

# Best Practice



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## Importers utilise Chinese rail service, reducing ocean transit times!

Here at Best practice we are recommending Davies Turner as the leading international freight operator for its innovative thinking despite global economic and warfare challenges.

Davies Turner was founded an astonishing 150 years ago in 1870 as the first fully legitimate economic operator in Europe and now a truly international freight forwarder. With such established longevity comes a trusted reputation within the industry. The latest exciting expansion is an express freight rail service across Asia from China departing twice weekly from Wuhan in the central Hubei Chinese province. The LCL rail service currently departs on Wednesdays and Saturdays, directly to a UK rail terminal and takes approximately 20-25 days from door-to-terminal. Shipping rates from Asia to the UK increased exponentially last year to a record 14 times higher than pre-COVID-19 rates.



"Russia's invasion of Ukraine has had various impacts on various different industries: freight and logistics being one of them. The port of Odessa was shut down for almost six months after the city was hit with Russian missiles. Ukraine is a big part of the global food industry, exporting grain via the sea out of Odessa. With this coming to a temporary halt, global food prices have shot up with the limitation of grain available for food production. This has also affected the freight industry as fuel rates increase and has in effect accelerated a global recession."

As an International Freight Forwarder, the company is at the mercy of world events such as the war in Ukraine and to mitigate further risk, is always looking for positive news to pass onto end-user customers. Whilst shipping transit rates continue to fall after peaking last year,



Industry analyst S&P Global Platts saw costs rocket to \$18,000 per container with shipping transit schedules double from 35 to 70 days. The Chinese rail links are notably faster than sea freight (saving approximately 22 days) and on average it is 70% cheaper than air freight, offering customers a quicker alternative to more traditional transportation. It is this kind of ingenious, bold thinking that has maintained Davies Turner's position as a leading International Freight Forwarder.

With 23 UK branches including its head office in London this company successfully swerved the fallout from COVID-19 by thinking outside the box. Andrew Ford, Branch Manager from the Rotherham branch focuses on less conventional transportation,

"We specialise in awkward and out of gauge shipments. We have shipped many vehicles ranging in sizes and type to small rail engines as well as large machinery moves."

Although the majority of the pandemic restrictions have lifted alongside a slow reduction in shipping costs, there are new unprecedented challenges from the war in Ukraine, organised port strikes and the cost-of-living crisis as Andrew highlights,



Andrew is confident that the company can ride the storm of new challenges ahead.

"The cost-of-living crisis may affect how much manufacturers are able to import and export, due to consumers not being able to afford buy these goods. However, we hope that the freight rates dropping will make it so that manufacturers will still be able to afford to ship and import goods to keep the supply chain moving."

As the company continues to navigate its way through many challenging external aspects it has continued to receive many heavyweight industry awards. In 2020 Davies Turner won not only the coveted European Logistics Category Award from The British International Freight Association (BIFA) but was also shortlisted for

the Supply Chain Management category. Philip Stephenson, Chairman of the Davies Turner group was delighted.

"Davies Turner is well known for its comprehensive European overland portfolio which offers direct groupage, part load and full load trailer services with dedicated express transit and super-express options. The market for European overland operations is very mature and highly commoditised, so the opportunities to differentiate the service offering are limited. Furthermore, a significant proportion of the traffic on the network is booked and contributed by other freight forwarding and logistics companies, which do not operate their own services. Increasingly these important third party co-loaders have sought the ability to obtain immediate rates for any of our European overland export and import trailer services in real time, without having to resort to time-consuming telephone calls, emails or filling in online quotation request forms."

The ingenious unique selling proposition of e-freight quotations and third-party bookings 24 hours a day has led to a substantial increase in business development, especially across the European sector.

With digital innovation and the express Chinese rail system, Davies Turner will be leading freight forwarding services well into the next future.

For an Air, Sea, Road freight quotation and further information, see the details below:

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**WorkfloPlus**  
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**Intoware**  
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**UNISIG**  
DEEP HOLE DRILLING SYSTEMS  
**Unisig**  
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**Interface Force**  
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**MANOSUN**  
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see them on page.....

# The Bona Resilient System delivers simple processes with minimal downtime

Once again, Best Practice is thrilled to recognise Bona for its innovative solutions to sustainable flooring and honour it as our Flooring Specialist Company of the Month.

Bona is a family-owned, sustainably driven company that supplies products for installing, renovating, maintaining and restoring premium floors. Founded in 1919, Bona offers products for the most premium floor surfaces including wood, tile, vinyl, resilient, rubber and laminate.

From its commitment to sustainability, to the relationships with customers and unparalleled service, Bona commits to delivering the absolute best, every time. Bonas Resilient Floor Solution is a complete, effective system which restores, renews and upgrades resilient floors. From vinyl, PVC, linoleum to rubber, this renewal treatment provides the perfect floor in a matter of hours. Marketing Manager Leanne



the forefront of Bona. Within this important upgrade of facilities for the Bona business, a new training centre is being constructed. Bonas new training centre will launch in early 2023, offering a wide range of training and development opportunities for flooring craftsmen. With more capacity for direct customer demonstrations and practical technical support."

Bona takes pride in its commitment to a more sustainable future and is dedicated to its responsibility within the flooring industry to demonstrate best practice. "We believe that it is our responsibility to do better, and be better in everything we do. Sustainability is core to our business and has been embedded in our company culture since 1919. What we've learned from 100 years of committing to sustainable practices is that sustainability is ever-evolving. Rather than a destination, it is a multifaceted journey that changes as our world changes," stated Leanne.

focused on bringing better products and practices to Home, Health, and Humanity across the globe.

Whether you work in a hospital, school, building, office, retail have even experienced on an international arena's floor, it has more been sealed and treated floor product. Known around the world as best in class, every single Bona product is designed to bring out the beauty in floors.

Since COVID-19, Bona has redirected its marketing strategy to include more digital content across multiple platforms. Leanne explained, "during the peak of the pandemic, it wasn't possible to reach our clients on a face-to-face level. To keep things moving forward, we invested in digital webinars, online educational and training materials and launched an informative YouTube channel. This proved to be a popular way to engage with our audience."

In closing, Leanne mentioned how the company plans to continue growing through its innovative new flooring solutions for the industry. "Bona will continue to develop sustainable products to improve and provide ecologically friendly systems. We are always looking at the latest flooring trends and strive to offer products and systems to support the industry. Bona is the first company to offer sustainable yet high performing products for the flooring industry. Our development of waterborne lacquers, dust free sanding solutions, silane-based adhesives and renewable flooring systems continue to offer a safe and sustainable product range for our customers. That's the Bona difference."



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**41% COST SAVINGS**  
**90% ENERGY SAVINGS**



Garvie told us, "with this solution, even dramatic makeovers and colour changes can be easily achieved, at half the cost of a floor replacement. Renewing a floor instead of replacing it also contributes to a reduction in carbon footprint by up to 90%. We call it Bona Resilient Solution; you could call it a brand-new floor."

The solution involves three aspects; Rethink, Renew, Upgrade. Offering an entirely sustainable programme which significantly improves durability and safety while transforming its look, with this Solution, existing resilient floors can be completely renewed in a few easy-to-learn steps. Providing a cost-effective outcome, Bona can half the cost of your next floor replacement whilst completing it in as little as 24 hours. Leanne continued, "It's an innovative and highly effective solution that transforms and extends the life of resilient floors. This system can be used not just to maintain a floor's freshness, but also to totally transform its look, without replacing it. Even in heavy-traffic areas, surfaces can be sealed for extra durability and long-term protection."

It is this pioneered, forward-thinking approach that has enabled Bona to grow so rapidly over the past 12 months, outgrowing its current facilities to accommodate for more business. Leanne explained, "to allow us to continue growing, training is always at



Developments in technology, new innovations, and cultural shifts are all part of how Bona continue to create a better world, and its sustainability journey is aligned and in accordance with the United Nations' Sustainable Development Goals. This means that it is



For further details please see below:

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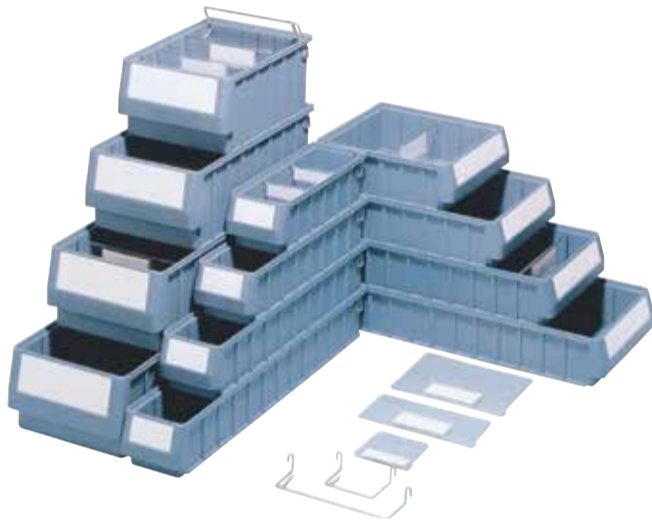


# Innovative solutions, sustainable practice



In this issue of Best Practice, we are proud to announce that we have chosen to Recommend BITO Storage Systems for its innovative storage technology.

BITO Storage Systems is the Nuneaton-based UK subsidiary of BITO Lagertechnik, whose head office and main production facilities are in Germany. As one of the leaders in its field, BITO is proud to be a leading supplier of solutions for shelving and racking, storage and order picking systems, bins and containers, and warehouse equipment and accessories for a broad array of applications, whether for SMEs or major corporations.



Edward Hutchison, Managing Director of BITO Storage Systems commented, "we have a regionally based design team that is able to understand their local clients' challenges, such as increasing picking speed and reducing stock levels, and can deploy their experience to contribute a solution at a justifiable return on investment. We are currently seeing a particular trend towards lower cost solutions to help improve fulfilment operations and meet the need for flexibility. These might include multi-tier shelving, adapting pallet racking for picking small items, installing live storage flow shelves to improve pick face density, or investing in bins and containers for efficient storage and delivery. BITO's sales team will carry out the evaluation of the challenge and design of a solution."

BITO has maintained a consistent growth over the last 12 months, so we asked Edward his thoughts, "With the family-run BITO group reinvesting profits back into the business, we remain a solid, financially stable and reliable partner for our clients into the future. The company is more productive than ever, having increased production capacity. In the UK, BITO's confidence factor is underscored by bolstering our installation team and increasing staff numbers - both in our warehouse and



in project management division. Our recently revamped Experience Centre showroom at Nuneaton offers an excellent opportunity to see and try BITO products."

Of course, a growing business will always be faced with challenges. Learning to adapt and overcome is inevitable for continued success. To keep on top of the market demand, stock fulfilment and lead times, BITO has ensured that its financial management monitoring of performance and business strategy and practice remain its key focus. "Businesses are being tasked with handling growing online order volumes and fulfilment challenges including ensuring items are in stock, orders are picked accurately and delivered in perfect condition. We are also facing all kinds of economic turbulence at the moment but meeting these challenges requires selecting the right materials handling equipment and storage systems. We provide a one-stop-shop solution that is efficient, fault free and works seamlessly with all parts of the fulfilment operation. Sourcing bins from the same manufacturer that provides shelving, racking or live storage will ensure the smoothest operation," added Edward.

To keep business moving along, BITO is firstly ensuring that growing order volumes are fulfilled, as well as bringing more full load deliveries into its Nuneaton hub both for restocking the warehouse and to cross dock customer orders. Crossdocking allows BITO to, for example, send several incoming pallets of plastic containers direct to a customer's site on local transport.

Secondly, sustainable business practice has always been a priority for BITO, as it continues to consistently support innovative technologies and state-of-the-art machinery. This was highlighted in 2021, when TÜV Rheinland Group Carbon Services verified the company as climate-neutral. "We are proud of our quality products, which are designed to last. BITO multi-trip containers are the ideal alternative to disposable cartons, because they are sturdy, durable and suited to rough handling. For example, just one BITO multi-trip MB container replaces

hundreds of disposable cartons during its long service life," stated Edward.

BITO's innovative and unique approach allows it to stand as unrivalled market leaders in its field. Its services are known across the world for being reliable, trustworthy and long-lasting. In closing, Edward mentioned why BITO is such a successful company. "The best way to ensure you have a cost effective and flexible solution that not only fulfils a company's current requirements but can also adapt to changing market conditions is to engage a solution provider that can combine experience, expertise backed up by high quality products that can be relied upon and work seamlessly as part of an integrated solution. And, this is exactly what we offer."

For more information, see below.

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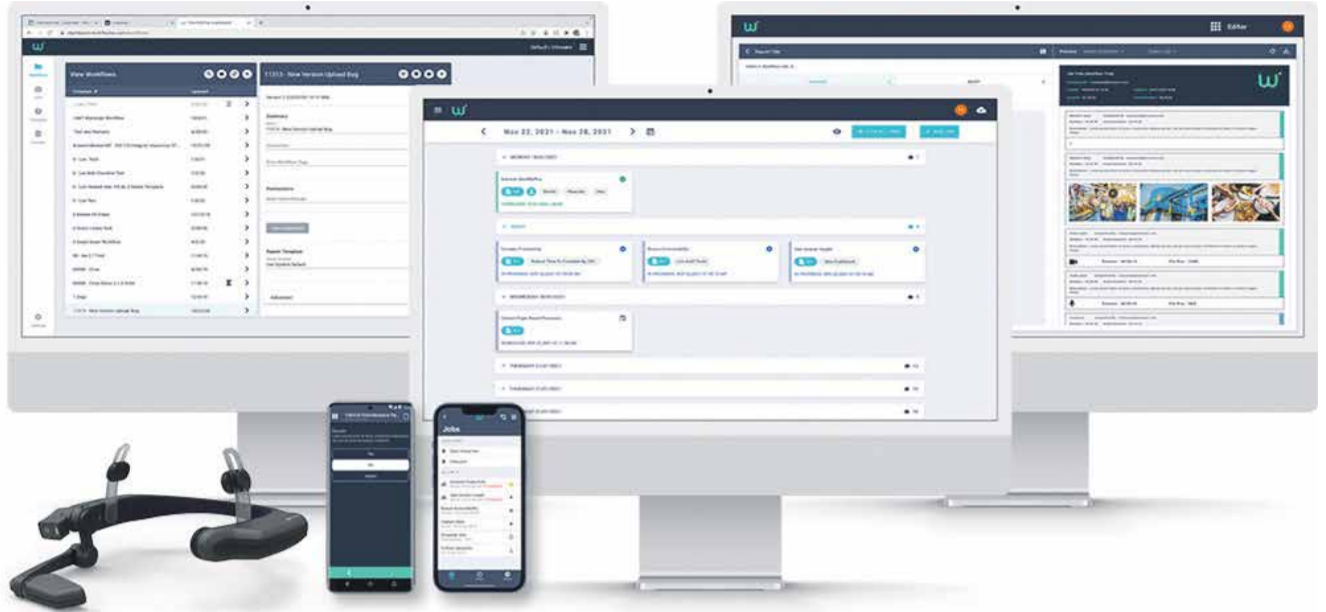
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# Industry 4.0 is great, but how about your very own Industry 5.0?

Keith Tilley, CEO at digital workflow automation leader, Intoware explains why manufacturers must put their workers' needs first to embrace the future of the industry.

Anyone involved in manufacturing will have heard of Industry 4.0, the powerful concept of bringing smart technologies such as AI, the cloud, workflow automation, wearables and 'real-time' data to manufacturing. At the core of this revolution is the need for greater efficiency, productivity and quality. It's about better collaboration between people, processes and systems, by combining the accuracy and speed of automation with human thinking.

But for most manufacturers it's still just an idea. You've already invested in an ERP system to streamline your operations and have reports to see if you're meeting production targets, but do your current systems show you where all the human bottlenecks are that take up time and resources? How do you ensure that the human element of your smart factory is also working to its optimum?



The most successful digital transformations are when people, processes and systems are combined harmoniously. Tailored digital workflows enable processes carried out by humans to be easily collected and analysed. Every step of a task is easily recorded so you can see where the 'human bottlenecks' are in your manufacturing processes - are the best people on the job, are they being supported in the right way?

If you can allocate the right number of skilled people to reduce inefficiency and enhance productivity you can prevent these sticking points. Also, by supporting people with the right training when it's needed on the factory floor with standardised, guided workflow instructions, they will quickly learn their role inside and out. Workflow automation software can highlight the human elements, that today's smart factory often misses.

A 'real-life' customer, Bayer Pharmaceuticals has successfully digitalised its factory operations with workflow automation platform, WorkfloPlus to help streamline production change overs at what is considered to be one of the world's most advanced manufacturing plants in Italy.

Bayer Pharmaceuticals deployed WorkfloPlus with

Realwear wearable devices to streamline and manage its essential production change over process, in what the highly regulated pharmaceutical market. Drug manufacturing operations require regular cleaning and change overs between each batch, by adopting WorkfloPlus it allowed frontline factory workers to ensure that the procedure is taken in a consistent and timely manner, minimising "down-time" for greater cost efficiency. At the same time guided work-instructions ensure thorough audit checks that satisfy GxP (good practice) compliance needs better than any paper 'tick-list' could deliver.

If you're wanting to start the journey towards your very own industry 5.0 by moving from paper-based processes and legacy systems visit [www.intoware.com](http://www.intoware.com)



Our latest eBook 'Putting People Not Processes at The Centre of Operation, provides the practical steps you need to take to move forward from paper-based processes and legacy systems to the smart factory - your very own Industry 5.0.

It's about putting your people at the centre of the production process, so you have a clearer understanding of the problems they have in their work routines and how to solve them. It unleashes the hidden big data possibilities of your human process? It's about putting people first and being "data informed" not just "data-led".

New technologies such as smart digital workflows, assisted reality (AR) and the cloud can improve human process efficiencies, reduce costs, ensure your staff are safe and speed up staff onboarding and upskilling. By digitalising paper-based and human processes, you can bring your frontline workforce into industry 4.0 to help you:

1. Harness data from human processes
2. Ensure auditability and traceability across all operations
3. Reduce human errors and improve productivity, for better business performance
4. Provide 'real-time' data and reporting to improve the quality of work and deliver cost efficiencies
5. Putting people first

But while the need to optimise factory processes is essential, this isn't enough on its own. To deliver great performance, you must put people first - from frontline workers, to supervisors and managers, they need to be at the centre of your operations. As the real power behind any digital transformation is the people, as they will help to drive meaningful change.





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DEEP HOLE DRILLING SYSTEMS

# Unisig Deep Hole Drilling Systems: perfection is never an accident

UNISIG produces deep hole drilling machines that are used around the world by nearly every industry imaginable – and at UNISIG, striving for perfection has never been an accident. To secure long-term success, the company decided to further invest in machining its own precision parts rather than subcontracting components, as some of the most critical parts they produced have tolerances and complexity that cannot be made by most machine shops.

thinking by the team’s engineers, programmers, and machinists. To harness this new direction, UNISIG put in the time and energy to secure the best manufacturing resources available, including several Okuma machine tools.

To begin, UNISIG devised a plan to combine modular fixturing, offline tool setup, and full simulation of the machine, workpiece, and tools to provide a platform of innovation within their machine shop. The team’s



without stopping and manually verifying the machining process many times during the cycle. The Okuma MB-10000H installation was a success and reinforced UNISIG’s wisdom to focus on automated machining – and the benefits were so extraordinary that UNISIG continued to look to additional Okuma solutions to bring its strategic vision to life.

after installation were very impressive, allowing lights-out automatic machining of parts previously not possible for UNISIG to manufacture.

With two machines from Okuma running and performing to expectations, one more opportunity identified for upgrade resulted in the new MA-12500 machine. The OSP Control common to these three Okuma machines was a big value to the programming and simulation group at UNISIG. “This baseline trust in Okuma is what allows UNISIG to excel at advanced manufacturing,” said Mr. Fetting.

UNISIG’s next target was large-part machining. Previously, to hold the finished machine tolerances, extensive hand scraping was necessary which added a lot of time and expense to produce these machines. UNISIG established a set of machining accuracy parameters that would eliminate much of this handwork to achieve tolerances.

In addition to offline tool presetting and modular workholding on all machines, UNISIG uses a variety of Okuma’s Partners in THINC suppliers including: Mastercam, Vericut® and Renishaw. Using a layered approach to technology and understanding the benefits of eliminating the gaps between engineering, design,

To machine their own parts while continuing to grow and develop new products, UNISIG embarked on a new approach to machining which would allow for industry-leading CNC machine tool accuracy and performance to be coupled with new technology that would ultimately eliminate manual intervention in machining that prevails in many shops.

intent was to radically improve spindle uptime and exploit the full potential of automated CNC machining, even when the batch size would be only one part.

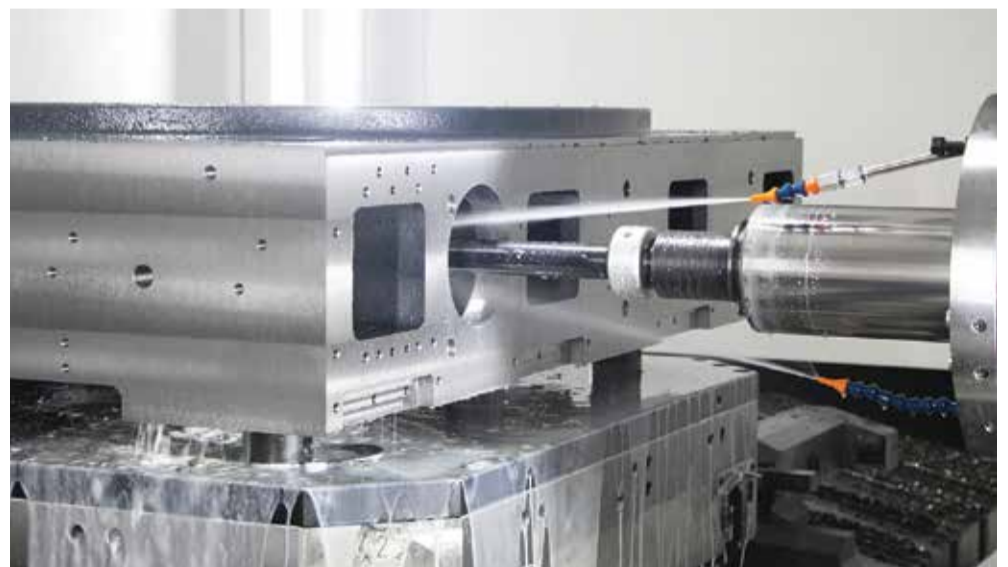
The first step of the UNISIG strategy was to move away from classic CNC boring mills and adopt the higher productivity potential of CNC horizontal machining centres with twin pallets. After consulting with credible industry sources and leveraging their internal team’s knowledge, the MB-10000H horizontal machining centre from Okuma was selected for medium-sized, high-accuracy part machining.

One of the most important factors in this capital investment was the need to trust the machine accuracy enough to program from its centre of rotation and let the machine run

“The deliberate connection between engineering, design, and machining improves our product. Our ability to rely on very high accuracy and productivity from our internal machining capacity allows UNISIG to provide more advanced solutions and value to its customers,” quoted Anthony Fetting, CEO of UNISIG.

Automated machining was the goal, which required a change in

Working directly with the local distributor, Morris Midwest, UNISIG was able to engage with Okuma America and Okuma Corporation’s technical leadership to tailor the



specification of an Okuma MCR-A5CII 35x10 double column machine for the exacting geometry and overall volumetric accuracy needed. The collective Okuma team ensured the MCR-A5CII machine tool specifications were defined and perfect for UNISIG’s application. A quick-change fixture system was developed by UNISIG to allow two parts up to 3 m (10 ft) long to be machined simultaneously and removed for setup offline. The results

and manufacturing, UNISIG has differentiated itself as a machine tool builder. The company’s long history of achievement is one Okuma and Morris Midwest are proud to be a part of – especially in helping UNISIG achieve their goal of capitalising on the full potential of automated machining.

For more information, see below:  
T +49 7125 9687590  
[www.unisig.com](http://www.unisig.com)

# Award-winning valve company captures hydrogen and carbon



Best Practice Recommends Oliver Hydcovalves Ltd for its valve hydrogen and carbon capture. Oliver Hydcovalves is the newest member of Oliver Valves a global valve designer and manufacturer.

The company has been producing precision-quality valves for over 40 years winning countless awards including The Queen's Award for enterprise in international trade 2022: won for 2nd time - 1st in 2012.

In 2021 the company founder Dr Michael Oliver introduced Oliver Hydcovalves as Tony Goodwin, Managing Director explains,

"The vision has always been to take over four decades of high-pressure valve knowhow and deploy it into the emerging sustainable energy and industrial decarbonisation applications. This requires a huge engineering and design effort to ensure reliability and safety are built in, especially where hydrogen is the process media."

Oliver Hydcovalves produces valves for hydrogen and carbon capture applications that support the

net zero emissions targets of industrial users in the UK and across the world.

Oliver has an on-site research and development facility at Cheshire. The state-of-the art testing facilities include a hyperbaric chamber that has the capability of testing valves to a water depth of 13,600ft. This is compatible with subsea carbon dioxide and hydrogen storage and the latest testing results have been sensational.

"Noticing a need for increased flow rates for hydrogen delivery in refueling stations, we developed a range of larger bore hydrogen dedicated refueling valves qualified in line with ISO19880-3:2018 which were the first to be third party certified with 99.9% pure hydrogen. This qualification demands over 102,000 cycles to be complete over a defined temperature range. Currently we have 10mm, 14mm and 20mm full bore versions available."

With oil and gas extracts becoming increasingly challenging using traditional valve products Oliver has been busy with innovative design.

"We are designers and manufacturers of some of the best high-pressure valves in the world. Hydcovalves takes that a step further, transitioning our traditional oil and gas products to suit hydrogen and carbon capture applications."

Oliver has been busy promoting its latest products at trade fairs over the last 12 months including The Valve World Expo in Dusseldorf and The ADIPEC exhibition in The United Arab Emirates. Trade delegates showed lots of interest in hydrogen applications.

With a dedicated research and development team this company is pushing ahead to offer market-leading solutions for hydrogen and carbon capture as Tony elaborates,

"Any Oliver product is built on a history of innovation, quality, and reliability, this has always been our approach. The team at Hydcovalves has put huge effort into researching the needs of clients focussed on hydrogen and carbon capture applications. Taking this knowledge and deploying it through our design teams and into our state-



of-the-art research and development facility means clients can expect best in class in terms of technology and alignment with their application needs."

Looking towards the future the company is intent on providing next generational valves at optimal quality.

"We know we are in a very dynamic market with new technologies appearing regularly, bringing with them, new valve challenges to meet. Our plan is to remain at the forefront of this type of technology developing our product portfolio to meet the growing demands of industrial users. We have just employed a new Business Development Manager to help keep us at the cutting-edge of design and production.

As well as our instrumentation and subsea valves we have hydrogen ready large bore valves available for hydrogen transportation in pipelines. Our customers are anyone who is looking to create, transport or process hydrogen in its gaseous form or is involved in carbon capture and sequestration technology. Our range of subsea valves are already being used as part of the wellhead technology deployed in deep water CO2 injection sites."

To find out more see the details below

T +44 (0)1565 632636  
sales@valves.co.uk  
www.valves.co.uk

## Matara releases new Linear Actuator Product Catalogue



Matara UK Ltd, specialist in automation, pneumatics and linear motion products, is pleased to introduce its new 328 page Linear Actuator Product Catalogue.

The new catalogue covers Matara's substantial range of belt driven and ballscrew linear actuators, including the best-selling MTB and MTS series belt driven actuators, along with several new products.

These new product ranges include the space saving KM Series ballscrew actuators; the powerful yet cost-effective MTJ ECO linear unit; the plug and play electric cylinder MCE/MCSE actuator; an award winning LMCA linear motor range; and UNIMOTION stepper systems.

A very thorough product guide, linear actuator assembly examples feature prominently at the start of the catalogue, followed by sections covering each of the different product ranges, each of which come with technical data, dimensions, an order example and suitable accessories. These are presented in easy to read tables and CAD drawings. Where relevant, graphics

depicting the deflection of the linear unit are also included.

For any actuator to perform consistently at its optimum level it needs the correctly specified motor, gearbox coupling and control system. The last third of the new linear actuator product catalogue is dedicated to these components, addressing linear motors, servo motors, stepper systems, gearboxes and automation solutions.

The new Matara Linear Actuator Product Catalogue makes selecting the right linear actuator for a specific application very straightforward. To download a copy of the new Matara linear actuator product catalogue, please go to <https://www.matara.com/catalogues/>

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# Providing solutions for your force or torque measurement applications

**interface**  
www.interface.uk.com

In this issue of Best Practice, we have chosen to recommend Interface Force for its expert services in providing solutions for all force or torque measurement applications.

Interface Force is an internationally recognised brand and decades of experience have gone into making Interface manufactured load cells the benchmark for thousands of users around the world, and Interface Force Measurements was established in 1996 by Neil Johnstone.

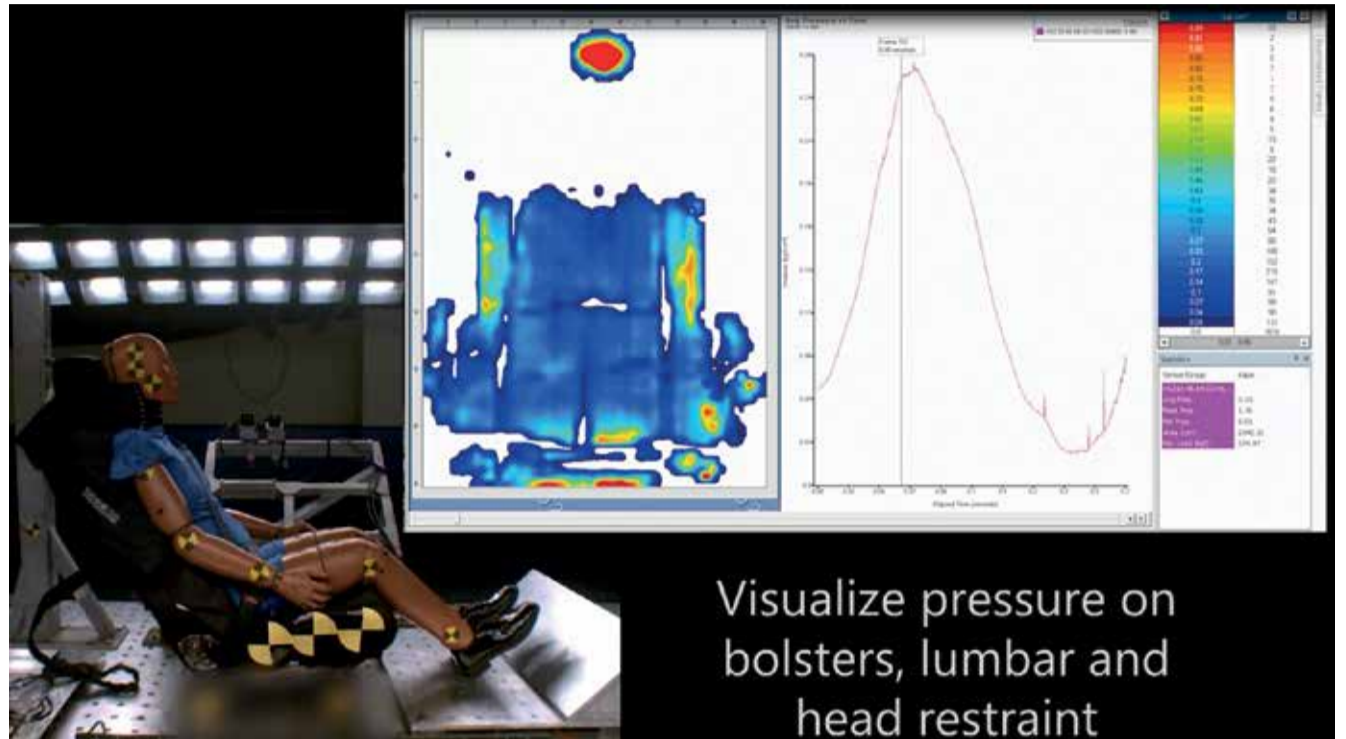
Based in Crowthorn, Berkshire, Interface Force distributes to the whole of the UK & Ireland, but also overseas, especially into Turkey, Greece and the Middle East. The company is a primary distributor for Load Cells manufactured by Arizona-based Interface Inc., and it also supplies their Torque Transducers, associated electronics, multi-access Load Cells and the XSensor Pressure Mapping systems.

The global Interface Inc. is represented by a large network of distributors outside of the US, and they have requested products that are designed and manufactured in metric, with the precision and accuracy of all Interface products. These products are designed for an international buyer and user, and all specifications are in metric specs, a global standard for force measurement products.

Interface Force work mainly with aerospace, automotive, and motorsport companies, and Business Development Manager Tony Rokins told us, "We work closely with companies which are undertaking research into product development, and so this includes universities and also medical companies who need load cells for weighing saline bags - we have a very wide and varied client portfolio."

In this crowded industry, Interface load cells and torque sensors have a hard-won reputation for reliable, accurate and repeatable test results. The range of pressure sensors and pressure mapping systems from industry leaders GP50 and XSensor back this reputation.

Tony continued, "With regards to force measurement, our load cells are preferred by aerospace companies because they are highly accurate, and the results are very repeatable. Also, the devices themselves are extremely reliable and so they are looked on very favourably by both automotive and aerospace manufacturers in particular."



Visualize pressure on bolsters, lumbar and head restraint

Interface Force is currently re-launching its XSensor High Speed Pressure Mapping System - the company offers a range of pressure mapping systems that can be applied to anything from impact testing to pressure testing tires, runways, beds, seats and much more. The XSensor system is the first system design to allow product designers and safety testing engineers to see, record and evaluate the distribution of force from high-speed impacts on safety equipment such as helmets and body armour.

The system is particularly popular with automotive and aerospace seating manufacturers as evaluating the performance of helmets and other protective equipment designed to prevent injury requires detailed understanding of the pressure distribution on the body surface during dynamic impacts. Xsensor's high speed HS Impact system combined with the thin conformable sensors allows customers to accurately measure those pressures and evaluate how different design configurations affect pressure distribution on impact.



In addition to this, the system is also used by manufacturers of office seating, companies that develop seating for the home, and bed manufacturers.

In spite of its success in the industry, Interface Force is very much looking to future development. Tony informed us, "We are building new Applications which are based around renewable energy, and we are also developing Cloud-based, Wifi and Bluetooth data acquisitions by making our devices wireless. This would mean customers being able to collect data from anywhere in the world via an App."

This ever-growing comprehensive range of indicators, signal amplifiers, data loggers and wireless transmitters has been designed to complement the extensive range of load cells, torque transducers and pressure sensors, and the range has developed to ensure that customers

have access to the most accurate, up-to-date, and cost-effective devices available.

Another new development is in the Airport environment, where Interface Force have begun to provide wireless monitoring of equipment on, for example, luggage carousels, and this product among many others have helped Interface Force to have a very successful past 12 months especially.

Interface Force's product reliability is second to none and all of its product lines have to match this standard before ever being recommended to customers. Interface is the world's trusted leader in technology, design and manufacturing of force measurement solutions. Its clients include a "who's who" of so many industries, and the company's engineers around the world are empowered to create high-level tools and solutions that deliver consistent, high-quality performance.

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# EUFR5L20

## Features

- Inherently flame resistant
- Certified Arc Flash Protection (ATPV Arc level 2 as per new standard ASTM F2675-19)
- Excellent combined protection from flame, heat and cut
- Extra flexibility and dexterity minimizing hand fatigue
- Multiple launderings while keeps the same performance
- Leather palm providing the added cut and heat protection

## Industries

- Utilities
- Oil & Gas
- Electronics
- Automotive
- Maintenance
- Hot Handling
- Circuit Boards
- Renewable Energy
- Robot Welding / SSW



# The rapid rise of Manosun's PPE gloves



Manosun is breaking the mould of traditional offerings with a core range of hand protection that are safe and the perfect fit for anyone that requires PPE.

"Manosun is a provider of Industrial Hand Protection (Gloves), and we work with all end-users including globally known brands such as Nissan, JDR Cables, and SUEZ. As part of our service we also survey the work environment, advise on the correct level of hand protection needed or if needed, we can even develop a brand-new product to the exact requirements of the customer. Manosun have the ability to work on small MOQ's from our sponsor factory in China and the ability to develop new products for an ever-changing work environment offering products where 'not all solutions are off the shelf. From ARC, Impact, FR, CUT and General handling applications, our products are the ideal solution for a range of industries from Utilities, Oil & Gas, Electronics and Automotive, to Maintenance, Hot Handling, Circuit Boards, and Renewable Energy," stated Steven Patterson, Owner.

Newly formed company Manosun has only just passed its second year in the industry and has already taken hand protection products to a whole new level.

Since the company was established in 2020, its mission has been to bring change to the end-user experience in selecting and buying industrial gloves, gauntlets and sleeves (PPE). As the designer and manufacturer of such an innovative range of quality industrial hand protection that is available for all industrial applications,



industry. Inherently flame resistant, all ARC Flash gloves are Certified in Arc Flash Protection (ATPV Arc level 2 as per new standard ASTM F2675/F2675M-19e1). The innovative Manosun coating technology ensures a better grip and longer glove life, and with its extra flexibility and

dexterity minimises hand fatigue. The range has a greater life expectancy than others currently on the market because it can handle multiple launderings while keeping the same performance.



Once an offshore requirement, you can now find Impact hand protection being used across a broad range of industries including the emergency services, vehicle manufacturing and dismantling. One of its main features is that Impact hand protection gloves are perfect for protecting the back of the hand, preventing broken bones.

Offering superb protection from Arc, Flame, Heat and Cut, one notable product developed using an ARC glove is the EUFR5L20. It is ideal for the welding assembly process with automotive and other similar sectors to protect the hands from "Spatter" burns, contact heat, cuts and includes a sacrificial leather palm to enhance grip and protect the glove from lacerations from ragged steel components when being handled.

ARC is the release of stored energy, so it is vital that those working in industries where an explosion of heat from an electrical circuit could occur are protected. This occurrence has recently become more common and an increasingly bigger worry, particularly in electrical vehicles when it comes to the recovery, service, manufacture and recycling of.

ARC Flash is the range of hand protection by Manosun that really set the standards in the hand protection



So far, Manosun's products have been revolutionary across England, but a big part of its future growth is to ensure every area of the UK is aware of the brand and its products. Steven explained further, "Our plans in 2023 are to employ an additional two people to help promote sales, one in the North for Scotland with a focus on manufacturing and the offshore industry, and the second in the South (Oxfordshire area) to develop distribution connections to the complex end-user markets. We have only just passed the two-year stage so are still very fresh. My experience spans for more than 16 years in hand protection and my drive is to simplify the development of new products (product development at the factory). Traditionally this takes months and can be very expensive but the relationship and support from my factory partner allows Manosun to develop new products much quicker without an unachievable MOQ (minimum order quantity)."

Another way to expand its brand presence is by taking part in trade shows. 2023 will see Manosun supporting the HSM Publication Expo in November with the BSiF, as well as some other local popup exhibitions supporting its two new member groups: The North East Automotive Alliance and the Advanced Manufacturing Forum.



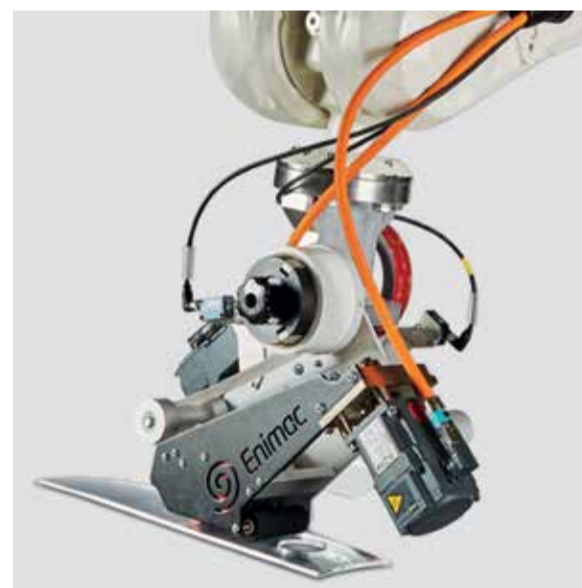
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# Understanding the value of Arc Flash management and mitigation for large electric process heaters

By Michael Jones, Staff Engineer at Watlow®

## Summary

While larger medium-voltage process heaters are relatively new in hydrocarbon processing, the safety issues surrounding medium-voltage equipment are well known. Arc flash events are a prime example of a rare but potentially deadly situation that can be mitigated with the right technology. As process heaters become a popular alternative for larger applications that have historically utilized gas-fired heaters, it is important to look at the ways in which they incorporate arc flash mitigation features.

When medium or high voltage equipment is used for industrial applications, it carries with it certain risks. Arc flash is an example of a well-known electrical risk that requires certain best practices to be followed to minimize damage and injury.

When a new piece of medium-voltage equipment is developed, special attention should be given to such risks. This is certainly the case for large electric process heaters, which are becoming more popular in hydrocarbon processing applications.

## The Risk Posed by Arc Flash

Arc flashes typically occur when there is a short circuit in a system (due to, for example, a dropped tool, buildup of corrosion or conductive dust or the presence of pests). If the voltage is high enough, and if there is a path to ground or a lower voltage, the resistance of the air is overcome and results in an arc.



Arc flash events can result in significant damage. As the energy release increases, it can cause fire and injury. If the energy release is high enough molten conductor metal and high-pressure plasma energy can escape from the cabinet, posing a risk to personnel.

The potential arc flash energy is determined by several factors: Equipment voltage, available current and the duration of the event. As the equipment voltage increases, the potential for arc flash hazards also increases. Low voltage systems operating below 400 volts do not have the energy to cause a significant arc flash hazard. Equipment operating at voltages between 400 volts and 600 volts can cause arc flash hazards, but their capacity to cause massive energy release is limited. Equipment operating at medium voltage (above 600 volts) has a high capacity for energy release. The available current is determined by the feed equipment upstream.

While it may be practical in some cases to reduce the potential arc flash energy while limiting voltage or current, overall project cost can make this difficult. This makes reducing the duration of the event the most practical approach.

Reducing the duration of the arc event also reduces the area of damage. The area of impact is not limited to the explosive blasts. The arc flash produces intense heat and light energy. People in the vicinity of the blast can experience injury from these effects even if they are not exposed directly to the explosion. Equipment surfaces can absorb the energy and experience high temperatures from the radiant energy, causing damage and requiring repair.

Although arc flash incidents are relatively rare, their potential for damage, injury and death makes them a huge concern. Some estimates put the incidence of arc flash events roughly between five to 10 per day worldwide, or 3,500 per year. According to a 2021 article in the journal Safety, there were over 2,000 recorded hospitalizations in the U.S. due to electrical injuries, including arc flashes. Of these, 1,900 were non-fatal and 166 were fatal. Although the article did not qualify fatalities in terms of whether they were due to arc flashes or other events, it is clear that arc flashes are on the more lethal end of the spectrum.

Are there special risks with regard to arc flashes when it comes to process heating? Yes and no. On the one hand, medium voltage process heaters are relatively new to many applications. Concerns about decarbonization, automation and safety have driven many to replace gas-fired heaters with larger electrical heaters (> one megawatt)<sup>2</sup>; these heaters thus represent a potential new source of risk, and manufacturers of these heaters must be aware of that risk.

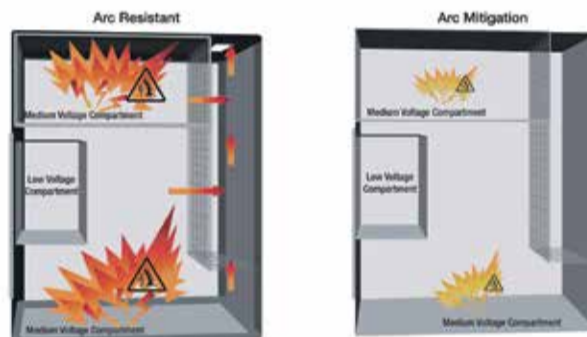
On top of that, many applications use arrays of large megawatt heaters, connected to multiple panels. This drives the need for a solution that can isolate the specific panel(s) where arc flash occurs, isolating faults from the main breaker/feeder where possible.

On the other hand, arc flash events are well understood, as are the strategies for reducing their effects. An understanding of these strategies should be "built in" to any technology for process heating.

## Reducing the Effects of an Arc Flash Event

Generally speaking, there are three main strategies for reducing the effects of any potential arc flashes that could occur with a piece of equipment:

1. Increasing the distance from the potential source of an event
2. Reducing the available fault current
3. Decreasing the duration of the event (i.e., how long the arc itself exists)



Ideally, all could be used in combination to ensure maximum safety, but this is often not practical when considering overall project cost. That said, the duration of the event is the most practical influencer to reduce and has the largest impact on the total amount of energy released. Reducing the overall fault clearing time is often the best, most direct way to reduce arc flash hazards.

This point can be illustrated through a comparison between two current approaches to limiting the damage wrought by arc flashes: Arc-resistant cabinets and arc mitigation technologies. Mitigation technologies make more sense economically and from a safety perspective, and thus should be incorporated into designs for and around medium voltage process heaters and similar equipment.

## Arc-Resistant Cabinets

The idea behind an arc-resistant cabinet is to reduce exposure to arc events by encasing the system in a metal-clad cabinet with a venting system. Typically, the doors of the cabinet are the point of failure in an arc event: Rapidly heated air expands and builds up pressure inside the cabinet, eventually causing the doors to blow open and exposing those nearby to heat and blast. With an arc-resistant cabinet, the flash energy (more precisely, the heated gas and pressure) is redirected through a duct near the top of the cabinet. When the doors are closed and all covers are installed correctly, arc-resistant cabinets reduce the energy to which people and other pieces of equipment are exposed.

That said, arc resistance does not actually limit the energy from the event itself—it merely redirects it. There can still be substantial damage to the system itself, as well as significant risk.

But perhaps the greatest drawback is the fact that the system must be closed for the arc-resistant cabinet to work; it will not work, for example, with the doors open. This is a problem, as many arc events occur during maintenance, precisely when the doors are open. An arc-resistant cabinet will not afford any additional protection in these cases. Of course, there are other issues as well: The size and weight of the cabinet, the

certification needed (ANSI C37.20.7), and, naturally, the overall cost.

## Arc Flash Mitigation Technologies

Arc flash mitigation technologies (hereafter arc mitigation) take a different approach; instead of redirecting the energy from the event, arc mitigation seeks to reduce the energy of the event itself by limiting its duration. This is done by detecting the arc flash early and automatically tripping the appropriate circuit. This can be done in two ways - sensing current (referred to as current arc mitigation) or sensing light (referred to as optical arc mitigation).

In optical arc mitigation, the light emitted by the arc within the enclosure builds quickly. That light can be detected by a photoelectric receptor or length of fiber optic cable, even in the early stages of the event. When detected, the signal is then sent to a protective relay, which trips the breaker automatically, without the need for human intervention.

One of the main advantages of this approach is that it is independent of the actual magnitude of the arcing fault current. This allows the system to detect arcing in an early stage of its development and trigger the break sooner, which in turn limits the duration of the event and hence the total energy produced. Current arc mitigation uses current transducers to sense an increase in current produced by the arc. If the transducers are not sized correctly, they may not shut the system down rapidly or may be unable to clear the event.

Even when current transducers are properly sized, optical arc mitigation offers an advantage in clearing time over current arc mitigation. Optical sensing can reduce clearing time and arc energy release by 50% over current transducers. However, a current arc mitigation is preferred over having no arc mitigation components integrated into the control system. If no arc mitigation is integrated into the control system, upstream equipment with undetermined clearing time will need to be configured to respond to an arc event.

Unlike the arc-resistant cabinet, arc mitigation also reduces damage to equipment (instead of simply redirecting the energy that escapes the cabinet). It can function even when the doors are open and maintenance is being performed, and it does not require the heavy metal-clad cabinet with its larger footprint.



For example, in the POWERSAFE™ system developed at Watlow® for medium voltage process heaters, sensors can be placed within the thermal controller, SCR node and/or single contactor node, all of which are protected by a feeder/breaker. Up to 12 heaters may be run from a single feeder/breaker, with each heater controlled by its own hub or switching circuit node. When the sensor senses an arc flash event in any compartment, the feeder/breaker will shut down the lineup to limit damage caused by the arc.

## Takeaways

Again, arc flashes are well understood, and industries using medium-voltage equipment should already be aware of strategies to increase distance from such events, reduce current or decrease the duration of the event (as well as the appropriate use of PPE). As medium voltage process heaters become more popular in hydrocarbon processing, they too must be designed with safety in mind. Arc-mitigation technologies represent the best approach here, as they actually decrease the duration of arc flash events and hence the energy released, helping to minimize the damage and risk involved. Additionally, such technologies can achieve these things with minimum footprint and project cost.

Further information is available at:

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Thermaset Ltd was established in 1984 by Tom McElhannan, and has now been passed down within the family to the third generation of the

McElhannan family. Based in Tamworth, Staffordshire, the company specialise in architectural approved powder coating manufacturing. As well as having reps around the UK, Thermaset Ltd offers a range of 600 products that are ready to be dispatched for next day delivery, shipping all over the world.

Thermaset Ltd is proud to say they have over 30 years' experience in

giving expert advice and providing friendly service to all of their clients. The company offer a specialist 'Made to Order' service which helps colour match to the client's needs, with a 7-10 working day turnaround. Stocking a range of epoxy, polyester and architectural materials in matte, gloss and semi-gloss finishes, the company also offer a free pre-12 delivery service, meaning that the product will be delivered before 12pm if



ordered the previous day before midday.

The company believe in excellent customer service skills, always ensuring that they personally and directly interact with customers to ensure complete satisfaction. Thermaset were accredited by ISO 9001 & 14001, which proves their upmost product quality, as well as being environmentally friendly. Not only this, but Thermaset Ltd are Qualicoat approved, meaning that they are consistently maintaining a high level of quality with all of their products. Ben Jennens, Sales and Marketing Coordinator at Thermaset told us, "Thermaset is a company that is always trying to expand our range to try and help solve our customers' problems. As a company, we have a saying - 'challenge us to find you a solution.' We are constantly looking to try and fix customer problems - any application, colour, gloss level, anything - we can sort it."

Thermaset Ltd has exhibited at Surface World Live and SubCon. They exhibited their newest range 'Florescent' at SubCon, which showcased colours such as pink, light red, light orange and green, giving customers an array of colours to choose from. We asked Ben Jennens what potential their new range has, "Our brand new range of florescent products received a tremendous response at the show. They have helped expand our database of customers with new and very valuable contacts. We are also working on a new product not used by anyone before called Post Forming, for which there be will a lot more to come in the future."

The company have worked with big names such as BT, Footlocker and Marks & Spencer's and are more than happy offering their services to independent companies. Moving forward, Thermaset Ltd will continue to widen their knowledge and experience within the powder coating industry, allowing them to meet and exceed the needs of clients and offer yet more varied and high quality solutions.

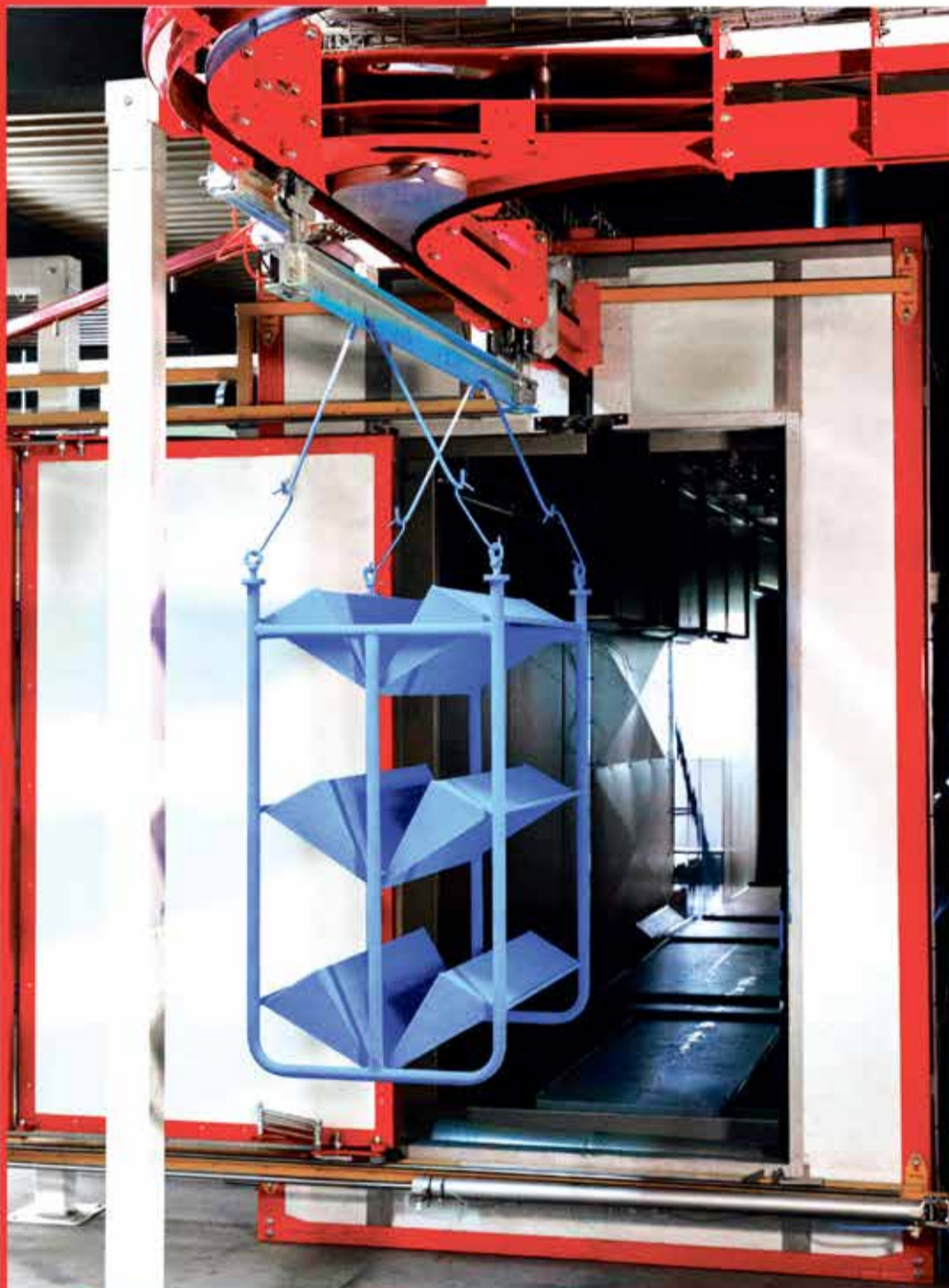
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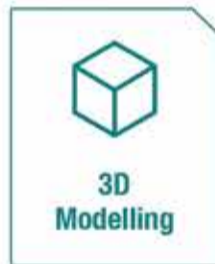


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# Office refurb for Strand Hardware

Strand Hardware has given its company headquarters a radical make over – improving its energy efficiency, work space and creating a welcoming new hi-tech reception.



The refurb in the second change project to take place at Strand Hardware in recent months and follows a review and upgrade of its warehousing processes undertaken with WMG (Warwick Manufacturing Group).

It has resulted in a more modern, open plan work space for its expanding team – encouraging greater team synergy and literally breaking down walls to silo working which had been enforced by the old layout.



It has used products from many of its suppliers and customers for the project including new windows, fire doors, electricals, plumbing, furniture, decoration, carpeting and signage, along with some of its own ironmongery products.

Strand has occupied the premises on the Premier Business Park, in Walsall, since the company was founded more than 30 years ago and according to Managing Director Steve Marshall a little modernisation has been beneficial.

“Although Strand’s offices were perfectly functional, they were looking a little dated and our work with WMG gave us the impetus to extend our programme of improvements. Not only will it enhance working conditions for the Strand Hardware team but also convey a better image of who we are and what we are about to visiting business associates.

“Efficiency has underpinned all our recent changes. This includes energy efficiency and eco-saving measures such as the introduction of natural ventilation, insulation and energy-saving devices,” he said.

Shared facilities including board room, kitchen and bathrooms have been included in the make-over and equipment upgraded. Staff have also benefitted from ergonomically designed furniture and layout.

Its reception has been reconfigured to make it lighter and more airy. It also features digital displays to welcome visitors and showcase Strand’s extensive product range.

A key driver in the process has been digitisation – reducing paper-based processes and transferring its traditional filing system to a cloud based environment.

The company is planning an open day for company contacts and has invited Mayor of Walsall to oversee a rededication ceremony.

For more information on Strand Hardware products contact: [info@strandhardware.co.uk](mailto:info@strandhardware.co.uk) or call: 01922 639111.



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# Watlow reflects on 2022

2022 has lots to be remembered for, challenges and triumphs. But for electric heating element manufacturer Watlow, it's been highly significant year in the company's journey to date. Here Johann Lainer, senior marketing specialist at Watlow, reflects on the company's achievements in 2022.

## 100-years in the making

Halfway through 2022 marked Watlow's 100 year anniversary. The company, which was founded in 1922 in Missouri, USA, is now a global electric heating specialist with over 1,000 patents and 4,200 employees working across locations in North America, Asia and Europe.

Watlow began manufacturing electric heating elements for the shoe industry, before widening its product offering in the 1930s to introduce electric immersion heaters to replace steam pipes and fire-hazardous gas. Then, in the 1980s, Watlow expanded its global reach with the opening of sales offices in Italy, France, the UK and Taiwan.

Since its founding in 1922, the company has developed into a highly regarded industrial heating technology manufacturer, holding more than 1,000 patents and employing over 4,000 people working in nine manufacturing facilities and five technology centres across three continents. Additionally, Watlow gains sales coverage in 178 countries and, most recently, opened a facility in Cebu, Philippines in October 2022 to support local customers focusing on energy and environmental technologies.

## Eurotherm acquisition

In June 2022, Watlow announced it had signed an agreement to acquire Eurotherm® from

Schneider Electric, the global leader in the digital transformation of energy management and automation.

Eurotherm is a premier global provider of temperature, power and process control, measurement and data management equipment, systems, software and services for global industrial markets. The company's headquarters are in Worthing, UK, with core manufacturing operations in Łędziny, Poland, and a headcount of about 650 people worldwide.

The acquisition completed in November 2022, with Watlow's CEO Rob Gilmore saying, "We are excited about Watlow and Eurotherm and all we will accomplish together. This acquisition aligns with our vision of providing innovative thermal products and technologies that help increase our customers' competitive advantage. The combination of Watlow and Eurotherm products and technologies will create new global opportunities for our collective customers and allow us to focus our advanced thermal systems in important areas."

## Connecting with the industry

November was a busy month for the company, with two crucial industry exhibitions in the diary. Heat Exchanger World Conference in Rotterdam saw Watlow, the only electric heat exchanger manufacturer attending the conference, discuss how continuous helical flow exchangers can reduce fouling during the event's corrosion and fouling speaker session. Watlow is the only manufacturer to develop an electric heat exchanger designed to reduce fouling.

The conference brought together global

manufacturers, engineering companies, designers and key industry players from across the world to share knowledge about heat exchanger materials, applications and innovations, with a clear aspiration to optimize the use of current heat exchangers.

Many heat exchangers used today are gas fired and are highly carbon dioxide (CO<sub>2</sub>) emitting. The process of fouling, the formation of unwanted material deposits on heat transfer surfaces during process heating and cooling, reduces heat transfer across the heat exchanger surface, lowers thermal efficiency and decreases flow rates. As a result, powering the heat exchanger requires more energy, therefore increasing emission production. Equipped with Watlow's patented Continuous Helical Flow Technology™, the HELIMAX™ heat exchanger was a focal point of discussion at the conference.

Watlow also exhibited a selection of its controllers and heaters at Semicon Europa, at Messe München, Germany. Semicon Europa is the largest European electronics platform connecting industry leaders across the entire design and manufacturing supply chain, which attracts over 8,000 visitors. The conference provided a meeting point for engineers and other key decision makers to come together to address challenges facing the microelectronics industries.

Specifically for the semiconductor industry, Watlow exhibited the lightweight, high performance FLUENT® In-Line Heater that can replace traditional immersion heaters and its silicone rubber heaters for greater heat transfer with fewer wattage requirements. Additionally, it demonstrated the EZ-ZONE® RM controller

to simplify thermal system management and the ASPYRE® Power Controllers, which are flexible, scalable and feature multiple advanced microprocessor-based firing and control mode algorithms.

Towards the end of the year, Watlow was highly commended at the first Instrumentation Excellence awards for its part in sustainable business as a result of aiming to reduce fossil fuel use by replacing with its electric components.

On reflection, 2022 was promising for Watlow, which continues to make waves in the industry demonstrating why electric heating technology is key in reducing emissions. Here's to 2023!

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



# Why heater design is key in the abatement of waste gases

Semiconductor fabrication creates a number of waste gases, which can be corrosive, pyrophoric and potentially explosive. Often, diluting these gases with nitrogen (N<sub>2</sub>) is an early step in the abatement process to make sure the gases stay below the lower explosive limit (LEL) or reduce corrosive effects. However, the use of nitrogen can cause condensation and deposits, as well as leak out of the system. Here, Rob Johnston end user business unit director at industrial electric heater manufacturer Watlow, explains how this can be prevented.



## The no-leak last resort

To overcome these challenges, a compact, no-leak heater design can ensure the reliability of exhaust abatement systems in semiconductor fabrication. For instance, Watlow's FLUENT® in-line heater is designed to allow movement of a fluid or gas over the heater surface without any loss of the fluid or gas through the outer shell.

A no-leak design not only includes a seamless stainless steel outer protection tube, but it also has the heating elements sitting outside of the fluid flow path. As a result, neither the elements nor the wiring penetrate the gas flow path, mitigating the need to weld components in place and thereby create areas where gas can escape. This design ensures that all nitrogen gas is passed along into the process, preventing any from escaping into the sub-fab.

With no leaks present, the correct mixture of gases can be assured, meaning that semiconductor manufacturers no longer need to trade-off between safety concerns and possible

downtime caused by the need to flush clogged exhaust systems.

A first step in the abatement of waste gases in semiconductor fabrication should be dilution with nitrogen gas. However, engineers must consider the issues that can arise and consider opting for a solution that covers all potential issues associated with nitrogen heating. In this case, a design that is modelled around eliminating leakage can prevent logging and downtime.

For more information about the FLUENT® heater, go to: [www.watlow.com](http://www.watlow.com)

## Abating hazardous gases

One way to abate hazardous gases in process exhaust streams is to dilute them using a less harmless gas. In semiconductor fabrication, nitrogen gas is often used because it is readily available and effective at diluting more hazardous gases prior to other abatement steps.

A good example of this solution can be seen with potentially explosive gases, such as hydrogenated gases. These gases have an explosive range, a specific range of gas concentrations where explosion is likely to occur. Gas concentrations must be kept below the lower explosive limit (LEL), which is the minimum concentration of gas needed to reach this explosive range. But mixing with nitrogen lowers the ratio, making the gas too lean to pose an explosion risk.

That said, when introducing a new gas into the exhaust stream, condensation can cause issues by creating deposits in the system. This eventually creates clogging, leading to unplanned downtime. The addition of nitrogen poses a dilemma, forcing plants to choose potential line shutdown in order to ensure safety – a trade-off no one wants to make.

## An alternative solution

If adding room-temperature nitrogen into a waste stream causes condensation problems, heating the nitrogen can be a sufficient remedy. However, getting nitrogen to temperature has proven to be a tricky engineering problem.

One of the biggest issues is with nitrogen leaks. Introducing a heater into the system can potentially create another place where nitrogen can leak, meaning that not all the nitrogen gets into the waste stream for abatement. If the leak is severe enough, the hazardous gases will not be diluted enough to ensure safety. This means that a potentially explosive gas might still be well within its explosive range.

There is limited space that can be taken up




## PM LEGACY™ Panel Mount Controller

The Watlow® PM LEGACY™ series panel mount controller is an industry leading PID controller that allows optimal performance utilizing simple control and menu functionality without complex features.

- Simplified menu
- PID auto-tune
- Standard bus communications

- Touch safe package
- Agency approvals
- Three-year warranty



*Ideally suited for basic applications or usage levels*



**Powered by Possibility**

Contact your local Watlow representative or visit [www.watlow.com](http://www.watlow.com) to find out more

## New StopTite Industrial range

The NEW StopTite Industrial range has been launched to provide high-quality premium solutions for thousands of applications across industry. Products are available in colour-coded categories, and include threadlockers, retainers, pipe sealants, gasketing and adhesives for mechanical assemblies.

StopTite products offer outstanding mechanical properties with a temperature range of -50 to 200°C+. The threadlocker product helps to prevent the loosening of bolts, studs and screws, due to vibration and shock loads. It can also be used to permanently lock threaded components. The Retainer products offer excellent resistance to shear and compression and can be used for the permanent fixture of bearings, shafts, splines and keys.

The ST27 Pipe Sealant product offers an instant low-pressure seal on tightened fittings up to 150psi.

The ST31 Multy Gasket offers resistance to low pressures after the assembly of mating flange faces. Seal joints between metal faces

and flanges. Ideal for motoring and industrial applications.

The 007 and 006 high-strength adhesives have been designed to bond metal and composite applications, offering high-impact resistance while remaining quick and easy to use.

Made in Britain, the StopTite range has been developed by S2-lube, which has been formulating a wide range of industrial products with partner companies for over 40 years. The company's products are popular with various industries, including renewables, water, electronics, construction, military, aircraft, farming, leisure, automotive and all types of production lines.

Product is supplied to stockists as retail display boxes of 6 to 20 items. Free samples are available and can be requested by emailing [sales@stoptite.co.uk](mailto:sales@stoptite.co.uk) or calling 01584 874220.

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



## Custom actuated butterfly valves for Iraqi oil refinery

When a major Iraqi-based oil refinery required custom actuated butterfly valves for a large-scale plant refurbishment, T-T Flow's expert product knowledge, access to quality manufacturing partners and extensive export experience made us the ideal choice to deliver a robust, reliable and fully compliant customised solution both on-time and within budget.

### The problem

During a major refurbishment project at a plant operated by South Refineries Company in Iraq, there was a requirement for custom actuated butterfly valves constructed of materials that needed to be fully traceable and certifiably of UK, EU or USA origin.

As the client specified non-standard materials, a completely customised valve build was required. To ensure full compliance, the valves underwent several independent third-party functional inspections and even the chemical analysis of components, along with the supply of extensive expert documentation including attested embassy origin certificates.

In addition to the non-standard materials, the client specified actuator connectivity to integrate with existing control panels and operating philosophy.

### The solution

T-T's expert product knowledge, access to quality manufacturing partners and extensive export experience made us the ideal choice to supply this actuated valve package within budget and on time.



Supplied indirectly through an Iraqi-based specialist engineering company, we assembled and supplied 30 lugged centric butterfly valves to EN598, rated to 175psi with limit-set directly mounted non-modulating 230V/60Hz actuators.

To meet client specifications, the valves have a chemical resistant epoxy coated carbon steel body, acid resistant stainless steel (grade 1.4404 / SS316L) discs, EPDM liner, and are suitable for installation

between ASME B16.5 Class 150 flanges.

Versatile actuators were selected, offering quarter-turn reliability, weatherproof IP68 enclosure, feedback functionality and manual override. T-T identified proven partners that would ensure end-user acceptance and functional longevity.

T-T Flow were able to select, source, assemble, coordinate third party inspections, undertake comprehensive in-house hydrostatic and functional testing, and arrange global logistics, offering the end user full assurance. We also produced an instructional video detailing step-by-step actuator settings for trouble-free site commissioning.

T-T are experts in the design and manufacture of custom valves and associated ancillary equipment, utilising our expert product knowledge, manufacturing partners and extensive export experience to deliver solutions to even the most challenging projects. Our flexible approach allows the supply of just a single valve, a combination of stock products, or the ability to work with our clients to provide a complete engineered valve package, as was the case with this project.

Explore our range of valves or find out more about our custom valve solutions. For expert advice, chat to our friendly and knowledgeable team on +44 (0)1630 647200.

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

## Supporting the dream of green energy, with the help of Industry 4.0

The 2015 Paris Agreement has forced many countries to present long-term strategies and nationally determined contributions (NDCs) to reduce emissions. One strategy is to transform waste into usable fuels and Raven SR is a clean fuels company dedicated to achieving this. However, the company uses a process that requires high temperatures and precise control to maintain efficiency and cost-effectiveness.

To streamline Raven SR's energy transformation process, industrial heating technology company Watlow provided extensive expertise in thermal system design, as well as Industry 4.0 control.

Raven SR is a clean fuels company that transforms municipal solid waste, organic waste and methane into high-quality, clean hydrogen and synthetic fuels. These synthetic fuels are Fischer-Tropsch synthetic fuels, meaning that they are produced from a gas-to-liquid polymerization technique that converts carbon monoxide and hydrogen into liquid hydrocarbon fuels that can act as substitutes for petroleum products.

At the heart of Raven SR's processes is a CO<sub>2</sub> reforming process that changes mixed feedstock and organic waste into products in an environmentally friendly way, without the need for combustion. As a result, no emissions are produced – only clean hydrogen and fuels as output.

The work done by Raven SR is a crucial step in achieving clean energy and greater energy independence. Not only does their process create fuel from waste that would otherwise end up in a landfill, but its products can also be created locally and delivered directly to gas stations in the region without the need for long-distance transportation or pipelines.

### The challenge

Although combustion is not used as part of Raven SR's technology, precise thermal control plays a huge part in driving an efficient and safe process. There is already a clear connection between the operational targets that Raven SR is putting forward and the thermal content of the system. At higher temperatures, it's possible to achieve 99.9 per cent target output, a level of efficiency that also makes the process more cost effective. Achieving the high temperature requires running heaters at their maximum capacity for extended periods of time.

However, those heaters are difficult to replace if something fails. As a result, not only is precise control of temperature needed, but the entire system also needs to be monitored for any signs of a problem, or for indications of degraded performance.

### The power of a complete thermal system

Watlow, which has manufactured electric thermal systems for 100 years, provides a breadth of expertise that helped Raven SR to solve its challenge, by designing a comprehensive thermal system from start to finish.

The full thermal system provides an extraordinary range of temperature control through different components. This includes the high-temperature MULTICELL™ heater, which offers three major advantages over other insertion heaters. These are extreme process temperature capability, independent zone control for precise temperature uniformity and loose fit design for easy insertion and removal. The proprietary design of MULTICELL™ heaters with integrated thermocouple sensors, provides a "thoughtful" zoning and control approach, delivering precise control within the three dimensions of the reactor.

Watlow also connected the system to other sensors for gas composition, flow and pressure. Using the WATCONNECT® control panels, comprising temperature and process controllers, it could monitor all thermal and electrical characteristics to ensure proper process stability for the application. Lastly, it's the connected architecture that makes this system whole.

The Internet of Thing (IoT) "box" is at the heart of the system and includes hardware for connectivity, syncing data from eight F4T® controllers with control loops across four WATCONNECT® panels. Connectivity to the cloud via a cellular router allows further routing of data to other applications and devices, while a human machine interface (HMI) screen displays the total state of the system at any time using a custom-designed dashboard. These features allow for near real-time data logging and monitoring of system output.

### Applying Industry 4.0

This particular project is a great demonstration of Industry 4.0 at work. At a minimum, Industry 4.0 involves a physical layer of interconnected devices, but advanced cases also use a simulation layer that models and predicts the behavior of a system as it unfolds over time.



The sensors, controllers and connectors lay the groundwork for such a system, an important function of which provides a foundation for predictive and diagnostic analytics. One of the chief principles of Industry 4.0 systems is to gather granular data for better system operation while avoiding unnecessary maintenance cycles. For example, if a system can be monitored and studied in real time, it is possible to look for the indications of a potential part failure, allowing engineers to proactively fix or replace the part.

Over time, this data can also be used to understand system wear and part longevity, allowing engineers to have better insight into maintenance cycles and system inefficiencies – prolonging system lifespan.

Watlow's sensors, control architecture and dashboard all work together to allow Raven SR's engineers to capture data and use it proactively to keep system efficiency and uptime as high as possible.

Transforming waste into fuel is one of the most significant ways to become resource efficient and contribute to the Paris Agreement's targets. Companies like Raven SR are key in driving this, but without thermal systems that encompass Industry 4.0 technology, the efficiency of these crucial processes becomes limited.

For more information about Watlow, Industry 4.0 or environmental applications of thermal systems, visit [www.watlow.com](http://www.watlow.com). Or, to find out more about Raven SR and its projects, visit [www.ravensr.com](http://www.ravensr.com)

# Hygiene industry experts join forces



Hygiene equipment application specialists H&M Disinfection Systems Ltd and specialist hygiene solution provider Christeys Food Hygiene have today announced the signing of a strategic partnership.

Christeys Food Hygiene, (CFH), based in Warrington and H&M Disinfection Systems Ltd of Northwich are both industry leaders with over 30 years of experience in their respective fields. Having worked together for three decades, this strategic alliance will allow the two companies to provide a turn-key solution to the food, dairy and beverage industries for effective cleaning and disinfection operations.

The current CFH engineering offering for the optimisation of water, energy consumption, dosing, time and labour will be strengthened, combining both chemical and engineering expertise including a complete equipment portfolio, CIP sets, Washdown Systems, Bulk tanks and bespoke engineering. This unique full-service package will include maintenance and periodic safety inspections.

"We are delighted to confirm this formal alliance with H&M Disinfection. The excellent equipment, control systems and reliable pump-sets they manufacture, combined with formulations created by Christeys Food Hygiene will ensure our customers can rely not only on the chemistry, but also on the application equipment," commented CFH Operations Director, Andy Bethel.

For over 30 years Christeys Food Hygiene has produced effective formulations of detergents and disinfectants for all application in the food, dairy and beverage industries with customers from across a range of household consumer brands and suppliers to the UK's food retailers. As part of Belgium parent company, Christeys NV, they are able to draw on international support and expertise as required.

Since 1989 H&M Disinfection Ltd have built a reputation for providing high quality, bespoke hygiene application equipment which is the corner-stone of many customer's food safety management systems. Their "CIP in a box" solution, where a temporary or stand-in CIP set is required to cover breakdowns or scheduled system maintenance, is one example of their innovative solutions.

Stephen Hall from H&M Disinfection: "This partnership cements our long-term relationship enabling us to better service customers from both companies, with high quality formulations and the equipment to reliably and safely apply them to achieve a hygienic manufacturing unit."

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

# Get done and dusted

There's no dust on us here at The Preparation Group when it comes to controlling and minimising risk whilst extracting dust and debris. It's a given: surface preparation, removal and finishing operations generate dust. As the one-stop-shop for surface preparation projects from 5m<sup>2</sup> to 50,000m<sup>2</sup>, The Preparation Group's professional teams make it their priority to ensure every breath you take on-site is a safe one.

We are acutely aware of, and vigilant about, the hazardous, and potentially toxic, risks of dust. By limiting the levels of dust in working environments, we minimise risk. That's why we advocate for choosing the most suitable industrial vacuum for your project.

### Staying smart before you start

It is important to remember that risks vary from project to project; depending upon materials being used and how much waste is generated. Remaining informed about key considerations will help you to select the best solution and correct industrial vacuum for your task:

- ▲ Understand your tools and equipment
- ▲ Check filter grades
- ▲ Understand the type, volume and composition of materials and debris
- ▲ Check available power sources

### Dusting off

Even with the most effective dust control methods and machines, there may still be some debris and/or dust that needs to be cleared up when you are finishing a task.

Dry sweeping dust; especially concrete dust, can produce particularly high levels of dust and debris as it pushes large amounts of dust particles into the air. As an alternative, it is recommended to use on-tool extraction where possible, using extractors that have M and H class filters for finer particle use.

Wearing protective equipment may also be recommended for operators and those working in enclosed environments; such as face masks fitted with the correct filters, to even further minimise human risk.

### One Stop Shop

At the Preparation Group, we pride ourselves on being a true one-

stop-shop for all your surface preparation needs; which includes dust extraction and industrial vacuums. With our comprehensive range of machines and equipment, and our qualified professionals, our expert teams are always on hand to guide and advise you through the process of selecting the right tools for the job.

Get in touch with us today to ensure you and your team are equipped and protected from one project to the next.

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[sales@ppcgroup.co.uk](mailto:sales@ppcgroup.co.uk)



## Dealing with Dust

Top Tips from #TeamPPC

**#1**

**Think PPC:**  
**Power, Particle, Composition**

To ensure you deal with dust in the best way possible, always consider:

- Power sources available
- Particles: the type, volume and density of dust/debris
- Composition of material being removed

**#2**

**Vacuuming Wet and Dry?**  
**It's dual purpose that you need.**

The M450 is #TeamPPC's go-to dust and debris extractor, containing the highest levels of dust particles in even the most demanding conditions.

**#3**

**Critical or Toxic Dust?**  
**Choose Longopac®**

The 202DSL is specifically designed for maximum dust collection and containment. Choosing bag over bin gives you confidence when containing airborne particles.

**#4**

**Check your Filter Class**

Use H-Class filters when dealing with high-risk debris such as silica dust and asbestos to minimise operator risk and ensure HSE compliance

Remember: Risks vary depending on materials being removed, and not all vacuums are the same.  
 For information & advice, call #TeamPPC on +44 (0)1522 561 460

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# BEPC Encoders

Encoders are indispensable wherever precise measurement and supervision of speed, direction of travel, distance travelled, and position of mechanical elements or number of rotations performed is necessary.

In any case, the encoder invariably affects the proper and efficient functioning of machines and systems. It is therefore a small investment in great profits of enterprises.

BEPC offers two major types of encoders, linear measurement encoders, as the TRI Tru-Trac™ or New Draw Wire Encoder (LCX), and rotary encoders like the Model A58HE which is an

EtherCAT or PROFINET-ready. Linear encoders have a read head and track. This will produce an output for distance travelled typically in pulses per inch (PPI).

Where rotary encoder converts the angular movement of a rotational device and will have an output for rotation about the fixed axis typically in pulses per revolution (PPR). BEPC encoders are increasingly becoming the basic elements of automation systems in industries as:

- ▲ Machine building
- ▲ Robotics
- ▲ Automation and sorting

- ▲ Aerospace
- ▲ Food & Beverage
- ▲ Printing
- ▲ Material Handling
- ▲ Mobile equipment, etc.

If you still have questions as to how an encoder works in your specific application, please feel free to call a Customer Service Representative for Technical Support.

For more information, see below:  
[www.encoder.co.uk](http://www.encoder.co.uk)  
[sales@encoder.co.uk](mailto:sales@encoder.co.uk)  
 01978 262100

# Looking Lean - Strand Makes Warehouse Improvements



Strand Hardware has developed leaner assembly, dispatch and warehousing processes - saving hundreds of staff hours each year - in a joint project with a crack team from Warwick University.

The project with WMG (Warwick Manufacturing Group) has optimised warehouse layout and movement for the efficient flow of picking, assembly and packing operations across key ranges.

It involved measuring processes via time study and motion analysis through site visits, video capture and process flow assessment. Findings outlined cycle times and mapped the movement of people.

The resulting report outlined a series of recommendations to improve process capacity, including quick wins and minor modifications to warehouse and workstations layout to introduce time savings.

This has led to the introduction of mobile Kanban shelving within the assembly area to allow components to be picked and assembled more efficiently. The double-sided racks allow bins to be restocked by a dedicated person who conveys stock between Strand's warehouse and its head office on another part of the site.

Steve Marshall, Managing Director of Strand Hardware, said that the project had been "thorough and exacting".

"Strand Hardware has grown over 30 years. Like most companies, while scaling up, we have focused on customer requirements and day-to-day business operations. We felt that the time had come to review what we were doing and whether we could be doing it more efficiently, which led to the opportunity to work with WMG.

"Having experts come into the business with fresh pairs of eyes, ask the right questions and with the knowledge to assess and analyse our operations has been invaluable. It was important for us not to disrupt warehouse activity, so recommendations had to incorporate improvements that would be easy to apply. In the long term, this will make our business leaner and more efficient - the ideal foundation for future growth," he said.

The project was undertaken with funding from the Digital Innovation for Manufacturing programme.

Strand Warehouse and Production Manager Andy Michel said that it had been fascinating to work with the University Team: "The results will make the job easier for many of the team and help Strand Hardware in its continuous improvement."

Chris Wang, of WMG SME Group added: "WMG and Strand Hardware have worked collaboratively to analyse their current assembly area in readiness for optimising their production facility. Across the three recommendations put forward, a maximum 50% reduction in cycle times per unit has been predicted which allows for a 5.105% capacity increase."

For more information on Strand Hardware's range of products contact:  
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# Oliver Valvetek in Top 50 Most Innovative Businesses

We're delighted that Oliver Valvetek is among the 50 fastest growing, most innovative large independently owned businesses in the North West of England, official recognition that has been given by the Greater Manchester Chamber of Commerce.

Operating from its headquarters in Knutsford, Cheshire, Oliver Valvetek has been manufacturing precision-engineered gate valves, ball valves, needle valves, and instrumentation valves for subsea oil and gas applications around the world, from extraction through to processing. The ever-changing demands for global energy and for greener renewables are forming a new chapter in the world energy sector, and one that Oliver is excited to help write.

The Top 50 list has been officially revealed by Law Firm; Ward Hadaway in partnership with the Greater Manchester Chamber of Commerce in their annual recognition awards to celebrate business achievements that demonstrate talent, drive, innovation and resilience to ever-



**olivervalvetek**

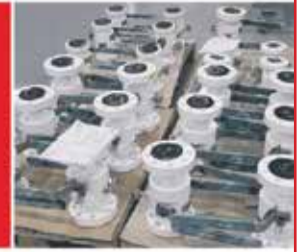
emerging challenges and continued growth. Now in its 13th year, the list is ordered by average turnover growth, which has been assessed on a percentage increase based on the difference between turnover figures filed for the last three years.

To find out how Oliver Valvetek's subsea valve innovation is leading the energy sector, contact us in the following ways:

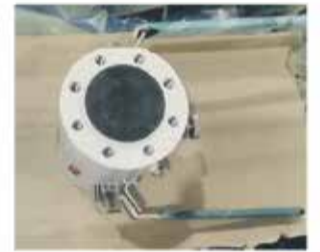
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Please visit [www.valves.co.uk](http://www.valves.co.uk)

+44 (0)1565 632 636 [sales@valves.co.uk](mailto:sales@valves.co.uk)

Oliver Valves Limited, Parkgate Industrial Estate, Knutsford, Cheshire WA16 8D

## Industry

# Anua Clean Air International sees new growth and developments

Anua Clean Air International manufactures and installs Mónafil, Mónashell, CrumRubber and Mónasorb - Carbon Filter Units, biofiltration systems which have gained a reputation as a reliable, proven system for the treatment of municipal and industrial odour and VOC air emissions.



We caught up with Ian Phillips, Director, about the latest developments for the company, he stated that, "We have had very positive developments over the past two years with new patents for our Dual Stage Monashell and our New CrumRubber process. This technology uses recovered waste tyres and a high performing catalytic Biotrickling process suitable for high H2S on air and biogas.

Patents have been awarded in the UK, Europe, the US and China and the technologies tick the boxes for best in class performance in terms of removing pollutants, using minimum energy and water usage, no chemical usage and reuse of recovered material - a 'Hat Trick' for carbon footprint, the environment and life cycle cost. These offerings have global reach and we are very excited about this. We have reference

plants in the UK, Europe, the US and China and we are well advanced, with developing worldwide Sales Channels with our Italian Partners Air Clean SRL."

Anua Clean Air International has been working with its Italian Partners Air Clean SRL, to offer the UK market its Patented Biological technologies, which offer the best in class performance at the lowest operating cost, coupled with benefits derived from reuse of recovered materials. In addition, Air Clean offered the full complement of Chemical Scrubbers, Carbon filters and Bag filters allowing Anua Clean Air International to be able to offer the full suite of Clean Air Technologies for low cold emissions.

Ian expanded, "Air Clean our Italian Sister Company has recently opened a US Office and we have licenced our technologies for the US to Air Clean. We have been awarded a number of new projects and are very excited about long term prospects."

After facing new challenges following the COVID-19 pandemic, Anua Clean Air International has recovered and is starting to see projects come back to life. Ian continued, "We are seeing big Environmental Infrastructure projects starting to move, particularly in International markets where our International partners have full order books, so overall prospects are very strong. Pricing in current environment is challenging but we are very optimistic about future growth prospects."

Contact

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# Group Dynamic



This year, European Springs & Pressings have been reaping the rewards of working collaboratively with their sister companies. Making their mutual platform of products and services more accessible enables them to deliver a wider range of manufacturing capability and products to their customers than ever before.

Working more closely with our UK manufacturing partners Metrol Springs and Lesjöfors Heavy Springs UK has brought significant benefits for the respective companies, as well as allowing the group to offer an unrivalled portfolio of springs, stampings and industrial hardware.

Shared attendance at exhibitions, pooling experience at cross-company strategy meetings and developing a mutual knowledge of each other's products and specialisms has broadened the shared capability they can offer and increased the company's sales reach considerably.

This support brings tangible benefits to clients as well. European Springs' commitment to providing the coiling and pressing expertise customer's need to find custom-made solutions for their manufacturing processes remains unchanged, with the added assurance that when they claim to have the required capability in the UK to design and produce the optimal component at the most competitive price, they make good on that promise.

This culture of collaboration has been fostered by their parent company, Lesjöfors Springs & Pressings. Although not a household name in the UK, since its conception 150 years ago Lesjöfors has patiently and practically built from its manufacturing base by acquiring a broad network of companies with specialist capabilities and strengths.

Lesjöfors is now the biggest spring manufacturer in the Nordic region, the third largest in Europe, and has a strong and growing presence in the US and Asia.

Lesjöfors' culture of supporting innovation, and developing capability is why European Springs & Pressings Ltd. joined

the group in 2007.

Their dedication to investment, both in people and technology, mirrors ESP's, and has allowed them to develop as a business, as well as recruit and retain the talent, and acquire the machinery required to continually provide the high quality manufacturing that client's demand.

The culture of collaboration developed within European Springs' UK manufacturing family, alongside the market-leading portfolio of products and services across the Lesjöfors group, means that customers can continue to rely on the ESP promise - to provide innovative design solutions, reliable service and custom-made, quality components.

If you would like to find out more information on the company, please see the details below.

T +44 (0) 208 663 1800  
[www.europeansprings.com](http://www.europeansprings.com)



## EUROPEAN SPRINGS & PRESSINGS



# EUROPEAN SPRINGS & PRESSINGS

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