted operations and brachytherapy actually move instruments, implants or medical seeds through a patient's body.

These types of therapy need the highest degree of precision when guiding the instruments past healthy and possibly very sensitive tissue on the way to the actual site of the operation or implantation.

The operating system must be guaranteed not to fail and the linear and angle encoders from HEIDENHAIN fulfill these requirements. They supply measurement data at a high resolution without backlash, and their interfaces ensure rapid data transfer to the control electronics so the operation can be performed without delays.

**Measuring and control technology:** HEIDENHAIN is one of the world's technological leaders for linear, angle, and



rotary encoders, as well as for digital readouts for machines and facilities.

Competence in linear and angular metrology is reflected by a large number of customised solutions for users. These include the measuring and test equipment developed and built for many of the world's standards laboratories and the angle encoders for various telescopes and satellite receiving antennas.

HEIDENHAIN naturally applies the know-how gained from these experiences to all products, ranging from customised solutions for specific industries to series production.

[www.heidenhain.com](http://www.heidenhain.com)



Heidenhain is also at GTMA's Manufacturing Solutions event at RAF Cosford. See pages 9-17.

# Broomfield

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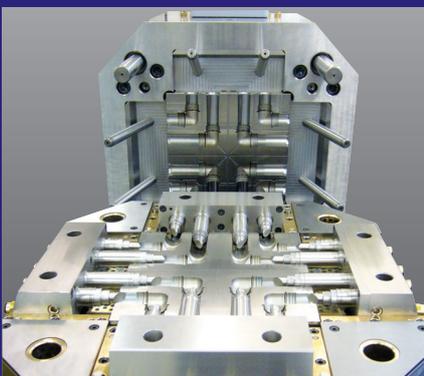
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# Three Times UK Toolmaker of the Year



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- » 5-Axis Mikron high-speed graphite and hard metal machining centre
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- » Sodick spark erosion
- » Fanuc wire erosion
- » Current SolidWorks/SolidCAM

**“Faulkner Moulds are a rare breed in this field. Excellent quality, on time, every time, no exceptions. I have nothing but praise for this professional toolmaker.”**

Sales and Marketing Director, manufacturer in leisure and automotive industry



Award-winning oral medical device twin-shot tool.

01422 371072  
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 faulknermoulds.net



**MASTRINI MACHINES & SERVICES**

# CIPOSA AND MASTRINI DELIVER FOR AUTOMATION IN MEDICAL SECTOR

**GTMA supplier Mastrini MS Ltd provides high quality CNC metalworking machine tools and innovative automated solutions for the UK and Ireland market.**

It is also the sole UK and Ireland agent for BULA, RECOMATIC and CIPOSA providing engineered surface finish solutions, bespoke machinery and automation to manufacturers.

With automation a key issue in the medical sector Mastrini's links with Ciposa brings to the UK market know-how in micro-manufacturing precision medical devices.

**These include:**

- Implants
- Surgery tooling
- Hearing Aids and Hearing Implants
- Diagnostic / Lab on Chip
- Catheters / Stents.
- Ciposa's CIMED-SB Smart Bench, for example, has embedded PLC and HMI for micro-assembly operations in manual or semi-automated mode.



Photo courtesy Ciposa and Mastrini of spinal screw used in surgery.

- The CIMED-SB Micro Dispensing Smart Bench, based on the standard Smart Bench, has up to 5-axis micro-dispensing head and embedded vision systems to ensure components recognition/control before picking and acquisition of X and Y positions of the components.

**Other values include:**

- Z axis equipped with laser sensor for components heights acquisition
- Final positioning repeatability on all axes  $\leq \pm 10 \mu\text{m}$
- Highly accurate and repeatable dosing down to nanoliter scale

- Wide range of dispensing systems available
- Time/pressure
- Jetting
- Volumetric
- Minimum volume = 1.0 nL, with dosing repeatability  $\leq \pm 5.0\%$

The range also includes the CIMED-ASMed fully automated micro-assembly machine.

Mastrini also offers CNC machine tools which produce a variety of uniform, meticulously finished products for the medical sector which relies on CNC machining on a large scale to deliver regulation components, from surgical instruments to complex piece of equipment.

The range of CNC machines offered ensure precision, perfection and complete control for all processes, including grinding and polishing. For more information call Mastrini MS on 02922 528 105 or visit the website.



[www.mastrinims.com](http://www.mastrinims.com)

**WS2 COATINGS**

# WS2 IS A PROBLEM SOLVER FOR PLASTICS INDUSTRY

Many plastic injection moulders and toolmakers are finding WS2 low-friction surface treatment the answer to their release, flow and pick-up problems.

The number of tools where production was either difficult or impossible being transformed by WS2 to a working condition continues to increase.

The company says that many moulders are specifying WS2 on new tools to cut the time spent on 'getting the tool working' while reducing production 'down time' and cycle-times to a minimum.

WS2 is used on plastic injection moulds as a permanent release agent and 'coated-on' lubricant.

WS2 is finding particular usage with unscrewing cores, injection mould cavities and cores, inserts, knife blades for film cutting, blow moulding, head tooling, clean room moulding operations, hot runner valve gear and enhancement of flow-in moulds with filling problems.

When used on stainless steels it can eliminate pickup and galling on metal-on-metal sliding parts.

Just one example was the Midlands Electrical Switch Box moulder who had a problem mould with parts regularly sticking. WS2 was applied to both halves of the



mould. After three months the company reported 140 hours saving in down-time and 1/4 tonne saving in material. The total job cost less than £200!

[www.ws2.co.uk](http://www.ws2.co.uk)





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**CYTEC SYSTEMS**

# JUST RIGHT – THE PRODUCTS THAT HELP YOU AUTOMATE TO MANUFACTURE...



**Due to unprecedented changes and disruption to manufacturing supply chains around the world, many companies are looking at automation to help solve manufacturing problems.**

CyTec Systems UK has been searching for a supplier of Servo systems for some time, and is pleased to have teamed up with Servomold, to supply the complete servo solution for injection mould tools, with more than 900 Servomold systems having been supplied to customers worldwide.

CyTec Systems, which has been trading in the UK and Ireland since 1997, is a leading supplier of hydraulic cylinders and servo system solutions for injection mould tools.

With the introduction of electric moulding machines, and increased calls from customers for clean room technology, CyTec Systems is pleased to offer servo electric automation for the modern-day injection mould tool.



This German technology (servomold.com) is being used worldwide on simple unscrewing devices to very complex tools, and is oil free, clean, environmentally friendly and low maintenance meaning it is well placed in clean room environments.

Robot handling and automation: CyTec GmbH has a wealth of experience producing and developing automation for injection

moulding machines for the European market and can offer robots to customers in the UK and Ireland.

KEY2 Motion is the intelligent CyTec control system which is future proof optimally at this stage.

These injection moulding machine robots come with a 5-year warranty and include:

- Safety systems for all motion pickers and motion liners
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**RAPITYPES / RENFEW GROUP**

# SUPPLIER TO MEDICAL DEVICE COMPANIES HAS WIDE RANGE OF EXPERTISE...

**GTMA supplier Rapitypes regularly works with design houses, university spin-outs and mainstream medical device companies to provide parts and assemblies for clinical trials and low volume production.**

The company also carries out work for sister company, Renfrew Group International, the medical design company accredited to ISO:13485:2016 and ISO:9001:2015.

This has included medium volume manufacture of class 1 medical products destined for NHSBT (Blood Transfusion). In this assignment, Rapitypes supplied moulded plastics parts and assemblies, and a batch of tubular metal, fabricated chassis and trolley units now used around the UK by the NHSBT mobile blood collection service.

Work in the medical sector by Rapitypes is not restricted to large scale products. Its work has also included the assembly of clinical trial units for the InSmart artificial pancreas, and batches of working units of a peritoneal dialysis machine.



It also provided trial batches of a new surgical device for fistula surgery and fully assembled and populated diagnostic devices for a hand-held, OTC parameter analysis machine.

Rapitypes points out there is more to Batch Manufacturing than simple mouldings and part assemblies. Its work can include providing working components and electronic boards and assemblies as part of the package.

Among others, it has supplied breath analysis machines, a batch of hand pupilloscopes, and a suite of ozone disinfection machines for use on hospital wards and operating theatres.

Rapitypes worked with Renfrew to deliver Class 1 medical products for NHSBT, including fabricated chassis and trolley units.

“We’ve built, tested and supplied suites of electronic medical products for use at the POC in a general practise setting and supplied sub-assemblies for over-the-counter products,” says the company. “Our labs and assembly areas are capable of handling many build and assembly projects simultaneously.”

Rapitypes is an advanced manufacturing support company providing services from development models and prototypes, through tool making and rapid prototyping to low volume manufacturing.

[www.rapitypes.com](http://www.rapitypes.com)  
[www.renfrewgroup.com](http://www.renfrewgroup.com)



APSLEY PRECISION ENGINEERING

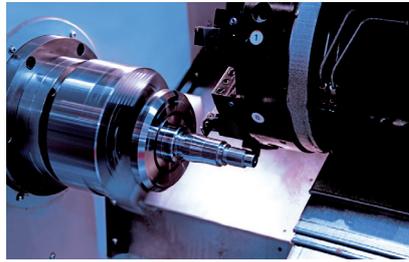
# NO MARGIN OF ERROR AT MEDICAL SUPPLIER...

**Apsley Precision Engineering specialises in manufacturing CNC machined, high precision components for a range of industries, including medical, pharmaceutical, aerospace and defence.**

A policy of reinvestment has included more than £2 million in the last three years in the latest multi-axis and robot integrated technology.



This means the company remains flexible enough to manufacture from a full range of materials and in a variety of sizes. It offers



traditional services as well as 5 axis milling and mill-turn capabilities with 24-hour a day production.

The supplier, a member of GTMA's Medical Cluster, also offers small batch runs, prototyping services and the manufacture of tooling and fixtures.

There is no margin for error at Apsley with high value, time-dependant and critical precision engineering projects.

They have to be right, first time. With this

philosophy Apsley has built a reputation for meeting and exceeding market demands. The company's ability to engineer products to individual requirements is also backed by the capacity to manufacture in quantities from one-offs to extended production runs.

With over 30 years of experience within the precision engineering industry, Apsley has gained an enviable reputation as a flexible and efficient sub-contract engineering company.

The heart of its business is high complexity, close tolerance precision machined parts and assemblies. It is perfectly equipped to serve customers who need low, medium or high volumes of precision machined parts for both prototype and production requirements.

Its milling and turning capabilities are designed to:

- Shorten lead times for manufacturing in production volumes

INDYSOFT EUROPE

# EASY TO USE ASSET MANAGEMENT SOFTWARE HELPS GLOBAL LEADER TO SUCCESS

**Asset management software from IndySoft has helped streamline processes at one of the world's most modern manufacturing sites for integrated bioprocessing solutions.**

Parker Hannifin is the world leader in motion and control technology and employs around 58,000 people. It has a lead operation in Birtley, UK, which has over 50 years experience in the supply of high quality filtration products and services for applications within the life sciences, food and beverage, industrial processing and microelectronics markets.

It was after a multi-million pound development programme at Parker Bioscience Engineering and Filtration at Birtley that IndySoft was called in by the company's Instrument Service Group.

The group maintains, tests and calibrates a wide range of customer equipment, including filter integrity testing machines. This includes accurately monitoring and validating the performance of its



customers' filtration systems.

The group's Andrew Harker wanted to streamline the group's processes, increase productivity, help in maintaining data integrity and improve logistics.

He said: "The paper based system we were using to oversee the recall, processing, calibration, issuing of relevant certification and the return of our customers filter integrity testing machines, was only capable of handling our previously lower volume of work. As our installed base grew, the resulting increased workload began to show the limitations of the paper system."

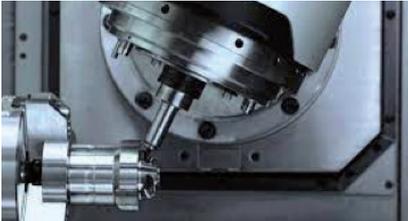
After Andrew reviewed options he requested a demonstration of IndySoft's Asset Management software which was carried out by IndySoft Europe Managing Director Jake Bishop.

"In addition to Jake demonstrating the software's logical structure, ease of use and speed he was also able to clearly demonstrate the software's ability to streamline our operations," said Andrew.

Colleagues from other departments also began to explore issues related to their own functions and Jake illustrated how IndySoft could also help those.



- Meet the most demanding tolerances
- Streamline complex geometries into a single process
- Increase productivity, producing multiple precision machined parts simultaneously
- Eliminate extra operations
- Deliver highly consistent quality precision machined parts.



Apsley has announced a £4.5 million investment to build a state-of-the-art production facility and has a strong customer retention rate with 20% year on year growth.

For more information contact Managing Director Peter Aymes on 01722 782488, email Peter@apsleyeng.co.uk or visit the website.

[www.apsleyeng.co.uk](http://www.apsleyeng.co.uk)

“As IndySoft is so easy to use, the software’s installation and the change-over from our previous manual system was trouble free,” said Andrew.

“As a result of IndySoft’s in-house training and the software’s very logical layout providing simple workflows, we were soon able to make use of the vast majority of the software’s applications. Now, on the rare occasion that we come across a problem, we have access to IndySoft Europe’s help line that is able to provide instant assistance and support.”

With a focus on calibration, tooling, automation, maintenance and repair, IndySoft has introduced multiple, innovative, new asset management solutions to its software.

Although ideal for use across countless other ISO compliant sectors, IndySoft is designed to help the life sciences industry ensure authenticity, integrity and, when appropriate, confidentiality of electronic records to comply with 21 CFR Part 11.

[www.indysoft.com](http://www.indysoft.com)



Indysoft Europe is also at GTMA’s Manufacturing Solutions event at RAF Cosford. See pages 9-17.

KEMET INTERNATIONAL

# NEW FROM KEMET: Cleaning machines with 99% recovery of material waste...



The new cleaning range from Kemet reduce costs and are already used across sectors including medical, dental, auto, electronics etc

**Surface finishing specialists, Kemet International Ltd, are introducing a new range of cleaning machines, offering 99% recovery of material waste, reduction of management costs, high economic benefits, sustainability, and innovation.**

The machines operate in a complete vacuum treatment cycle in all phases, ensuring excellent cleaning components, removing swarf, particles and oils without releasing harmful substances into the environment.

The systems use a combination of spray, basket rotation, aqueous cleaning, modified alcohols hydrocarbons, hydrocarbons HFE and ultrasounds.

Features and benefits, include:

- Minimal loss of solvent which significantly reduces the process cost and environmental impact
- Distillation, separation, and filtration of contaminants, allowing oils to be reused in machining processes and swarf/particles to be reused or economically disposed of
- Use of modified alcohols, with a flash point of more than 60°C under vacuum, so machines do not have to be manufactured to ATEX approved rates, which reduces build cost and makes the machines more affordable
- An ethernet connection to provide online diagnosis of technical issues and predictive maintenance, which reduces downtime
- Cleaning of component areas that are hard to reach with Aqueous/HFE solvents, including blind holes and tubes.

Kemet can make recommendations on the ideal process, dependent on the quantities

to be treated, the amount of contamination and the size of the components to be cleaned.

The machines are already being used effectively in many sectors, including medical, precision mechanics, automotive, heat treatment, hydraulic components, springs, moulded components, fashion accessories, jewellery, watches, components for furniture, dental, cookware, cutlery, and electronics.

As well as this new range of Vacuum Solvent cleaners, Kemet’s cleaning division also offer a comprehensive range of ultrasonic cleaning tanks and systems, passivation lines that comply with ISO 7 clean room, and more than 200 high performance cleaning fluid formulations.

These include solutions with validation standards of ISO 19227-2018 and biocompatibility standards of ISO 10993-18, ideal for the Medical and Aerospace industries.

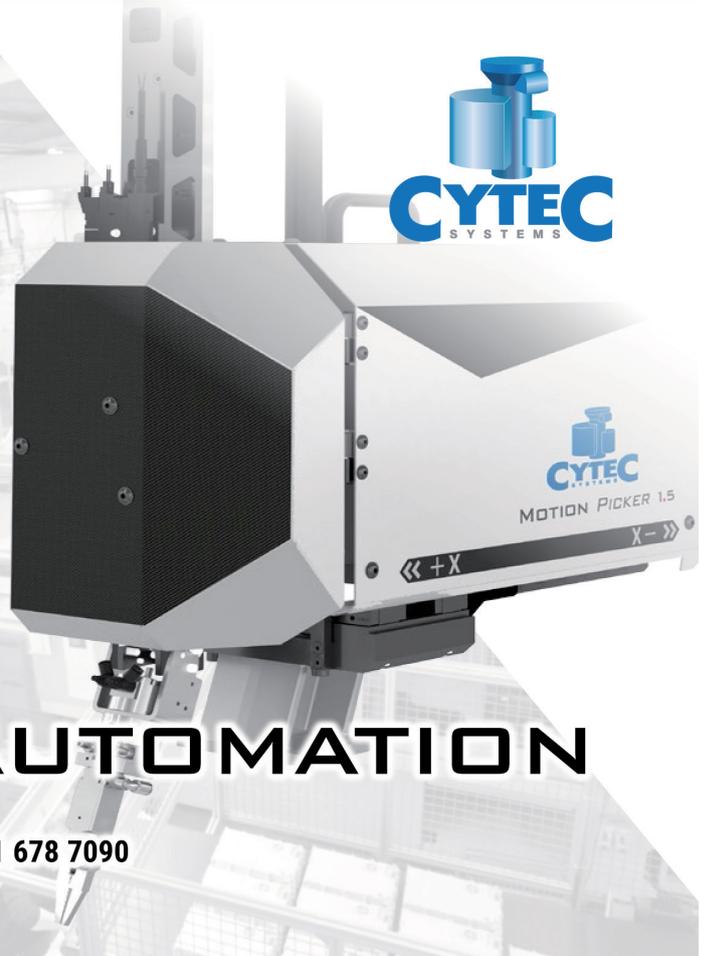
Contact Kemet on +44 (0) 1622 755287 or Sales@Kemet.co.uk to arrange cleaning trials, so Kemet can find the ideal cleaning solution for you.

[www.kemet.co.uk](http://www.kemet.co.uk)



Kemet International is also at GTMA’s Manufacturing Solutions event at RAF Cosford. See pages 9-17.

>>> For over 10 years Kemet’s Cleaning Division has matured into the second largest of Kemet’s divisions supplying large fully automated systems to the Medical and Aerospace sectors as well as general manufacturing.



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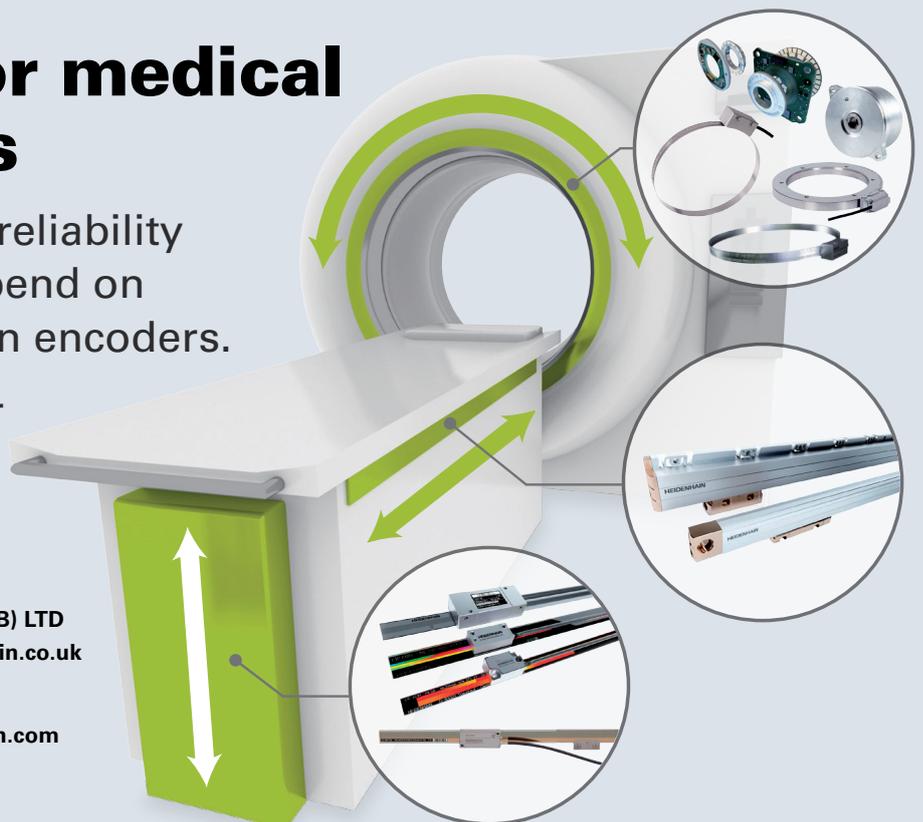
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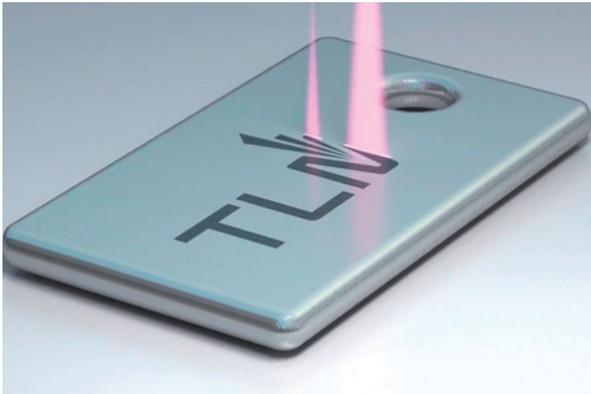


# MEDICAL SECTOR PREPARES FOR NEW DEVICE IDENTIFICATION SYSTEM

**The Government's UDI (Unique Device Identification) programme for medical devices is preparing for change. GTMA Medical Cluster supplier TLM Laser can help, as this report explains...**

The UDI programme continues to be rolled out with the objectives of facilitating easy and reliable traceability of medical devices, says TLM Laser. UDI aims to improve safety-related activities for devices by enhancing monitoring of their status and use at all levels.

There are many anticipated benefits from the system including: easier access to recall information, improved traceability of devices of all types including implants, and faster identification of possible counterfeit items.



Under these rules, and depending upon risk classes, there is a legal requirement for products and packaging to incorporate a UDI code in both plain text and a machine-readable form such as a barcode or 2D Matrix code.

Implantable devices, and those which will be re-used and re-processed or sterilised over an extended period, such as surgical



Photos courtesy TLM Laser – the GTMA supplier can help you meet new identification rules for medical.

instruments, will also require direct part marking, separate from the original packaging, to allow traceability throughout the lifetime of the item.

The new MDR regulations may also apply to non-medical devices with a risk category similar to medical devices. This is likely to include items such as cosmetic implants and perhaps even contact lenses.

In addition to UDI marking, and following Brexit, UK businesses have until January 1, 2023, to start using the new label which replaces the EU's CE mark. The UKCA mark will be mandatory on certain products and indicates that goods conform to

domestic safety legislation.

The clarity and durability of the information associated with UDI, MDR, CE and UKCA is key to recognising conformity, and in the case of UDI and MDR, ensuring compliance and ongoing traceability throughout the life cycle of the item.

With increasing demands for marking

different conformity and identification information on medical devices, laser technology has proven to be the only method capable of producing the necessary quality and consistency across the different materials and applications associated with the sector.

For demanding applications, such as those encountered within the medical device sector, GTMA supplier TLM Laser offers a range of laser marking technologies, such as the M2000 from FOBA Laser.

The ability to configure this system with a choice of laser power, rotary tables, axis systems and machine vision options means the system can deliver the performance, quality and consistency needed to ensure conformity and compliance with the ever-increasing regulatory standards of the medical device sector.

For more information call TLM Laser Director Andy Toms on 01527 959 099, email [sales@tlm-laser.com](mailto:sales@tlm-laser.com) or visit the website.

[www.tlm-laser.com](http://www.tlm-laser.com)

TLM Laser is also at GTMA's Manufacturing Solutions event at RAF Cosford. See pages 9-17.

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In the past three years we have invested over £2 million in the latest multi-axis and robot integrated technology. This allowed us to enhance our machining services to include 5-axis milling and mill-turn production with the ability to run 24 hours a day, 7 days a week.

We have announced a £4.5 million investment to build a state-of-the-art production facility and have strong customer retention with 20% year on year growth.

If you are looking to expand your customer base I would welcome the opportunity to play a part, whether that be now or in the future – Peter Aymes, Managing Director

**Apsley Precision – delivering what you need, when you need it**

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WENZEL UK

# MEASURING SOLUTIONS FOR MEDICAL TECHNOLOGY MACHINES

**GTMA supplier Wenzel UK has a range of measuring machines to meet the challenges posed by medical technology machines.**

Among others, it has solutions for measuring highly reflective medical implants or prostheses without surface pre-treatment, plastic moulded parts and dispensing systems.

Designed to increase the speed of the production process, its CORE High Speed Optical Scanning System offers a highly flexible 3D inspection solution for demanding measurement requirements in global manufacturing.

**HIGHLY POLISHED**

Highly polished parts can be measured contactless with the CORE or plastic moulded parts can be X-rayed with the help of industrial computer tomographs.

CORE D offers easy measurement of critical areas; direct measurement of polished and highly reflective surfaces; and large working distance and measuring range.

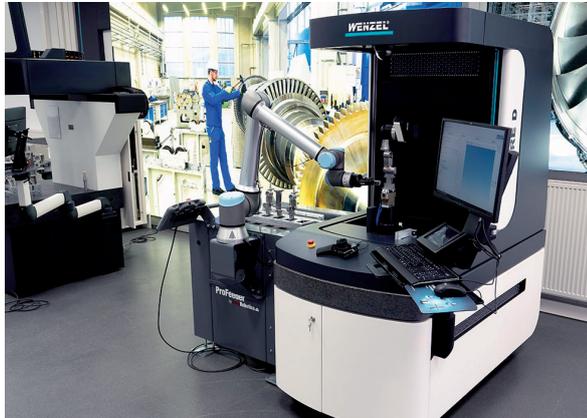
Using newest technology it can be automated and allows connection of robots for placement. It has temperature stability from 18°C - 30°C and is dirt-resistant due to protected guides.

Other advantages include fast point detection, minimisation of machine movement, and ability to reposition during measurement.

**Medical machines & Instruments:**

The right measuring solution for medical machines and instruments depends on many factors. Above all, the place of use, batch size and the complexity of the component are decisive.

Complex electronic devices machines, such as hearing aids, can be measured in their entirety, even from the inside, with Wenzel's computer tomographs of the exaCT series. One look inside the component is enough to reveal all information about dimensional accuracy and material quality.



The CORE D measuring machine can measure highly polished parts, such as artificial knee joints, without surface pre-treatment and with extremely high accuracy.

With the WM | RS-C the surface structure of implants and prostheses can be checked in the nano range. Even

**Implants & Prostheses:** The challenge arises because their place of use in the human body leaves no room for error. Even the smallest deviations in dimensional accuracy can have serious consequences for the wearer. This is why extremely precise quality control of the components is irreplaceable. Many components have special recumbents that make tactile measurement impossible.

highly polished components are no problem for the flat measuring, white light interferometer.

[www.wenzel-group.com/uk](http://www.wenzel-group.com/uk)

Wenzel UK is also at GTMA's Manufacturing Solutions event at RAF Cosford. See pages 9-17.

Photo above from GTMA supplier Wenzel UK which has a range of solutions used in the medical sector.

## Needs parts in a hurry Rapitypes can help!



- Obsolete parts
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[sales@rapitypes.com](mailto:sales@rapitypes.com)

# AUTOMATION AND ROBOTICS IN MEDICAL IS ‘LAGGING BEHIND’

## AMRC workshop calls for in-depth gap analysis by manufacturers

**The need for more automation and digitisation in medical sector manufacturing has been highlighted in a report from Innovate UK KTN, in collaboration with the UK’s Advanced Manufacturing Research Centre.**

The UK, it says, “continues to lag behind other countries” and findings from a workshop at AMRC North West at the end of March concluded that organisations “need to start working on digital transformation now as the UK could slip behind further.”

Initial steps, it says, is for companies to begin an in-depth gap analysis to feed into formulating a digital transformation road map.



Automation and digitalisation is needed:

- To improve efficiency and remove bottlenecks
- To support in process monitoring controls
- To support data analysis
- To combine and use data and metadata
- To gather information from across the supply chain.

The AMRC said there were nine key barriers to the adoption of new technologies in medicines manufacture. These included what it called ‘Legacy infrastructure’ – in short, that there is no strong driver within business for investment in new manufacturing or the development of new technology.

Existing ways of working need to change to embrace and implement modular systems with flexible approaches as skills change.

Other barriers include lack of internal talent, unpredictable return on investment, aversion to risk, insufficient budget and organisational acceptance, though this is gradually changing.



Photos courtesy MedPharm which has Centres of Excellence in the UK and USA. It has taken on board the importance of robotics and automation and is a leader in product design and formulation development services.

Of the 15 largest markets in 2020, the UK placed last in the number of installations of industrial robots. Understanding the barriers and challenges that prevent the use of automation would provide opportunities for investment in these innovative solutions. In turn, this could boost productivity and efficiency and make the UK well placed to capitalise on opportunities in the sector.

Innovative systems could provide significant benefits both to the quality of product produced, traceability data when it came to sterility and a reduction in losses through contaminated products or carry-over batches.

Other areas identified included repetitive manual handling tasks, especially those involving fine motor control or limited range of movements, which present risks to users.

This is especially a problem for organisations where team sizes are smaller as employees may be working on tasks with limited variety. Robotics and automation can improve ergonomics and avoid health issues.

Automation is an opportunity to use time and work spaces more efficiently and to use the skilled workforce more innovatively.

As technology progresses, the development of manufacturing equipment capable of self-reporting status, before manufacturing runs start, would be a real game changer. It would ensure that maintenance issues do not impact production and manufacture and therefore reduce overall running costs.

One issue highlighted is the lack of a ‘one size fits all’ system. This means that for many organisations the result is islands of automation i.e. individual steps within a process may lend themselves to automation, but these exist in isolation rather than being integrated from one end to the other.

Modularity in system design, and a key set of standards that equipment suppliers work to, common in other industries (automotive, semiconductor etc) with mutually agreed interface points offers the possibility of enhanced levels of flexibility.

For GTMA suppliers involved in metrology the report highlights the need for sensors to be properly automated. This requires the development of sensors able to interface with the robotic systems.

“How will the data be communicated and where will it be stored, managed, maintained? For many processes, the technology does not currently exist - for example in RNA manufacturing, the ability to monitor processes continuously is not available now.

“This means that even with the addition of automation and robotics within this pipeline, there still exists discontinuous analytical steps which act as bottlenecks within this process.”

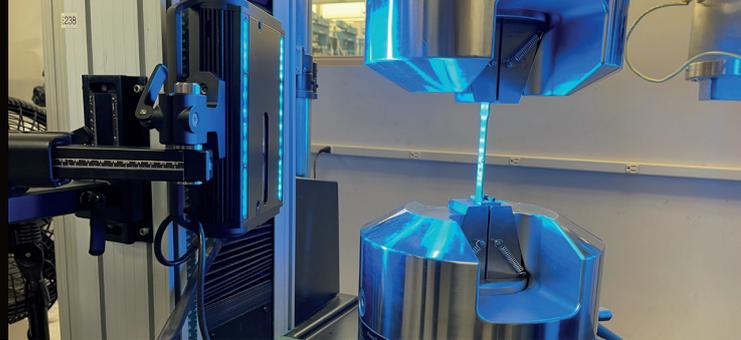
Another key issue is the amount of data generated in medicine manufacture. This means that for the successful deployment of robotics and automation the data and IT infrastructure need upgrading to handle this amount of data, especially if it needs to be analysed in real time.

Examples of metadata which could be captured by robotic systems include stirring speed, atmospheric pressure, probe temperature, salinity, pH, user, run time to name a few.

Building a business case to understand what to automate and the impact that automation will have on the workforce and organisation as a whole is a large undertaking with many unknowns.

<https://ktn-uk.org/wp-content/uploads/2022/05/Automation-and-Robotics-Report-May-2022.pdf>

# The MEASUREMENT Specialists



New Solutions and Industry Favourites – excellence at work

## X-RAY TECHNOLOGY BREAKTHROUGH

New X-ray source from Werth has more applications

A new, occasional feature where we highlight some of the achievements of leading GTMA suppliers of measurement services and products.



The successful X-ray tube technology of the TomoScope® XS machines from Werth Metrology is now also available with 200 kV accelerating voltage and extends the range of application to workpieces with higher density and longer transmission lengths.

The transmission tube offers high resolution combined with short measuring time.

The X-Tube  $\mu$ F 200T-80 microfocus X-ray source has powers of up to 80 watts with focal spot sizes of a few micrometers. The transmission target enables small focal spot sizes even at high powers and thus fast high-resolution measurements.

The new X-ray source extends the application range of the compact machines, for example to workpieces such as connectors, sensor assemblies, joint implants and cell phone lenses.



With X-ray sources in monoblock design, the high-voltage generator is located directly on the X-ray tube, eliminating the need for the vulnerable and high-maintenance high-voltage connector.

The tubes for the TomoScope® XS units are also equipped with a long-life target and a long-life filament. This means that only one maintenance per year is required.

High-resolution and fast measurements with low space requirements

The long maintenance intervals of the X-ray source offer low operating costs and high availability. The long life filament eliminates the need for filament changes by the operator or during a service call. The longlife target ensures consistently high-quality X-ray radiation.

The new 200 kV X-ray source in monoblock design is ideal for measuring metal-plastic components, sensor assemblies and joint implants among others.

Photos with main piece, courtesy Werth Metrology. The new 200 kV X-ray source in monoblock design is ideal for measuring metal-plastic components, sensor assemblies and joint implants among others.

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**Werth Messtechnik GmbH is an international leader in the field of coordinate measuring technology with optical sensors, X-ray tomography and multi-sensor technology.**

**Customer orientation and constant new and future developments are essential foundations of the company's long standing success.**

**Due to the recent growth with their subsidiary (Werth Metrology) an exciting opportunity to join the team has become available.**

### **Area Manager (UK) for technical sales of high-tech coordinate measuring machines**

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- Configuration of individual device solutions for our customers
- Independent supervision of sales projects in your territory
- Representation of our company at conferences and exhibitions

#### **Your profile**

- Completed studies in a technical field with an above-average degree.
- Experience in sales of technically demanding products in the capital goods industry is an advantage, but not a requirement.
- Negotiating and communication skills

#### **We offer**

- An excellently managed sales territory with great potential and competitive salary
- Interesting job in an innovative, modern and internationally leading company
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- Regular further training and good opportunities for promotion
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### **Interested?**

Please email your covering letter and CV to [sam.sadnicki@werth-metrology.com](mailto:sam.sadnicki@werth-metrology.com)

**Werth Metrology, 35a Brunel Parkway, Pride Park, Derby, DE24 8HR**



continued from page 41

The monoblock design requires significantly less maintenance than conventional tubes with high voltage cables. Since peripheral devices such as a control cabinet and high-voltage generator are not required, the external dimensions of the coordinate measuring machine are small and it can be installed anywhere in the company.



All Werth TomoScope® machines feature calibration in compliance with standards, optionally with DAKkS certificate. Traceability to international standards meets the requirements of IATF 16949.

The tube technology of the TomoScope® XS machines offers short measurement times with high resolution and low measurement uncertainty. The new tube has the high accelerating voltage required for workpieces with high density and long transmission lengths. Even multi-material workpieces and assemblies can be measured successfully.



[www.werth-metrology.com](http://www.werth-metrology.com)

## CHE METROLOGY - THE CALIBRATION CHAMPION

**CHE Metrology Limited is a champion in the world of metrology calibration equipment. It combines the latest controllers and software for the benefit of clients.**

Continuous training and advances keep CHE at the top of the metrology calibration equipment environment. The GTMA supplier combines the latest controllers and software for retrofitting coordinate measuring machines so that its customers receive a highly technical solution. It has a wide selection of solutions for performing calibrations to UKAS standards or just 'in-house' procedures to suit all pockets and situations.

UKAS re-verifications can be performed to ISO 10360-2-2009 CMM's used for

measuring linear dimensions and ISO 10360-5. Second user CMM's and machine retrofits are all part of the service to give the customer the complete service and calibration cover they need.



CHE Metrology is an independent specialist company covering all aspects of coordinate measuring machine support and service and its customer base stretches from small engineering workshops to large automotive/aerospace and pharmaceutical manufacturers, UK & worldwide.

CHE prides itself on its reactive and personal service throughout its day-to-day business and has supported its customers for over 30 years.

[www.che-metrology.co.uk](http://www.che-metrology.co.uk)

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# SmartSCALE

BY **Magnescale**

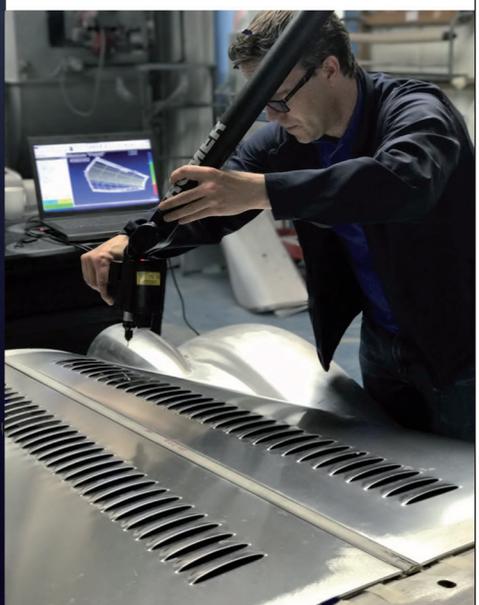


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# Introducing Vector

## THE FUTURE OF EXTENSOMETRY

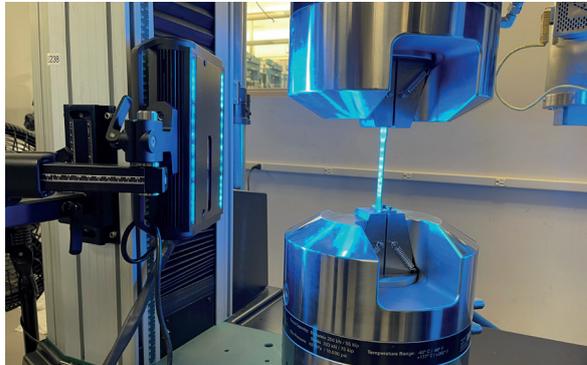
Artificial intelligence helps to reduce test times

GTMA supplier Tinius Olsens' new Vector Extensometer is a step change in extensometer technology, capable of replacing multiple contacting and non-contacting sensors with a single, industry specific instrument.

Integrating adaptive AI (Artificial Intelligence) capabilities with optical hardware, Vector reduces test throughput times and complexity, automating the process of capturing strain, improving measurement accuracy, data consistency and operator safety.

This ground breaking technology efficiently addresses practical problems by eliminating the challenges of traditional contacting and non-contacting extensometers by using intelligent non-contact techniques to:

- Increase testing efficiency by reducing the need for operator intervention
- Measure strain through failure, however violent



All photos courtesy Tinius Olsen which has introduced ground breaking technology with its new Vector Extensometer.

- Measure simultaneously longitudinally and transverse
- Test in harsh environments or challenging light conditions
- Test highly fragile specimens
- Avoid introducing stress concentrations, such as damage from knife-edge contact
- Improve test success rate by eliminating contact-point slippage

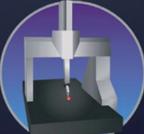
- Eliminate the cost of consumable parts
- On larger test frames, locate below the moving member used to apply the test force viewing the test specimen across the test zone.

### Simple, Reliable Operation

Vector is delivered pre-configured. Simply plug in, power up and go!



3D SCANNERS



CMM SOLUTIONS



REVERSE ENG.



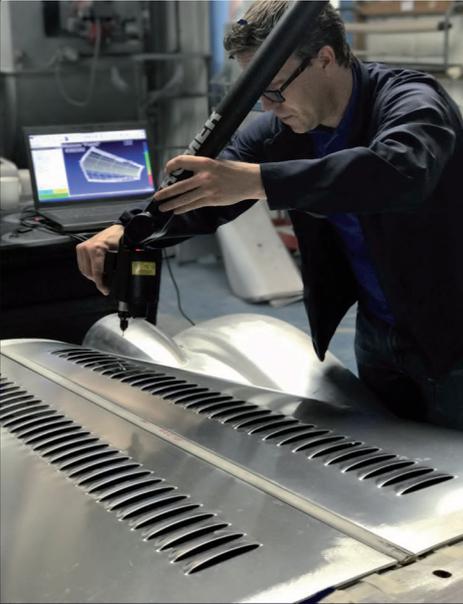
PORTABLE METROLOGY



3D METROLOGY SOFTWARE

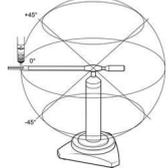


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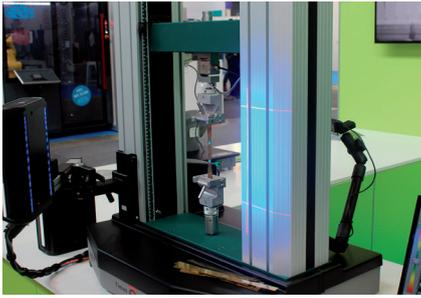


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Both instrument setup and changes to accommodate varying gauge lengths, sizes and profile test specimens are eliminated, whilst a range of automation features such as specimen and gauge length detection simplify the operator interaction and improve test reliability.

Its stereoscopic sensing detects machine or specimen misalignment and negates out-of-plane errors, with the on-board processing delivering seamless and simple integration and eliminating all external control platforms.

Clear and simple visual status feedback and laser alignment guides, reduce operator training requirements and significantly improve test throughput.



#### ADVANCED FUNCTIONALITY

By automating specimen detection, Vector speeds up and simplifies test throughput and, by supporting multiple gauge lengths, removes the need for multiple, traditional sensors.

A large working optical volume also provides a forgiving operating envelope, making Vector suitable for use on almost any test frame.

Onboard AI enables truly zero touch operation, with dynamic response to different specimen appearance and behaviour as well as switching seamlessly between test and validation mode. Vector's smart design means there is no need to alter the set up for specimens of different sizes, shapes and thicknesses.

Full integration into UTM control software removes the need for an external interface and simplifies the user experience.

For further information contact Richard Coombs at:  
richard.coombs@tiniusolsen.co.uk



[www.tiniusolsen.co.uk](http://www.tiniusolsen.co.uk)

# MAGNESCALE DT SERIES GAUGES OFFER LOWER COSTS, HIGH QUALITY...

Versatile product from IMT has full traceability

**Now available from GTMA supplier Innovative Measurement Technology (IMT) are the general purpose DT series gauges from Magnescale.**

The gauges are known for their reliability, quality and Magnescale technology and can be used in a wide range of applications from assembly checks to dimensional measuring. All gauges support Ø8mm stem mounting and side mounting with M4 screws.



DT series gauges from Magnescale use technology developed over 50 years.

Regardless of the lower cost, the DT series is a highly capable and versatile gauge with a set of complementary accessories. In combination with the MT interpolator, measurement data can be converted into various outputs to suit customer needs.

#### DT512/12

- Resolution: 1µm, 5µm
- Measuring range: 12mm
- Spring push / Pneumatic push
- IP64 (P type)

#### DT32

- Resolution: 5µm
- Measuring range: 32mm
- Spring push / Pneumatic push
- IP64 (P/PV type)

**Technology:** Developed over 50 years digital gauge products use a high grade recording and detecting principle. Precise magnetic recordings are applied to a special proprietary magnetic material.

Using a MR (Magneto Resistive) sensor with a unique detecting pattern allows for high accuracy and reliability. This also gives high environmental resistance and strong resistance to temperature changes.

**Traceability:** All Magnescale digital gauges are traceable to national measurement standards with regular accuracy inspections and calibrations to ensure compliance. An accuracy chart is included with each product and is also available after the product has been shipped.

For more information on Magnescale digital gauges email IMT at [sales@imeasure.co.uk](mailto:sales@imeasure.co.uk) or visit the website.

• IMT is one of the leading suppliers of precision engineered measurement equipment. It supplies a full range of high accuracy gauges, DRO, Sony Magnescale liner scales, LaserScale, measurement computers, IBR digital columns, Coordinate measuring machines, visual inspection systems, materials testers and Encoders. It also has an extensive range of machine shop tools such as height gauges, callipers, plug gauges and more.



[www.innovative-measurement-technology.co.uk](http://www.innovative-measurement-technology.co.uk)



The wide product range from IMT have included the LT80/MT80 interface system which was designed for fast acquisition and analysis of measuring data.

# MORE SOLUTIONS FROM METROLOGY UK

Flagship product is setting the standard for flexibility

**GTMA supplier Metrology UK is expanding its product line with the introduction of Shining 3D scanning solutions.**

This leading technology provides its clients with high quality metrology grade scanning at an affordable price point making it accessible to SMEs as well as larger manufacturers, says Managing Director, James Barnes.

The newly introduced flagship Freescan UE Pro is setting the standard in flexibility with multiple scanning modes for an ever-changing application and material landscape.

This includes shiny, black as well as high detail modes for more challenging feature capture. With built in photogrammetry the solution offers large volume accurate scanning for vehicle sized objects.

Metrology UK provides the latest measurement solutions and services for some of the most



challenging applications. It offers a vast array of solutions and services, as well as its leading software solutions:

**Verisurf** - Market leading measurement platform for all your metrology needs.

**EasyCMM** - Drive your CMM with your choice of software.

**Mastercam** - The world's largest CAD/CAM solution with integrated inspection.

**QuickSurface** - Dynamic surfacing for your reverse engineering tasks.

Whether you're looking for a simple 3D scanning service or a complex CMM or portable arm or laser tracker solution, Metrology UK can help.

Its expert measurement solutions are designed for precise quality practices across multiple industries to minimise complications and simplify your quality manufacturing process. Sectors served include aerospace, automotive and general engineering.

The supplier is committed to delivering advanced software, measurement services and CMM platforms for computer-aided inspection reverse engineering, automated FAIR's and quality control process solutions. For more info see the website.

[www.MetrologyUK.com](http://www.MetrologyUK.com)



**Tinius Olsen**

## VectorExtensometer

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ROBUST

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FANTASTIC ROI



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## GMTA OUT IN FORCE AT THE UK'S LEADING SUPPLY CHAIN EVENT

### New Meet the Buyer session and zero-carbon forums

**The 13th edition of Advanced Engineering UK will celebrate innovation, collaboration and sustainability within the engineering and manufacturing industries at the NEC, Birmingham on November 2 and 3.**

Billed as the UK's leading advanced manufacturing and supply chain event it will have seven show zones, four forums and more than 400 cutting edge exhibitors.

GTMA and its suppliers are again out in force. More than 20 are exhibiting in their own right as well as the GTMA Pavilion (Stand N163) which will promote the full engineering resource of the Association.

"Once again our suppliers are waving the flag for innovation and excellence," said GTMA CEO, Alan Arthur. "They represent a broad church with companies involved in a very wide range of engineering disciplines right across the supply chain."

They include UK, European and world leaders in areas including R&D, design, test and measurement, advanced materials, additive manufacturing, tooling, mould and dies, press tools and tooling technologies.

The event is seen by many as an opportunity to meet, network, and discover the latest technologies with OEMs and supply chain partners. This is being given fresh impetus this year with a new Meet the Buyer initiative for the automotive and aerospace sectors, organised with SMMT and ADS.

Exhibition organisers Easyfairs says: "This is the first time that Advanced Engineering has enabled its visitors to have one-to-one meetings with key buyers that already have projects underway.

"Every buyer that attends is there because they are actively looking for suppliers, giving our attendees the best chance possible of doing business. SMMT, ADS and Advanced Engineering will be working hard to arrange these meetings in advance of the show,



The show floor at Advanced Engineering last year – the 2022 event promises to be just as busy with GTMA suppliers highlighting their leading edge engineering resources.

giving members the chance to plan out their diaries and prepare for a successful meeting.

Forty private meeting rooms are planned, thanks to an expansion of floor space, where confidential conversations can take place with buyers selected by the SMMT and ADS respectively, based on their purchasing requirements.

The Meet the Buyer event will be open to exhibitors and SMMT and ADS members, with SMMT hosting automotive businesses on day one, and ADS hosting for aerospace on day two. Interested suppliers simply need to register their interest on the Advanced Engineering website.

### FORUMS FOR ACTION

There will be four forums during the two-day show, featuring leading voices from engineering and manufacturing. A huge topic at the aerospace forum this year is decarbonising aviation.

There will be presentations on electrification, zero-carbon aviation and hydrogen propulsion from the Aerospace Technology Institute, Rolls-Royce, Ampaire, ZeroAvia and ID TechEx. Supply chain management is a concern for many companies this year, so Advanced Engineering UK will welcome talks from Airbus UK and ADS on supplier expectations and supply chain excellence.

## GTMA Advanced Engineering Exhibitors

Confirmed GTMA exhibitors at Advanced Engineering as we went to Press are listed here.

**Boneham & Turner**  
**Stand R132**  
www.boneham.co.uk

**Central Scanning**  
**Stand L114**  
www.central-scanning.co.uk

**Ceratizit UK & Ireland**  
**Stand K144**  
www.cuttingtools.ceratizit.com

**CGTech**  
**Stand L154**  
www.cgtech.co.uk

**Elesa (UK)**  
**Stand J96**  
www.elesa.com

**Filtermist Systems**  
**Stand L100**  
www.filtermist.co.uk

**GOM UK**  
**Stand M90**  
www.gom.com

**GTMA PAVILION**  
**Stand N163**  
www.gtma.co.uk

**Guhring Limited**  
**Stand L150**  
www.guhring.co.uk

**Hexagon Manufacturing Intelligence**  
**Stand Q160**  
www.hexagonmi.com

**IMSM**  
**Stand N160**  
www.imsm.com

**Indysoft Europe**  
**Stand J94**  
www.indysoft.com

**Kemet International**  
**Stand L146**  
www.kemet.co.uk

**LK Metrology**  
**Stand Q140**  
www.lkmetrology.com

**Manchester Metrology**  
**Stand L102**  
www.manchester-metrology.co.uk

**Mapal Limited**  
**Stand K162**  
www.mapal.com

**National Physical Laboratory (NPL)**  
**Stand D76**  
www.npl.co.uk

**ND Precision Products**  
**Stand N164**  
www.ndprecisionproducts.co.uk

**Neos Technologies**  
**Stand N144**  
www.neosintl.com

**Optimax Imaging Inspection & Measurement**  
**Stand J106**  
www.optimaxonline.com

**Perfect Bore Manufacturing**  
**Stand M160**  
www.pbm-ltd.com

**Rainford Precision Machines**  
**Stand H114**  
www.rainfordprecision.com

**The 3D Measurement Company**  
**Stand G122**  
https://t3dmc.com/

**The Sempre Group**  
**Stand H74**  
www.TheSempreGroup.com

**Tinius Olsen**  
**Stand P122**  
www.tiniusolsen.co.uk

**TLM Laser**  
**Stand M136**  
www.tlm-laser.com

**Tri-Tech 3D**  
**Stand P160**  
www.tri-tech3d.co.uk

**Zeeko Ltd**  
**Stand P164**  
www.zeeko.co.uk

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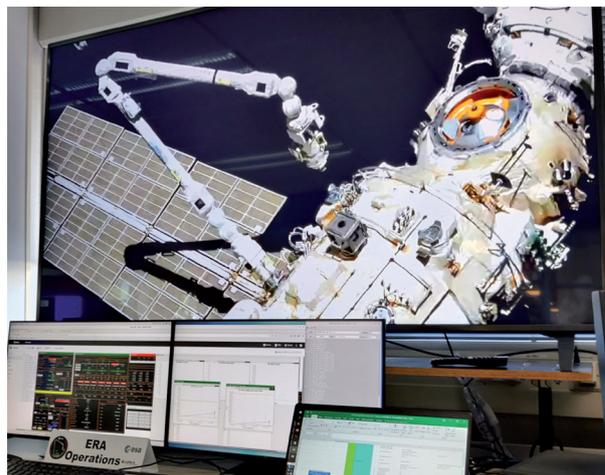
On day two, the forum will have a whole morning dedicated to space and satellite engineering, with talks from the UK Space Agency, Skyrora, D-Orbit UK and the Space Applications Catapult.

At the automotive forum, electrification and sustainability will also feature as major themes, with talks from JCB, Ford, the Advanced Manufacturing Research Centre (AMRC), Jaguar Land Rover and many more.

On the composites stage, visitors can find out more about what digitalisation means for composite manufacturing, the 3D printing of composite parts and how composites are enabling the UK's move towards its net-zero carbon emissions targets.

Composites UK CEO, David Bailey will return along with the National Composites Centre's Head of Digital Engineering, Marc Funnell. BAE Systems and Transport for London will also take to the stage.

During the connected manufacturing forum, Ian Gardner, Industry 4.0 and Oracle Specialist at IBM and Stephen Phipson, CEO of Make UK, will deliver keynote speeches. They will be supported by speakers from the



Connected Places Catapult, Brunel University London and IoT North, among others.

"This year, visitors will have access to over 200 hours of content across our four open forums," said Easyfairs. "The format of the conferences enables visitors from one industry to attend and learn from speakers from an entirely different sector, truly enabling cross-industry collaboration and education.

"All of the forums take place on our show floor, making them easy to access with

Photo courtesy the European Space Agency, which calls this image 'One small step for a Robot.' Advanced Engineering will dedicate part of its second day forum to space and satellite engineering.

a visitor or exhibitor pass. On top of this, Advanced Engineering UK has implemented various safety measures to ensure that visitors can attend securely and enjoy the event fully."

Visitor registrations are now open for the exhibitions and tickets can be secured by visiting the Advanced Engineering UK website.

[www.advancedengineeringuk.com](http://www.advancedengineeringuk.com)

# NOW FILTERMIST ADDS MORE PRODUCTS TO KEEP YOUR WORKPLACE CLEAN AND SAFE



**Manufacturing Solutions UK exhibitor Filtermist has manufactured its own brand of oil mist filters in the UK since 1969.**

Now, following a series of acquisitions, the Telford based team also now manufactures Dustcheck wet and dry dust collectors and venting filters, as well as Kerstar industrial vacuum cleaners.

All products manufactured and supplied by Filtermist, and its sister companies within the Absolent Air Care Group, are designed to ensure potentially harmful dust, fume, oil smoke and oil mist particles are effectively removed from the air in industrial workplaces.

As a UK manufacturer, Filtermist understands the necessity of ensuring the air in industrial working environments is clean and safe to breathe – not only from a regulatory compliance perspective, but also in terms of how a clean environment can contribute to employee recruitment and retention, product quality and cost reduction.

The current economic situation means more companies are looking to re-shore their supply chains to help protect against global supply issues caused by the pandemic and other factors.



“Working with a UK manufacturer means customers benefit from robust products which are built to last,” says Director of Operations, Martyn Pritchard. “They can also access technical expertise direct from the manufacturer rather than through a third-party distributor.

“This means the filter specified will be the best solution for specific customer requirements – not just what the distributor has on their shelf.

“Our products are used across a diverse range of manufacturing industries including aerospace, automotive, food production,

pharmaceuticals, medical devices and many more, and all Filtermist manufactured products are supported by a comprehensive aftermarket service to ensure equipment continues to perform as it did on commissioning.”

Find out more by visiting [www.filtermist.co.uk](http://www.filtermist.co.uk) to discuss how Filtermist’s UK manufactured products can help ensure your manufacturing operations are not hindered by contaminated air.

[www.filtermist.co.uk](http://www.filtermist.co.uk)

Filtermist is also at GTMA’s Manufacturing Solutions event at RAF Cosford. See pages 9-17.

## SEVEN ZONES AT ADVANCED ENGINEERING...

**These are these seven Zones at this year’s Advanced Engineering UK event:**

**Aero Engineering:** Billed as the UK’s only event 100% dedicated to aero R&D, design, test, inspection, production and assembly. Addressing structures, propulsion and systems, it brings together global OEMs and top tier manufacturers to source from all levels of the engineering supply chain. Supported by ADS, NATEP, and all regional associations.

**Composites Engineering:** The Composites Engineering show has established itself as one of the world’s most important composite raw material, design, processing and applications events. It highlights the advances of composite materials in sectors including automotive, aerospace, manufacturing and construction among others.

**Auto Engineering:** The auto sector is still vital to the UK economy, and a whole raft of OEMs are looking to develop and source new technologies from the supply chain. Join with attendees ranging from Aston Martin to Vauxhall, at the UK’s only trade exhibition and forum dedicated to the latest technologies and innovations in auto.

**Advanced Metals:** The development and application of advanced metals including aluminium, titanium, and magnesium, remains vital to all advanced manufacturing sectors. This zone provides the latest sourcing, networking and business opportunities and developments in design, processing and production.

**Connected Manufacturing:** This is the UK’s largest trade show and forum bringing together manufacturers and suppliers of all sizes and across all manufacturing sectors, to further automate their planning, design,

test, manufacturing and logistics processes. It’s about what Industry 4.0 really means for you.

**Space & Satellite:** The UK space and satellite sector is one of the UK’s most resilient manufacturing and technology industries and remains a key driver of growth in the UK. This zone brings together the UK’s space and satellite manufacturers, R&D partners, and supply chain companies in one place.

**Product Testing & Quality Control:** For manufacturing supply chain, product testing and quality control is an integral part of the business. This new zone for 2022 will cover areas from visual inspections in NDT to corrosion testing in destructive testing. Testing and quality solutions providers will share their know-how.

[www.advancedengineeringuk.com/visit/show-zones](http://www.advancedengineeringuk.com/visit/show-zones)

# CAN 3D PRINTING SUCCEED USING METAL?

This quickfire guide has the answers...

**3D printing is now an accepted part of manufacturing. But what are the possibilities of 3D metal printing. GTMA supplier Tri-Tech 3D has issued this quickfire guide to the issue.**

**Can all 3D printers print metal?**

No. While we've seen a recent influx of FDM printers offering metal options, these models cannot print metal parts directly but instead print metal with a wax or polymer. These will then need debinding and sintering, typically by a third-party company.

This adds time, increases risk of failure and can result in parts that are not fit for purpose.

**Are there specialist 3D printers that can make metal parts?**

Yes. Metal 3D printing is a highly specialist process and requires a custom printer model. The only directly printed metal systems use a laser to melt – or an electron beam – and are dedicated to metals only. Tri-Tech 3D offers two technologies for 3D metal printing.

**One Click Metal MPRINT+** is a low-cost, laser-based direct metal 3D printer. This can potentially take your project from CAD design to final part in the same day, without any compromise in strength relative to conventional metals.

**The OCM Metal System** includes XJet 3D printer models like the Carmel 1400M and 1400C which offer a two-stage process comprising printer and sintering. This technology offers very fine detail, small design features, with uncompromised features, due to water washable support.

**What kind of metals can be 3D printed?**

The open-ended flexibility of additive manufacturing extends to 3D metal printing. Tri-Tech 3D has often seen metal parts 3D printed using stainless steel (316L, 17-4PH), various tool steels, titanium, aluminium, Inconel and precious metals like gold and silver.

One of the key benefits of 3D metal printing is the lack of limitations. As a general rule, any metal type that can be conventionally welded can also be 3D printed.

**What about aluminium?**

Yes, and Tri-Tech 3D works with a limited selection of the many available grades of



Caption: Photos courtesy Tri-Tech 3D – the company is a leading UK supplier of Stratasys and Desktop Metal 3D print technology.



**Is metal 3D printing worth it?**

The viability of 3D metal printing versus conventional manufacturing all comes down to business-specific factors including the application, the production run, the size of parts and much more. But there's no doubting the potential return on investment

aluminium (data sheets can be supplied on enquiry). Please note that 3D metal printing aluminium requires some additional safety understanding due to the reactive nature (so ATEX-approved vacuum systems are needed, for example).

that 3D metal printing can bring across the board.

When you bring 3D metal printing in-house – for as little as £3k/month – the benefits really start. It frees up time on highly skilled CNC machines, in the hands of design teams to test projects.

**What metals cannot be 3D printed?**

Very little is technically impossible in AM – but there's no doubt that some metals are more challenging than others. These include copper and brass, due to the laser-based high reflectivity and also because of special copper-related requirements (very high density, for one).

3D printer technology can sharpen your designs, too, allowing you to build ten parts – but all slightly differently – to gain knowledge, cut development time and make you more flexible and competitive.

Often, the limitations come down to what is practical and affordable. Custom metals – like a space-grade aluminium, for instance – can be difficult to produce and are not always viable in the long term. Similarly, when 3D printing gold, platinum and noble metals, material cost is very high – not to mention safety and security.

With 3D metal printing, you could create parts that are lighter, unlocking a host of cost and efficiency savings. You could optimise your inventory, too, identifying long lead times on spares, reducing stock items – or even eliminating stock entirely with a digital catalogue.

**How strong is 3D metal printing?**

The strength of 3D metal printed parts is defined to various standards. Tri-Tech 3D supplies its clients with data sheets that set out the figures compared to conventional manufacturing methods.

Tri-Tech 3D will be pleased to speak with you about the possibilities. For 3D printers, software, hardware and support in the UK, call Tri-Tech 3D on 01782 814551 or email [info@tritech3d.co.uk](mailto:info@tritech3d.co.uk)



[www.tritech3d.co.uk](http://www.tritech3d.co.uk)

# BUYER-SUPPLIER CONNECT

New suppliers...supply chain events...press releases



## NEW DEAL FOR MOTOR SPORT

Nissan and McLaren Racing have announced a multi-year technical collaboration, beginning with the 2022/23 ABB FIA Formula E World Championship season. The partnership will see Nissan supply its EV powertrain technology to McLaren for the entirety of the Formula E Gen3 era.

The new agreement is in addition to Nissan's direct involvement in the highly anticipated Gen3 homologation of the sport. As a world-leading expert in the design and manufacture of all-electric vehicles, and following the recent acquisition of e.dams, Nissan will also continue to compete in Formula E with its own factory team.

"Our new partnership with McLaren Racing will be a powerful one, as the association will inspire collaboration and knowledge sharing," said Ashwani Gupta, Nissan's chief operating officer. Zak Brown, CEO, McLaren Racing, said: "This will drive both the teams' performance and the development of the Nissan Formula E powertrain technology."



Photo courtesy Nissan

## DESTINATION NET ZERO

The Aerospace Growth Partnership's (AGP) mission to make the UK a world leader in sustainable aircraft technologies moved forward with publication of its new AGP Strategy, Destination Net Zero. Launched at Farnborough International Airshow it sets out how UK aerospace will reduce the climate impact of aviation. The strategy is underpinned by a joint industry and government commitment to achieve Net Zero UK aviation by 2050 and co-invest at least £1.37 billion in research and development from 2022 to 2025, through the Aerospace Technology Institute (ATI). It will drive further efficiency of aircraft technologies and accelerate the development of ultra-low and zero emissions technologies.

## H2ZERO IN THE AIR

Rolls-Royce and easyJet have announced a ground-breaking new partnership, H2ZERO, to pioneer the development of hydrogen combustion engine technology for aircraft, including the narrow-body market. They will work on a series of engine tests on the ground, starting this year. The aim is to show that hydrogen has the potential to power a range of aircraft from the mid-2030s onwards. Rolls-Royce will bring its expertise in engine development and combustion systems; easyJet will contribute its operational knowledge and also directly invest in the test programme.

## SWITCHED ON SMEs

Nearly half of all SMEs (46%) have already switched to a domestic energy supplier due to sustainability concerns,

says the NatWest Sustainable Business Tracker. It is seen as an encouraging sign that UK businesses are seeking to reduce the carbon footprint of their supply chains. A further 20% are looking to re-shore at least part of their supply chain in the year ahead. 66% of SMEs will have switched at least some of their external vendors to domestic suppliers by the summer of 2023.

## NISSAN'S SOLAR DEAL

Atrato Onsite Energy, a specialist UK fund set up last year to focus on rooftop solar power installations, has acquired Nissan's latest solar power project in a £10.6 million deal that will see the car maker purchase power generated over a 20-year agreement. Atrato will take over the building of about 37,000 solar panels for the 20MW ground-mounted system. The project is part of Nissan's EV36Zero electric vehicles strategy and is expected to create about 20% of the power needed for its Sunderland plant.

## NEW JET FIGHTER

Moves to bring a new European jet fighter into service by 2035

took another step forward when the UK pledged to build and fly a prototype of the proposed Tempest warplane in the next five years. The 'combat air demonstrator' will test the



Photo courtesy Eurofighter

Tempest's technology and design for the Tempest, with work led by BAE Systems and the UK Ministry of Defence. BAE is collaborating with engine maker Rolls-Royce, Italian defence firm Leonardo SpA and the UK arm of missile maker MBDA on a successor to the current Eurofighter model.

## £3.5m DATA CENTRE

Sheffield's Advanced Manufacturing Research Centre (AMRC) Cymru has been awarded a £3.5 million grant from the Aerospace Technology Institute to establish a Manufacturing Data Centre of Excellence in Broughton. The

centre will develop technologies so that Welsh manufacturers can use data they generate.

Advanced product verification technologies will also deliver digital innovations that will connect supply chains, increase productivity, drive sustainability and create high-value engineering jobs.

## BENTLEY IN IT

Bentley Motors has become the first company to be awarded South Pole's Net Zero Plastic to Nature accreditation after a successful waste stewardship appraisal. The status is internationally recognised and underlines Bentley's ongoing environmental initiatives and is a key part of its Beyond100 strategy to achieve end-to-end carbon neutrality by 2030.

## 'YES' TO NUCLEAR

The UK Government has signed the development consent order (DCO) for the proposed Sizewell C nuclear power plant. The consent order effectively grants planning permission for the £25 billion new nuclear plant in Suffolk.

Stand 6  
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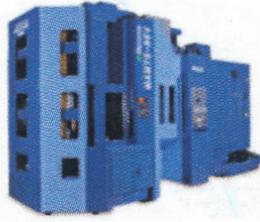
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## APSLEY PRECISION ENGINEERING

### 35 YEARS A WINNER

**Apsley Precision Engineering Ltd has an enviable reputation as a flexible and efficient sub-contract precision engineering company.**



It has over 35 years experience and has a comprehensive range of multi-axis CNC milling and turning machinery as well as a full tool-room facility for smaller volume and prototype production. It offers a complete precision engineering service.

The heart of its business is precision and close tolerance machined components and assemblies. It is perfectly equipped to serve customers who need low, medium or high volumes of precision machined parts for both prototype and production requirements.

Apsley typically machines components to +/-50 micron tolerances but can achieve

tolerances as tight as 10 microns. Its multi-axis CNC machinery with sub spindle and 4th axis capability, removes the need for secondary machining operations.

This allows components to be completed in a single operation, reducing precision machining times and, costs and improving accuracy for an all round engineering service.



[www.apsleyeng.co.uk](http://www.apsleyeng.co.uk)

## ECLIPSE MAGNETICS

### MAGNETIC MAGIC

**Eclipse Magnetics manufactures high quality magnets, supporting various industries with advanced magnetic technology and equipment.**



It produces Magnetic Filtration systems for CNC or EDM machine fluids, Magnetic Chucks for precision steel machining and Magnetic Lifting solutions for safe movement of steel.

It also has a range of magnetic workshop tools such as DTI bases, sweepers, pick up tools and swarf wands.

Eclipse can make a difference to your business by applying magnetic technology to drive competitive edge by reducing costs, increasing operational efficiency and improving safety or environmental benefits for a variety of engineering applications.

Its unrivalled product portfolio includes machine tool filtration systems, separation systems, metal detection systems, lifting and handling systems, workshop tool and bespoke magnets and magnetic assemblies.

Eclipse invented the world's first permanent magnetic chuck in 1934 and remains in the forefront.



[www.eclipsemagnetics.com](http://www.eclipsemagnetics.com)

## JENTON INTERNATIONAL

### AUTOMATION SPECIALISTS

**Jenton International manufactures and distributes specialist automation equipment into the UK and Irish markets. Core business areas are medical, electronics, automotive and packaging.**



Jenton designs and supplies UV curing and drying systems, jigs and ovens as well as UV air and surface disinfection, viscosity controls and bespoke automation including banding, stacking, testing and converging.

With 50 years experience it has long-standing capability in industrial control, sensing and instrumentation.

UV curing is a major contribution to the Jenton business. It supplies all types of UV curing equipment found in engineering applications from UV conformal coating through UV spot cure systems used in medical

device and optical device manufacture to high intensity arc and LED systems for industrial applications involving adhesives, ink jet, paints and specialist coatings.

It has a well stocked demo and test area for potential customers at its Hampshire premises and is ISO9001 accredited. Its experienced team can calibrate UV measurement instruments from Excelita to EIT.

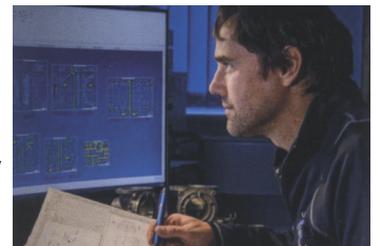


[www.jenton.co.uk](http://www.jenton.co.uk)

## LANGSTONE ENGINEERING LTD

### THE PROBLEM SOLVERS

**Langstone Engineering brands itself as "the UK's first choice in Precision Engineering."**



The company has a 45-strong team of engineering problem solvers, helping you thrive by meeting your specification and requirements for a broad range of precision-manufactured parts and projects.

It challenges convention to make it better and make it beautiful. With over 20 years' experience operating on the south coast; its highly skilled craftsmen achieve stunning results to the most demanding of tolerance, detail and timescales. Everything it does delivers on this promise.

Using the latest technology enables it to engage in the exchange of secure electronic models and data in a comprehensive range of formats.

Its "Supply complete to drawing" service includes design, advice on material selection, procurement of materials, control of any necessary treatments and the delivery of individual parts, mould tools or complete assemblies.

Langstone works with large and small companies in the UK and internationally across sectors including Formula 1, Motor Sports, Aviation, Industrial, Oil & Gas, Automotive, Defence, Marine and Medical.



[www.langstone-engineering.co.uk](http://www.langstone-engineering.co.uk)

**MANTECH GEOMETRICS**

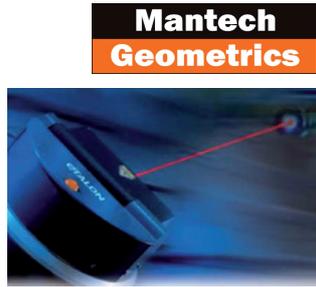
**77% PERFORMANCE GAINS**

Midlands-based, Mantech Geometrics provides cost effective measuring solutions, including CMMs (Coordinate Measuring Machines), multi-sensor measuring machines and X-Ray Tomography systems.

Additional services include machine tool enhancement for verification, calibration and/or error mapping of machine tools using the self-tracking laser interferometer from Etalon. This offers mobile measuring technology for the measurement and volumetric compensation of deviations on machine tools and CMMs.

The company also now offers mobile measuring technology for the calibration measurement and compensation of deviations on machine tools and CMMs.

**Improvement of Volumetric Accuracy:** A full machine



tool error map can be automatically fed into the latest generation of CNC machine tool controllers to correct machine position through volumetric compensation. Performance improvements of up to 77% have been achieved using this technology. Performance tests are completed to ISO 230. Geometry testing of CMMs or machine tools to International Standards, in as little as 30 minutes using TRAC-CHECK software, is available.



[www.mantechgeometrics.co.uk](http://www.mantechgeometrics.co.uk)

**MAPAL LIMITED**

**CUTTING IT VERY FINE**

As a precision cutting tool technology partner MAPAL supports its customers with the development of efficient and resource-saving manufacturing processes using standard tools, bespoke tooling concepts and the optimisation of tool details.



understanding of the processes for almost all methods and applications in machining manufacture.

It realises that companies that manufacture Dies and Moulds expect high process and product expertise from their cutting tools manufacturer. They require tools with the highest levels of precision, a long tool life, and – above all – process reliability.

These aspects make MAPAL successful in many sectors including automotive, machine engineering and aerospace.

In many years of close collaboration with its customers, MAPAL has developed a deep

For 70 years its focus has been on comprehensive advice and support for machining tasks and processes and its tools stand for the highest level of quality and cost-effectiveness. This is guaranteed by uniform, state-of-the-art production facilities and standardised production processes worldwide.



[www.mapal.com](http://www.mapal.com)

**MORGAN INNOVATION AND TECHNOLOGY**

**MEDICAL INNOVATORS**

Morgan Innovation & Technology Ltd is a multi-award-winning British manufacturing business working with global companies to develop innovations that positively impact society in the medical, defence and commercial industries.

It is a family-run organisation and is a trusted partner for many inventors, university teams and innovation hubs.

It has specialised in radiofrequency products, specifically in pain relief, for over 30 years and recently opened additional assembly lines for agile production, including prototyping, box build and small runs, while keeping its high-end electronics manufacturing lines open.

Quality assurance is the cornerstone of Morgan's ethos. It is ISO 9001:2015 and ISO 13485:2016 certified and



registered with the FDA (Food and Drugs Administration). It is also certified by the BSI Group (British Standards Institution), Cyber Essentials and the VCA (Vehicle Certification Agency).

The company initially developed medical products and, in partnership with a GP, conceived and launched its first lesion generator which was sold into the National Health Service in 1989.



[www.morgan-iat.co.uk](http://www.morgan-iat.co.uk)

**WINMORE ENGINEERING**

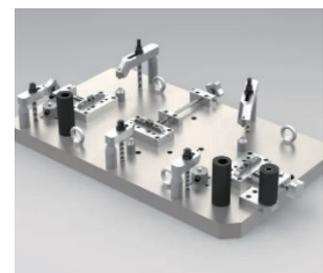
**DESIGN SPECIALISTS TO HELP**

Winmore Engineering is a mechanical engineering design consultancy based in Derbyshire providing expert design services to small and medium sized businesses.

It specialises in the design of engineered products and industrial equipment. As an organisation it is utterly committed to providing excellent designs to a world class standard along with a friendly and approachable customer service.

Its comprehensive design service goes from specification through to a complete design ready for manufacture. It works closely with its customers to develop the specification and review the design as it progresses.

It can be applied to individual component parts, complex mechanical assemblies, bespoke production tooling and



fixturing or even just a problem that has to be solved. The process is flexible so it can adapt to suit your specific needs and it can be involved as much or as little with your in house teams as you want.

Winmore supports its customers to excel in whatever industry they operate in. Whether you need a concept to production ready design or short term additional resource to overcome a high workload, call Winmore, It can help.

[www.winmoreengineering.com](http://www.winmoreengineering.com)

# MANUFACTURING SOLUTIONS IRELAND

## RECORD BREAKING GTMA EVENT IN LIMERICK

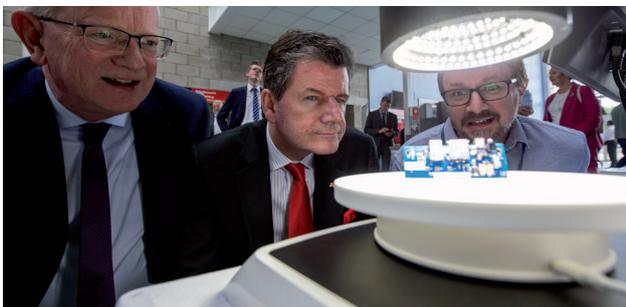
**More than 1,600 people attended the largest ever Irish-UK manufacturing collaboration event to be held in the Mid West.**

Jointly organised by GTMA and TUS, Manufacturing Solutions Ireland was described by the British Ambassador to Ireland as a perfect example of UK/Ireland collaboration.

This year's event extended its offerings over two days (June 15-16) to include a multi-million Euro Manufacturing Technology Zone, the IDEAM Digitalisation of Manufacturing Conference, Meet the Manufacturer and the successful manufacturing supply exhibition.

Each year the event sees new ideas, new technologies, materials and processes on display, but none more so than this year; through both the 150 trade exhibits and the Manufacturing Technology Zone.

The event's progression to knowledge sharing and doing business is testament to the relationships built over the years.



Manufacturing Solutions Ireland continues also to shine a light on the innovation and skills of the SME engineering community, and they remain responsive, fast, flexible and competitive in a global markets.

The newly added Digitalisation of Manufacturing Conference welcomed SME business

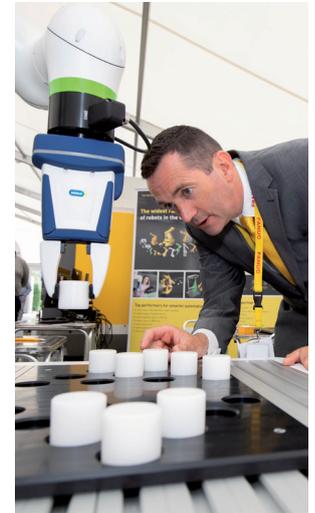


clusters, such as Manufacturing Northern Ireland, to take part in joint workshops and work collaboratively with the TUS based IDEAM national industry cluster, as well as encouraging movement towards digitalisation of manufacturing among SMEs and providing access to relevant funding.

The British Ambassador to Ireland, Paul Johnston, who attended the second day of the event, said: "Manufacturing Solutions is a perfect example of UK/Ireland collaboration, enabling businesses from across these islands to form new relationships and display the latest innovation in

manufacturing technologies and engineering solutions.

"Further demonstrating strong UK/Ireland connections, the event is jointly organised by a UK trade association and an Irish university and has the involvement and support from both the Irish and UK



Governments alongside InterTrade Ireland and Enterprise Ireland."

**The date for the 2023 event has been announced for June 14-15, 2023.**

### SUPPLY CHAIN EVENTS DIARY

ALL EXHIBITIONS WILL BE SUBJECT TO CONFIRMATION

#### 2022

**22 Sept** GTMA: Manufacturing Solutions UK, RAF Cosford, Shropshire

**2-3 Nov** Advanced Engineering NEC, Birmingham, GTMA Pavilion, Stand N163

**18 Nov** PIA Awards Intercontinental London, Park Lane

#### 2023

**Mar** GTMA, Meet The Toolmaker TBC

**22-23 Mar** Medical Technology UK, Coventry Building Society Arena

**7-8 June** Subcon NEC, Birmingham

**June** Med-Tech NEC, Birmingham TBC

**14-15 June** GTMA: Manufacturing Solutions Ireland, TUS, Limerick, Ireland

**12-15 Sept** DSEI Excel London

**26-28 Sept** Interplas, NEC, Birmingham

### ALSO IN THIS ISSUE

**Manufacturing Solutions UK**  
Pages 9-17

**Advanced Engineering UK**  
Pages 47-49

## Tees celebrates £3 million of orders and Iceland

Celebrations are underway at GTMA supplier Tees Components in East Cleveland, where the team has secured several large contracts and hit an all-time record order book of £3 million. It's an historic high for the family business, which will reach its 60th year of operation next year. The contracts include £1.75m in new orders in the second quarter alone, and almost 50% of its work will be exported.



Tees was nominated this year to be a Department for International Trade (DIT)

Northern Powerhouse (NPH) Export Champion, in recognition of its consistent direct export sales and promotion of British engineering excellence overseas. Already well-established in the United States, Saudi Arabia, South Korea, and throughout Europe, the company has recently expanded into Iceland as a new market.

[www.teescomponents.co.uk](http://www.teescomponents.co.uk)

## THROUGH THE KEYHOLE AT MORGAN

Morgan Innovations opened its doors earlier this year as part of Make UK's National Manufacturing Day. The aim was to offer 'through the keyhole' tours of its manufacturing base and encourage all age groups to consider a career in manufacturing. Visitors saw Morgan's production facility and could ask questions of its experts in R&D and see some of the ground-breaking innovations developed by the company. Also there was GTMA CEO, Alan Arthur, who welcomed Nigel Clarke, CEO of Morgan Innovations, to his new appointment, to the GTMA Board.

<https://morgan-iat.co.uk/>

## Naturally excellent

The Natural History Museum (NHM) in London is one of the few museums in the world to automate the X-ray CT scanning of specimens. It recently took delivery of its second CT scanner from GTMA supplier Nikon Metrology, part of the global Nikon Corporation, which has extensive experience working with and advising museums on every continent. The latest Nikon XTH225 ST system is fitted with a 10-station sample autoloader.

Racks of samples are loaded inside the cabinet, enabling the system's in-built manipulator to automatically load them onto the scanning turntable and subsequently retrieve them.

[www.nikonmetrology.com](http://www.nikonmetrology.com)

## 50 year hospitality

Plastic injection moulder and toolmaker Pentagon Plastics celebrated its 50th Year in business by closing early on July 22 and treating employees both past and present to an afternoon of all expenses paid hospitality. Initially delivering low volume tooling and moulding Pentagon has been on an incredible journey of growth and is now recognised as one of the most reputable plastic injection moulders in the Southeast. The company is recognised for its extensive technical moulding capabilities.

[www.pentagonplastics.co.uk](http://www.pentagonplastics.co.uk)

## One out of three

Yorkshire Toolmaker, Faulkner Moulds, is one of just three manufacturers in the Calderdale area to be nominated and shortlisted for the 2022 Business for Calderdale 'Manufacturing Award'. The awards celebrate local business achievements, shining a spotlight on businesses that have "gone above and beyond". The Judges said it was "a tough decision" to narrow the entries down to three.

They were "astounded with examples of organisations being creative, innovative and enterprising". [www.faulknermoulds.net](http://www.faulknermoulds.net)

## Net zero commitment

To reduce its contribution to carbon emissions, global engineering technologies company, GTMA's Renishaw, has invested in a dedicated sustainability team. The newly formed team will use its expertise to ensure Renishaw meets its

commitment to Net Zero by 2050 at the latest, a target which will be validated and monitored by the internationally respected Science Based Target initiative (SBTi). [www.renishaw.com](http://www.renishaw.com)

## The missing link

Protolabs, one of the world's leading digital manufacturers, is offering engineers a critical 'missing link' to help them find the best manufacturable solution for their parts. The GTMA supplier supports thousands of companies in the UK and Europe every year, and has launched a new injection moulding Consultative Design Service. This will tap into the critical thinking and problem solving of its 200-strong team of engineers.

Already known for its automated design for manufacturing analysis via its digital quoting platform, the new offer has the potential to help clients optimise performance of its components, reduce manufacturing costs and shorten lead times. "It's a really fast way of checking that your design is practical for production," says Protolabs.

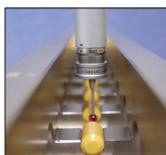
[www.protolabs.co.uk](http://www.protolabs.co.uk)

Starrag UK is celebrating a very successful Manufacturing Solutions Ireland 2022 exhibition in Limerick where the cutting demonstrations on its just-launched Bumotec 191neo multi-axis machining centre attracted interested visitors non-stop throughout the two-day exhibition.

## NEXT ISSUE

Meet the  
**Toolmaker UK**  
and  
**MEDICAL TECHNOLOGY UK**  
*Don't miss it...*

### GTMA Achievers



best possible performance.

CHE carry a vast stock of spares to provide swift and economical repairs for their customers. All retrofit systems are fully supported with repairs to component level and backed up by 'off the shelf' complete service support systems.

### che coordinate metrology

Highly trained service and calibration engineers with over 35yrs of skill and experience to meet the requirements of today's markets without the need to out source skills.

Accredited to the latest UKAS / ISO standards for coordinate measuring machines and measuring arms.

**The original 'One Stop Shop' in the CMM world.**

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BRITISH MADE.  
WORLD CLASS.

Cycle time savings  
of more than  
**80%**

#### CONICAL BARREL TOOL

INCREASED STEP DOWN DISTANCES ( $a_p$ )  
WITH NO DETRIMENTAL IMPACT  
ON THEORETICAL SCALLOP HEIGHT

#### FORM-F BARREL TOOL

USED TO REPLACE SCANNING  
WITH BALLNOSE END MILLS ON FLAT  
SURFACES, TO PRODUCE FINE FINISHES  
AT REDUCED CYCLE TIMES

#### TANGENTIAL BARREL TOOL

LARGE RADIUS OF CURVATURE ( $R_w$ )  
FOR INCREASED CONTACT AREA,  
REDUCING THE NEED FOR BALLNOSE END MILLS

#### LENS BARREL TOOL

FOR CONCAVE AND CONVEX SURFACES WHICH  
REQUIRE FINE FINISHES, GREATLY REDUCING  
MACHINING CYCLE TIMES – CAN BE USED WHERE  
OTHER BARREL TOOLS ARE NOT POSSIBLE

#### CONCAVE BARREL TOOL

A QUICKGRIND FIRST, THIS TOOL IS SUITABLE  
FOR PRODUCING FINE FINISHES ON CONVEX SURFACES,  
WHERE QUALITY AND SHORT MACHINING TIMES  
ARE OF THE ESSENCE

See us on stand 6  
Manufacturing  
Solutions UK  
22.09.22  
RAF Cosford  
Museum

## IT ALL POINTS TO ONE THING.

Our Eliminator barrel tools will transform your operations.  
Unleash their potential on your next automotive  
or motorsport/F1 project. Full CAM support available –  
call for information.

