

# FAST

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See page 7 inside!

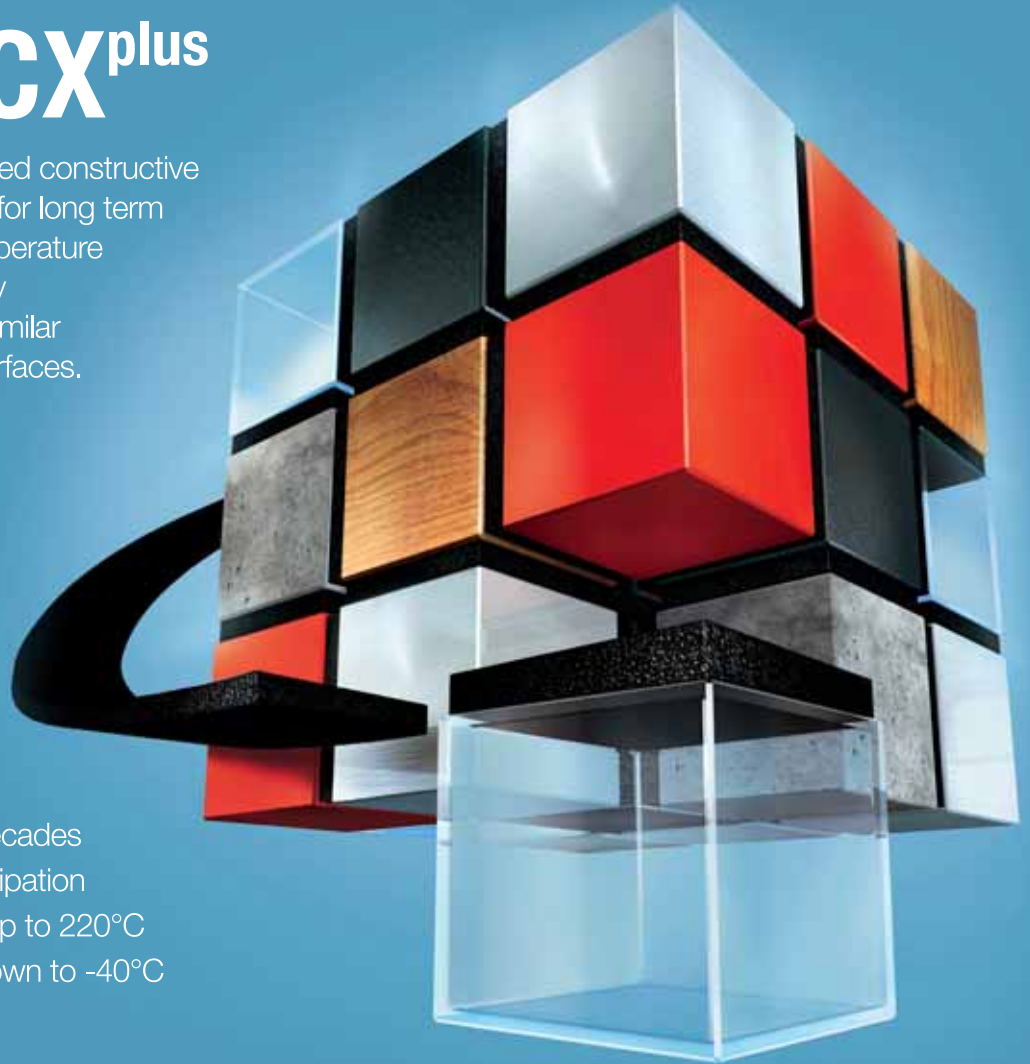
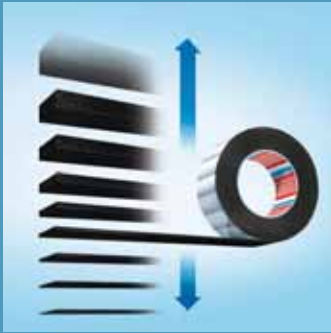
APRIL 2012

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**tesa cohesion**

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## FAST April Comment

# Double dip won't deter Britain's manufacturers



With more than just a hint of a double dip, the UK has technically gone back into recession with two consecutive quarters of negative growth. But this time, the manufacturing sector is absolutely not taking the blame. The good news

from manufacturing just keeps on coming and even George Osborne's austerity budget held some encouragement for the sector.

During March, Nissan announced its plans for a new compact model, called the Invitation, which will be built at its Sunderland factory. The official announcement was made at the Geneva motor show and suggested that the Japanese carmaker would invest £125million and create 2,000 jobs. The Government has promised support to the project to the tune of £9.3million in grants.

Naturally not all the jobs will be at the Sunderland site. Nissan said that 400 of the new jobs would be its plant, while the other 1,600 positions will be created in the supply chain.

When Nissan has looked at job creation in the past, a rule of thumb of one person employed in the facility to four in the local supply base has emerged. Production of the new car is scheduled to start from mid-2013 so the area can look forward to some fresh employment opportunities in the near future.

Business Secretary Vince Cable told the BBC that the news was 'a really great announcement' and reminded us that Nissan was not the only car company to be planning growth. "It is very positive, but you can't see this in isolation, because the other big car companies have also made major commitments to the UK," he commented. "Jaguar Land Rover, Ford and BMW Mini are all putting in more money and bringing back supply chain."

The additional investment in Nissan's Sunderland facility will increase its workforce to 6,000, a record high for the factory. The plant currently makes Nissan's Qashqai, Juke and Note models, and produced 480,000 vehicles in 2011.

Although the recent budget was punctuated with hot pasties and random attacks on the retired community, the meat of the Osborne's proposals was well received by the manufacturing community. The leader of Britain's biggest industrial trade association reckoned manufacturing got a pretty fair deal from the Budget.

Dennis Kent, chief executive of the Sandwell-based Confederation of British Metalforming (CBM) was pleased to hear that the UK Export Finance scheme was to be expanded, as it was designed to help SMEs increase their overseas sales, and enter new markets. "Increasing investment in infrastructure, whether that is roads or rail, must be good news for our members, and upgrading the line between Manchester and Sheffield should reduce congestion on the M62, and on A-roads on the trans-Pennine route," he commented.

"I was very pleased to hear references to our aerospace sector, because that genuinely is something in which we can match anyone in the world; whether you look at aircraft design, the latest generation of engines, or the supply of world-class components.

"It was also good to hear that Birmingham will receive money to invest in ultra-fast broadband, and the cut in corporation tax has to be welcomed, but I'd have liked to have heard more about increased support for skills and apprenticeship programmes," he added.

"It's not enough to simply drop such words into the statement, to win applause from the backbenchers, we need to see substance behind the rhetoric," Kent warned.

Elsewhere in the world of manufacturing, it was the start of the exhibitions season. And much to the surprise of many, the show floors are looking busy. Southern Manufacturing & Electronics 2012 held at Farnborough was hailed as the biggest ever staged with visitor numbers well in excess of 7200, smashing last year's record-breaking 6400 attendance. And apparently, exhibitors at this year's show queued to re-book stands for next year so that 60% of stands have already been earmarked by returning companies.

Here at FAST, we are really looking forward to our own show which takes place at the Pavilions of Harrogate on April 26th. I would be delighted to welcome readers to the show and celebrate this country's manufacturing excellence. Full details of the show can be found from page 65 of this edition.

Paul Gay, Editor  
editor@fastmagazine.co.uk



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## FASTCOVERSTORY



Advanced design for perfect alignment

Bollhoff's Flexitol stepless tolerance compensation fastener is a good example of how advanced design has been used to engineer a product to meet market requirements for perfect alignment. Comprising two elements – a retainer and a friction bush - the self-adjusting fastener allows the precision alignment of parts simply by installing the original retaining bolt. Manufacturing flexibility is increased and costs are reduced. Additional savings are made possible by increasing the tolerances on outsourced parts.

The automotive industry uses Flexitol for fastening roof rails, the alignment of headlamp and body panels and setting trim where fit is critical to meet customer expectations. Other application areas include the orientation of panels and covers on all types of transport and machinery, visual display units and the tension-free installation of drive units in washing machines. (Feature page 32)

BÖLLHOFF FASTENINGS 01902 637161

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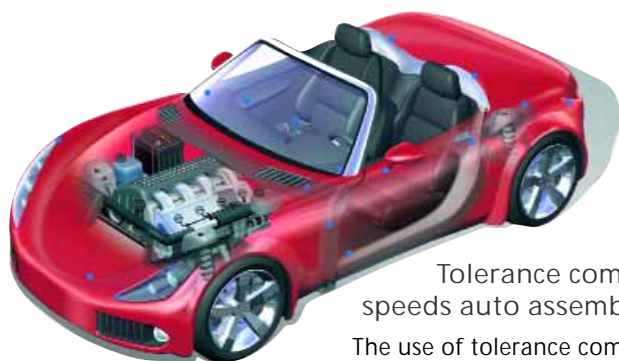
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FASTUPDATES

# Buoyant sales are evidence that the UK manufacturing sector is resilient



Steve Plastow: We need to talk more about the upside of our economy

UK manufacturing companies are turning in respectable sales figures highlighting the fact that the engineering sector is leading the country back to growth. Steve Plastow, managing director of **tesa UK** says record levels on sales of the company's range of adhesive tapes is a clear indication that Britain's manufacturing sector is fighting back against any return to recession.

"We manufacture something like 800 different tapes, many of them used either as integral in-line applications or as part of a finishing process," he claimed. "And there are not many major manufacturing sectors we don't supply."

tesa launched a customer care programme called tesacohesion in 2011 which the company believes has brought the business into ever closer contact with its customer base. Having beaten its 2011 sales targets and just achieved a record start to 2012, Plastow is convinced that many manufacturers are not just riding out the downturn, but

focusing on ways to improve efficiency, productivity and profitability. "tesacohesion concentrates on customer service levels and value added manufacturing processes so we spend a lot of time on our customer's premises," he commented. "And there is no lack of ideas, initiatives and efficiencies being introduced."

Plastow cites as an example the automotive industry, which according to official data employs half a million people in the UK and exports finished manufactured goods worth around £9 billion annually, representing some 12.5% of total manufactured exports. Pointing out recent successes such as the launch of the Range Rover Evoque and JLR's outstanding track record in 2011 with a 26% increase in global retail sales in September alone and sales to China up almost 100%, he says that perhaps we need to talk a little more about the upside of our economy.

"The UK is also a major centre for engine manufacturing and we produce more than 3 million every year. In the highest performance levels of automotive technology, Formula 1, we have a number of the most successful companies very close to our own UK headquarters in Milton Keynes," he added.

**Read the Product Review on tesa's latest tape technology on page 52.**



# Pro-Vyda extends point of use vending



Point of use (POU) industrial vending machines are becoming more widespread, filtering down from early adopters like blue chip organisations and tier one automotive and aerospace manufacturers, to cost-conscious companies looking to harness the operational benefits of fully automated inventory control and dispensing.

The applications for POU technology are also extending beyond manufacturing, into food processing, pharmaceuticals and office supplies, dispensing engineering tools and parts such as fasteners and fixings. But many systems do resemble the traditional food dispensing machines, betraying their snack vending heritage.

The British-made Pro-Vyda from **Propeller GB** is not, however, based on an engineering footprint but designed from the ground up to be genuinely usable for a whole variety of applications and product types. It also offers seven times more capacity than the current market leader, considerably reducing the required installation footprint, while accelerated

endurance testing has demonstrated at least five years' dependable service without failure. Moreover, it incorporates the latest generation of web-based software that enables the automation of re-ordering processes and the interrogation of stock data from any location with internet access.

The Pro-Vyda is suitable for dispensing MRO consumables, personal protection supplies, pharmaceuticals and medical supplies, office equipment and sundries and the dispensing and return of tools. It has already been proven in the demanding environments of automotive, aerospace and components manufacturing industries. The Pro-Vyda is robustly engineered from heavy duty sheet steel, with a series of 3mm galvanised steel drawers, each having a load capacity of 50 kilos. The design permits user access to inventory by means of a PIN, swipe card or biometrics and enables picking lists to be created by means of a shopping basket facility.

PROPELLER GB 0191 569 1690

# Bollhoff Armstrong launches compact repair kit at Harrogate FAST Show

**Bollhoff Armstrong** the UK manufacturer of the ubiquitous Helicoil wire thread insert are set to launch the re-focused Eco-Kit. Designed for the repair of any damaged thread form in numerous applications, it is supplied in a re-usable clear plastic clam shell, designed with economy in mind but without sacrificing product

quality. It features the ever popular shepherds crook installation tool and is supplied with a high speed steel tap for precision thread cutting, a drill, tang break off tool and genuine Helicoil wire thread inserts.

To celebrate the launch the company is giving away 50 free kits to FAST Exhibition visitors

who register in advance and attend the show to collect their complimentary kit. To register see the advertisement on page 24 or email [info\\_bal@bollhoff.com](mailto:info_bal@bollhoff.com) quoting offer code BALECO4. Alternatively visit the web site at [www.bollhoff-armstrong.co.uk](http://www.bollhoff-armstrong.co.uk) and register on line.





# Perfect alignment – in line, every time.



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- Add flexibility to assembly operations
- Reduce manufacturing costs
- Lower the cost of outsourced components

## **BOLLHOFF**

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**01902 637161**

FASTUPDATES

## A 'must visit' for engineering subcontractors



An all-new Engineering Subcontractor Exhibition has been announced by FAST Magazine's publisher NewbyCom. The show will take place on the 18th October 2012 at the superb National Motorcycle Museum Birmingham. This brand new event has been introduced exclusively for engineering subcontractors interested in the latest machinery, products and processes they need to remain ahead of a world-class and competitive pack.

The exhibition is staged in association with the well-established and highly respected Engineering Subcontractor Magazine. Exhibitors at this innovative event will include leading suppliers of multi-axis machining equipment, lathes, turret and bed mills, bridge mills, turning centres, bar feeders, cutting tools and machines, CMMs, marking equipment, waterjet cutting and much more.

The new show takes place alongside NewbyCom's highly regarded FAST & IASE

Exhibitions, reviewed extensively from page 65 in this issue.

NewbyCom pioneered the innovative road show style of their events some years ago and they have proved a massive hit with visitors, especially engineers and manufacturing professionals with little time to spare for essential information gathering. "Busy people need a show that is easy to get to, and which is easy to get round, get information from and get back to the factory or office with," said NewbyCom managing director Mark Newby. By choosing the National Motorcycle Museum as a venue the organisers add to an already successful event by providing free parking for exhibitors and visitors at a venue next door to the NEC, free entry to the world-famous motorcycle museum and free exhibition entry. Visitors who pre-register in advance also benefit from a free bacon roll and brew on arrival too. Entry to the exhibition is free and pre-registration can be done at [www.engsubshow.com](http://www.engsubshow.com).

## European ranges now available in the UK



Two ranges of consumable product, previously only available in Europe, have arrived in the UK. Available from **Bollhoff Direct**, these items will be available on our shores with immediate effect.

A range of Varybond Chemical products has been added to Bollhoff's range and English language brochures should be available from April onwards.

The second range to be added is abrasive, cutting and polishing discs. Both product ranges complement the existing range of over 100,000 product lines that are currently offered by Bollhoff Direct.

**BOLLHOFF DIRECT 01902 603934**

## Impact wrenches meet hazardous area specification

Atlas Copco's rebranded Pro range of pneumatic tools now includes a new range of spindle suspension die grinders which offer greater tool life and less operator fatigue, the new low speed model incorporates a speed reduction gearbox and speed governor which maintains grinder speed under load.

The range is primarily focussed on general industry and maintenance but will soon be expanded to satisfy the demands of the automotive industry. Also included

in the new range are two explosion proof impact wrenches. Available through **Total Air Tool Services UK**, these wrenches are available in 1/2in and 3/4in square drive and comply with Atex Directives so they are suitable for use in explosion-proof areas such as coalmines and petrochemical plants where spark reduced safety tools are required.

**TOTAL AIR TOOL SERVICES UK**  
01926 857193



## Investment boost for fastening systems

**Binder Fastener Systems**, part of the Gottlieb Binder worldwide group of companies, has announced further investment in its production facilities in Germany. The company says it continually strives to provide the very best technical adhesive fastener systems possible and can now include a system for adhesion to low surface energy substrates such as polypropylene, polyethylene, ABS plastics and powder coated metals. This adhesive can be used in low temperature applications down to -300oC right up to temperatures of +1600oC and can be used in the most demanding technical applications offering the immense flexibility that a hook and loop system allows whilst still being a technically advanced system which today's applications demand.

The company's machinery investment includes a laser cutting flatbed machine which is capable of cutting any shape from any of Binder's materials. This could be the hook and loop Klettostar for clothing or body armour or the wide width knitted Pressogrip and Velour fastener which is suitable for abrasive technology.

The immediate benefit of this machine is that Binder can provide one off or small production runs of cut shaped pieces all without the need for special machines or tools. This provides an immediate saving as prototypes can be produced in a fraction of the time and costs previously seen.

The company continues to invest in R and D and now has items that can be washed at 900oC. This is predominantly used in the cleaning industry with the main benefit of this high temperature wash capability is in the control of infectious bacteria. Binder also has expanded its range of Microplast film fasteners, which are very thin for use in a whole host of applications from medical to abrasives and filtration. They can be sewn, welded or glued. They can be mounted on to rigid profile systems and are non-toxic.

**Binder has been exhibiting with FAST since the beginning and will be at the Harrogate event to showcase these items as well as other technical fastener systems.**

**BINDER FASTENERS**  
01782 525780





## Forecasting program for light alloy assemblies

Global fastening manufacturer EJOT has launched a second online prognosis program to assist its specialist Engineers in the field. AltraCALC software utilises fastener dimensioning to give online analysis and also assists in calculating the load carrying capabilities

of the AltracsPLUS screw which is specifically designed for direct installation into cast or drilled holes in light alloys.

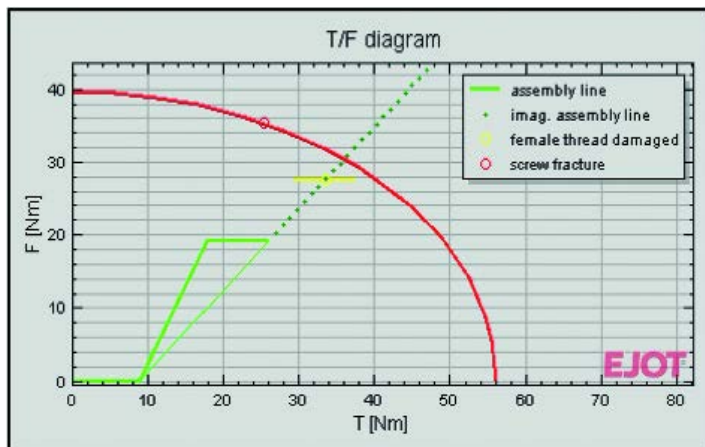
The program provides precise forecasting in a similar way to how EJOT's DeltaCalc program provides lifetime and durability

forecasting for thermoplastic assemblies.

The AltracsPLUS fastener achieves very similar strength values as metric screws and also provides excellent resistance to vibration, reducing the need for further components. This in itself generates up to 40% production savings.

The introduction of AltraCALC not only provides engineers with a facility to obtain data relating to long term performance, it is now possible make adjustments that improve the overall quality and effectiveness of the joint prior to full production, and further reduce costs on prototype testing.

EJOT  
01977 687090



## Washers provide anti-vibration security

Heico-Lock is a new bolt securing system from Heico Fasteners UK that prevents loosening by vibration in even the most demanding of bolted fastening applications. The system consists of a pre-assembled pair of wedge locking washers that positively lock fasteners using tension instead of friction.

The washers have inclined cams on the inside and radial teeth on the opposite sides. Tightening leads to a gripping action of the teeth, which seats the surfaces. With the rise of the cams being greater than the pitch of the bolt, movement is only possible across the face of the cams. Working together, both sides of the locking washers combine into a fastening system that locks the nut and bolt safely in place and prevents loosening by shock and vibration.

Tested according to the internationally recognised anti-vibration standard, DIN 25201-4, Heico-Lock delivers

superior anti-vibration performance and real cost savings to a broad range of industries. To further test confidence in the system, the company asked the University of Applied Science in Cologne to conduct testing to evaluate the washers' anti-vibration loosening capabilities. The tests were conducted as per the new standard for vibration loosening of bolted joints, DIN 25201 (part 4, annex B). The results confirmed that the Heico-Lock washer met the strict requirements of the DIN 25201 standard and displayed extensive improvement when compared with standard

washers and other commonly used locking devices.

Dave Read, Heico Fasteners UK general manager, commented: "Heico-Lock is a high quality locking washer that provides the benefits of superior anti-vibration locking performance and real piece price cost savings against comparable locking systems. This, coupled with the potential for cost reduction in terms of lower life cycle costs, means Heico-Lock offers real tangible benefits to all our customers."

HEICO FASTENERS UK 01268 745421



## NEWS IN BRIEF

Following on supply of locks for the UK's T45 frigate programme, **FDB Panel Fittings** has won a similar order from the Royal Dutch Navy for its new fleet auxiliaries. With typically over 2000 locks on each ship, a project based master key system was specified for crew cabins and furniture or lockers in communal areas.

FDB PANEL FITTINGS

020 8568 1616

**Norbar Torque Tools** is to move to a new 170,000 square feet production site, over three times larger than its existing factory. The company is remaining in Banbury, Oxfordshire, where it has been established since its launch in the 1940s. The 240-strong workforce will be increased by up to 30 new employees this year and further recruitment is planned as the changeover gathers pace. In June 2012, a quarter of the workforce will move to the new factory in Wildmere Road, about 1.5 miles from its current premises.

NORBAR TORQUE TOOLS

01295 270333

The world's oldest manufacturer of worm drive hose clips has embarked on a major offensive to win new business from Europe. A team representing UK manufacturer **Jubilee Clips** attended The International Hardware Fair in Cologne last month and the company has appointed Ingo Ingrillini as the company's first European sales manager. Ingrillini worked previously in an administrative role for Jubilee Clips Deutschland.

L ROBINSON 01634 281200

**Elesa's** new 1000 page catalogue contains more than 2000 new product codes covering hinges, level indicators, cam levers, magnets, indexing plungers, fork and spherical rod ends and vibration damping elements, with technical data sheets and a photographic index. In total 150,000 codes in one catalogue especially for engineering designers. There are also many new operating elements including wing screws and lobe knobs, adjustable handles, clamping nut and cam levers and much more.

ELESA 01526 322670

FASTUPDATES

# Beware the counterfeit bonnet fastener



Anyone who has bought a counterfeit kit will qualify for a genuine AeroCatch on receipt of the illegal kit and its suppliers contact information

Specialty Fasteners and Components, the designers and manufacturers of the AeroCatch bonnet and panel fastener, best known for its use on high perfor-



A kit marketed as D1 Generation is a counterfeit

mance vehicles, has taken the decision to issue all distributors

and dealers with Authorisation Certificates for display on their premises.

The move is part of a programme to counter a growing threat from counterfeit fasteners arriving from the Far East.

The company is concerned for the safety of motorsport competitors as Graham Leo, sales manager at SFC explained: "We have been alerted to an increasing number of counterfeit versions of AeroCatch coming onto the market recently and would urge anyone considering using [the product] to purchase from an authorised dealer. Most counterfeit versions are very difficult to operate and do not fasten securely. Some could even prove dangerous with normal everyday use."

AeroCatch as a product has registered designs and trademarks throughout the world including a patent in the USA, all of which are being infringed by these counterfeits. However, many purchasers do not realise the difference and are unwittingly fitting dangerous counterfeits to their cars.

As responsible manufacturers and in a quest to beat this 'unacceptable situation', the company is prepared to offer anyone who has bought a counterfeit kit, which are also marketed as D1 Generation, a genuine AeroCatch in exchange upon receipt of the illegal kit and the suppliers contact information.

While very similar in packaging and appearance to the genuine



Gemballa Racing McLaren MP4 12C GT3 relies on the genuine AeroCatch system



## BUYER BEWARE!

For your own safety, make sure you always buy **AeroCatch®** by name from an authorised dealer or distributor.

Help us fight the fakes



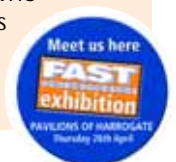
Distributors and dealers will be able to display information on counterfeits at their premises

articles, counterfeits are nonetheless made from inferior materials and pose safety issues. Customers should be wary of non-authorised dealers offering counterfeit product at cut-rate prices. Genuine AeroCatch is manufactured from

a high-performance engineered thermoplastic with all metal parts in stainless steel. Fakes are manufactured from poor quality non-reinforced plastic, and metal parts are nothing more than plated mild steel.

There are many ways to tell the difference between genuine AeroCatch and a counterfeit and these can be found on the AeroCatch website at [www.aerocatch.com](http://www.aerocatch.com). The best way to tell is that AeroCatch can only be purchased through an official AeroCatch dealer. Anyone who is unsure can always ring AeroCatch with details of where they made the purchase.

**SPECIALTY FASTENERS AND COMPONENTS**  
01803 861714





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# Teroson

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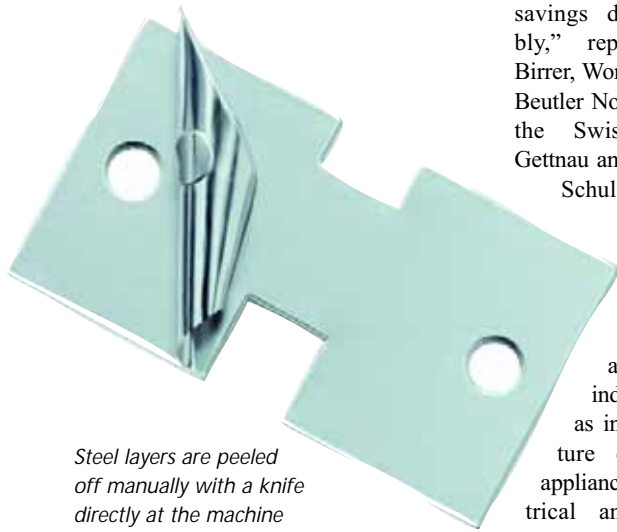


**Henkel** Excellence is our Passion



FASTUPDATES

Press manufacturer uses shims to gain two days in assembly



Steel layers are peeled off manually with a knife directly at the machine

Press manufacturer Beutler Nova has achieved considerable savings in the assembly of its blanking presses by using peel off steel shims instead of grinding when assembling its machines. Layered sheet metal shims from **Georg Martin** offer high-precision tolerance compensation and can replace time and cost-intensive grinding work during the necessary fitting and adjustment phase. “By using shims, we have realised quite considerable time

savings during assembly,” reported Stefan Birrer, Works Manager at Beutler Nova. Located in the Swiss town of Gettnau and a part of the Schuler group, the company manufactures compact presses for use in the automotive industry, as well as in the manufacture of household appliances and in electrical and packaging technology applications.

With a pressing force of 630 kN, the fully automatic AZ 630 blanking press is used mainly for the manufacture of aluminium packaging.

Beutler Nova uses four pre-tensioned, vertically installed linear guide units for the twin-stand construction of their AZ 630 blanking press. The trick here is to connect these linear units to the press carcass during final assembly. One essential aspect of this is the exact fitting of the

guide rails by shims into the carcass of the press, because this is ultimately responsible for a high-quality blanking result. “Until recently, this step in the assembly process was still done with the help of solid steel plates which were painstakingly ground to the right size before fitting. With a processing time averaging two days, this was simply too long for us, so we started to look for alternatives. In the course of a discussion at a trade fair last year, we discovered the shims from Georg Martin as the ideal solution. Once we were able to establish feasibility using sample parts, we now only use multi-layer steel shims of the type M-Tech L to fit the linear guide units,” explained Birrer.

The durable M-Tech L version has an overall thickness of 2.0 mm which the fitters can reduce to the required size by peeling off layers of 0.05 mm. Peeling is done manually with a knife directly at the machine. “The fitting and adjustment work is now completed much more quickly, because once the measuring has been done, all we have to do is peel off the individual layers of laminated sheet metal and install the shim without further ado,” the works manager emphasised. Georg Martin delivers the shims as ready-to-install die-cut parts with drill holes.

The example of the Swiss press manufacture is indicative of the optimisation potential the use



Stefan Birrer: “We have achieved quite considerable time savings in the assembly process by using M-Tech shims.”

of M-Tech shims offers to the value-added process. Time can even be saved during the development phase, because the designers no longer have to contend with close tolerance specifications. Manufacturing effort is reduced too, because the more tolerant construction of the joints does not require any reworking. Throughput times are reduced, as the compensation elements are available on the spot during assembly and because maintenance no longer involves a grinding operation, repair costs are also reduced.

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The AZ 630 blanking press was developed for the manufacture of aluminium packaging

Shims from Georg Martin are available in steel, stainless steel, aluminium and brass in the product lines M-Tech L, M-Tech S and M-Tech P. The layered sheet metal M-Tech L shims consist of up to 64 laminated metal films (25 to 100µ) with total thicknesses of 0.50 to 3.20 mm. The layers can be peeled off individually until the required tolerance compensation has been achieved. M-Tech S shims are made of solid sheet metal designed as precisely fitting individual shims or ground and polished in sets. M-Tech P are customer-friendly edge bonded shims as thin sheet metal packages with adhesive on the edge which can be removed like a tear-off calendar, or shims of various thicknesses joined up with cable connectors as loose leaf shim.

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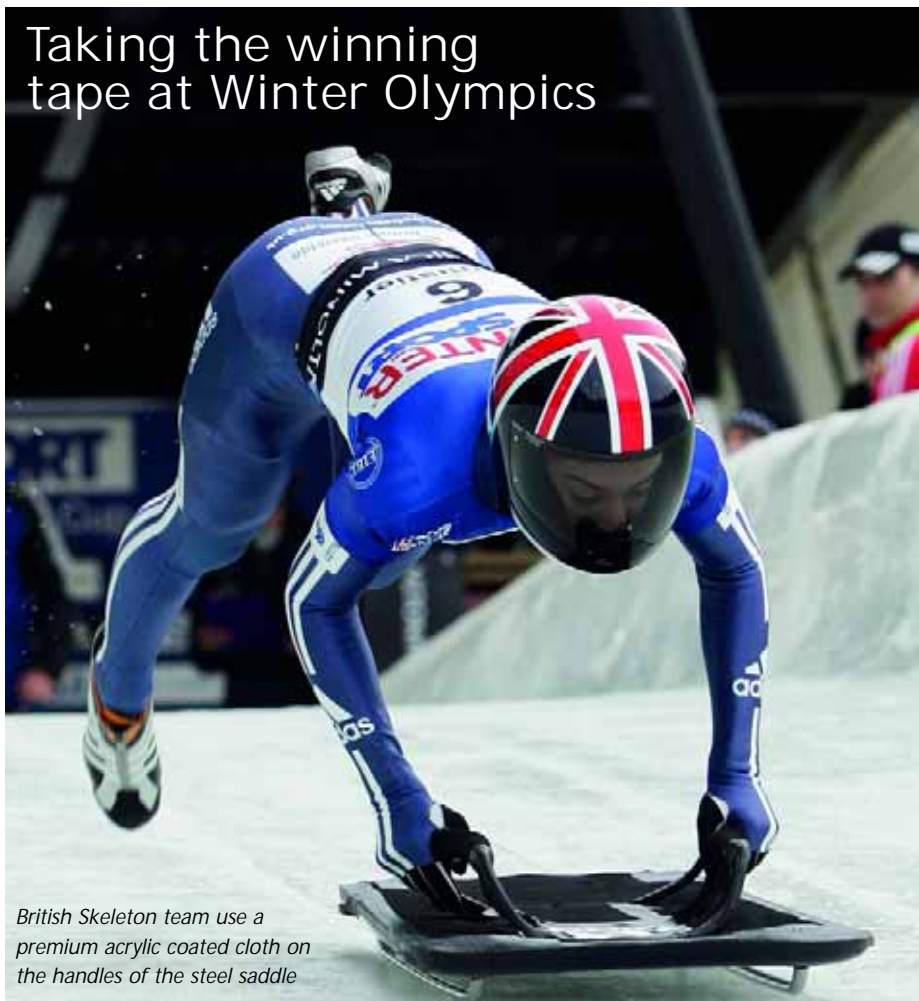
Hardlock Nut - the proven solution in threaded joints





## FASTUPDATES

## Taking the winning tape at Winter Olympics



British Skeleton team use a premium acrylic coated cloth on the handles of the steel saddle

As the excitement surrounding the London 2012 Olympic Games mounts, the 2014 Winter Olympics should not be forgotten.

When Amy Williams won the gold medal in the women's skeleton at the 2010 Vancouver Games – Britain's first solo Winter Olympics gold medal for 30 years – it was recognised as a triumph of skill, athleticism, dedication and technology.

Now the Great Britain women's team has capped a superb year with their best ever result in a World Championship with three athletes in the top five. Lizzy Yarnold, Bronze; Shelley Rudman, Fourth and Amy Williams, Fifth provided Britain with 50% of the medal zone at Lake Placid, New York State at the end of February.

Many parts of the sleds used by the British

Skeleton team use a premium acrylic coated cloth tape from tesa offering high adhesion and excellent tensile strength. On the handles of the special grade mild steel saddle, the tape provides a reliable grip on various surfaces ranging from powder coated polymer, zinc or spray paint finishes.

The tesa 4651 tape is also used to fasten different types of foam padding on the top of the saddle where the athlete lies. On the bellypan, typically made from carbon fibre sheet or GRP and finished in gel-coat, lacquer or paint, it is used to optimise air flow and speed in general, by covering the holes where the runner fits. It also assists in the 'push' start which requires a 20 to 30 metre sprint before the competitor dives aboard. To enhance the aerodynamics further, most of the athletes apply the tape along the edges of the sled where the bellypan meets the padding.

The chassis is made of high grade steel and the interior is fabricated from carbon fibre, and with the competitor on board will accelerate under gravity up to speeds of 90mph. Every micro-second saved is crucial with timings down to 1/100th of a second separating medal-winners from the also rans.

The sleds cost around £100,000 each to develop and build and with the aid of a roll of tesa tape were part of the programme that led to Amy's Gold and the record haul of medals in International Competition this season including the World Junior Championships for Lizzy Yarnold.

Jeremy Smith, UK Marketing Manager for tesa UK commented: "Playing such a key role in supporting the performance of a world class podium squad is truly rewarding. This gold medal winning team leads through the example of first class sportsmanship and innovation in technical excellence."

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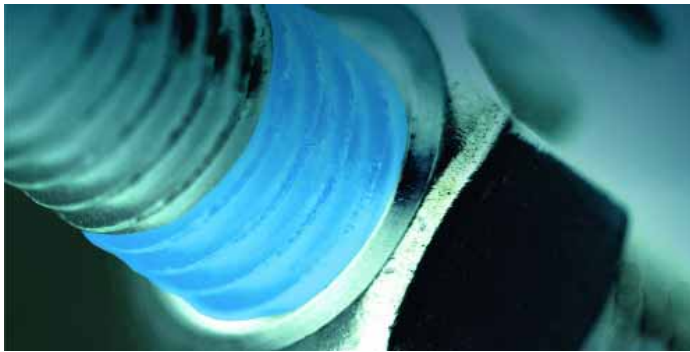
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FASTUPDATES

# No more loose threaded fasteners



We've all had annoying experiences with loose threaded fasteners, such as loose screws in eyeglasses or door handles. In the worst case, they can even lead to truly hazardous situations. **Arnold Umformtechnik** has

now developed a range of chemical and mechanical thread locking technologies that can meet the need for keeping screws and bolts tight in every situation.

Static and dynamic loads, such as shocks and vibrations, are

the main cause of failure with threaded fastener joints. Unlike largely ineffective split and serrated washers commonly used up to now to counter the risk of loose screws and bolts, the ThreadLoc system is based on the division into mechanical and chemical screw locking. This leads to individually optimised solutions for muffling, sealing and securing threaded fastener joints.

There are two traditional options for securing threaded fasteners: either the effect is achieved directly in the threads, or it is achieved under the head of the bolt or screw. ThreadLoc, it is claimed, caters for both. To

ensure that all users find the securing, muffling and sealing solutions that best fit their individual needs, **Arnold Umformtechnik** has opened a new competence centre devoted to this mission. Thomas Hager centre manager explained: "We aim to provide our customers with comprehensive advice and to generate tailored solutions for their individual needs. This ensures that our customers obtain secure joints that they can rely on down the years. After all, their satisfaction is our goal."

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# Security system combats oil theft

The dramatic increase in oil prices has led to a surge in oil thefts from industrial units, farms and domestic properties where oil tanks can be sited in exposed positions. McGard, a world leader in automotive security, has taken its well proven security drive system and applied it to an oil tank pipe cap to prevent oil theft.

The lock consists of two components, an inner threaded cap to seal the oil tank pipe that incorporates a drive pattern and an outer spin shroud that is free to rotate and prevent gripping of the inner threaded cap. Both components are made from heat treated steel to prevent cutting and gripping and give a long life to the drive system. PipeLocks are made to order so different pipe and thread sizes

can easily be accommodated.

The pipelock is torqued into position using a key that fits the drive pattern on the inner threaded cap. This drive pattern is an individually registered, recessed, curvilinear groove in the top face of the lock. A special mating key is required to operate in the groove for installation and removal of the lock and this combined with the high seating torque achievable with this system prevents the lock being opened with conventional tools. The PipeLocks can be keyed alike for an installation where one key is required to undo a series of locks or keyed to differ for individual premises.

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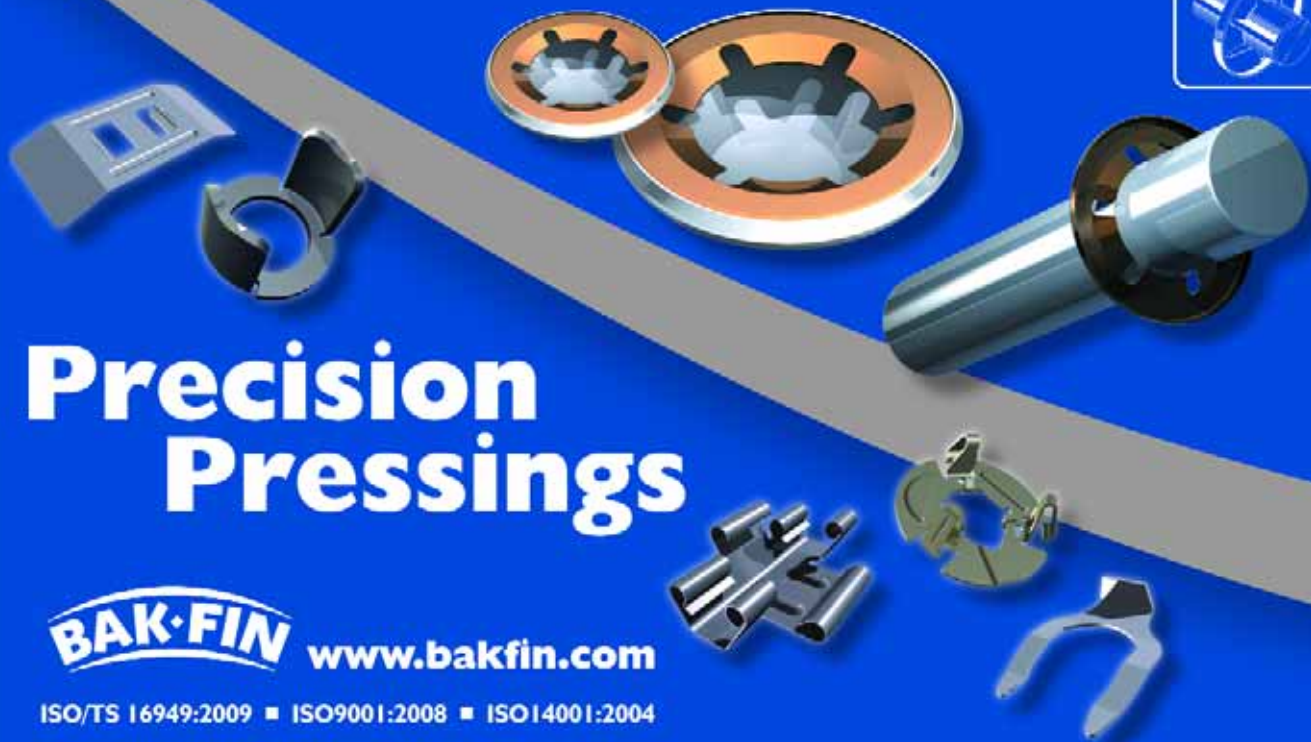
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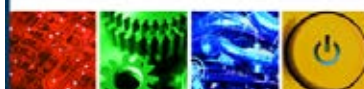
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## FASTUPDATES

## Adhesives play their part in land speed attempt



Wing Commander Andy Green and Richard Noble (left) with a model of Bloodhound SSC

Adhesives distributor Sil-Mid has become an official product sponsor to the Bloodhound SSC project, which is an international education initiative aiming to break the 1,000 mph barrier with a supersonic car powered by a jet engine and rocket. As a sponsor, Sil-Mid will advise on and provide consumables being used in the build and maintenance of the supersonic car from a choice of over 400 suppliers.

The products will be used across Bloodhound SSC: Sil-Mid has supplied a high-strength structural adhesive with a load-bearing formulation which is being used as part of further trials to determine the best adhesive to use alongside riveting the chassis. The lower chassis of the car is made up of aluminium bulkheads and steel which will be bonded and riveted together. As part of the trials the team hopes to determine which adhesive will give the best performance, especially at potentially high temperatures.

As part of the partnership, the company will also be supporting the engineers when on location, ensuring all tool cabinets have a full complement of required consumables such as Loctites and greases to support the build of the car.

The Bloodhound SSC engineering adventure is providing a once in a lifetime opportunity to inspire the next generation of scientists and engineers. The project is unique when compared to other ground breaking engineering ventures in that all the information about the research, design, build and testing of the car is available to teachers and students, and of course to anyone that wishes to visit the website across the world.

Project data and case studies are being used in over 4,000 primary and secondary schools, over 200 further education colleges and 40 universities. This represents about 1.5 million students. The project is being followed in over 200 countries and education

material is being provided to 6 million teachers via Intel's SKOOOLS' programme and Promethean Planet, making the total reach of Bloodhound extensive which is continually growing.

Gary Marriner, managing director of Sil-Mid commented: "We first found out about Bloodhound SSC when [Bloodhound SSC driver Wing Commander] Andy Green spoke at the Battle of Britain 70th Anniversary gala dinner. Following a chat with Andy and the fact Sil-Mid were involved in ThrustSSC through product and fuel sponsorship, it was a natural choice for us to become product sponsors."

Richard Noble OBE Project Director of Bloodhound SSC commented: "I was worried to begin with, owing to the Government sending shockwaves through the country with the increase of VAT and the huge cuts caused because our debts are a similar percentage of GDP to Greece. Would we be able to get sponsorship? Would our sponsors drop out?"

"The first answer was immediate, the existing sponsors were enthusiastic to continue and we have a number of large and small sponsors joining the adventure. As a dedicated sponsor, I want to thank Sil-Mid for their generous support in providing critically secure and safe consumables which are needed for the assembly of this new generation supersonic car," he concluded.



No-one has ever driven at 1,000mph before, so The Bloodhound Project team have to solve problems from scratch – using science, mathematics, many years of engineering experience and incredible determination.

The rules for designing a car to attempt the Land Speed record are very simple – it must have at least four wheels and steer with at least two of them. Beyond this, designers are free to do whatever they like with the design and build. This differs enormously to the likes of Formula One, where the rules exist to ultimately slow the cars down and to see how teams overcome these challenges. Bloodhound SSC is utterly bespoke except for the EJ-200 engine. The aerodynamics were honed using one of the UK's most powerful computers, while the hybrid rocket is the largest ever built in Britain. The 90cm wheels were the subject of a special research project in their own right, while driver Andy Green's seat is inclined at 45 degrees, as a compromise between fitting Andy in and helping him to cope with the huge acceleration and deceleration loads.

The key issue in the dynamic behaviour of the car is the directional stability over its entire operating speed range from 0 to 1000mph. The vehicle must also be able to steer and turn like a conventional wheeled vehicle, but its prime objective is extremely high speed, straight running rather than cornering as is the case, for example, with F1 cars.





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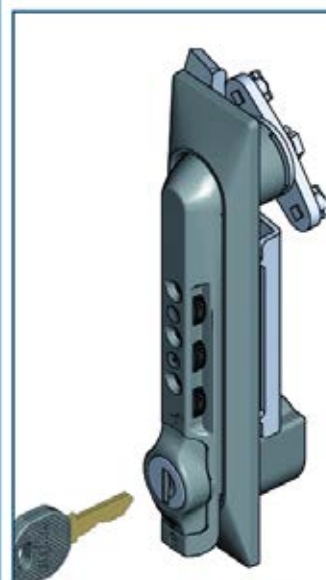
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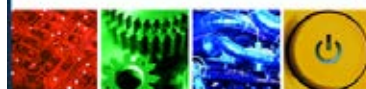
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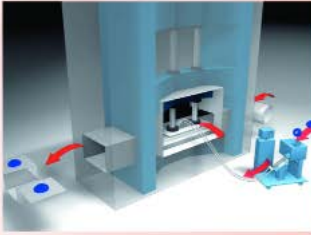
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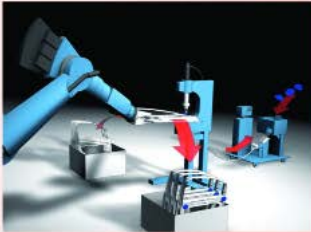
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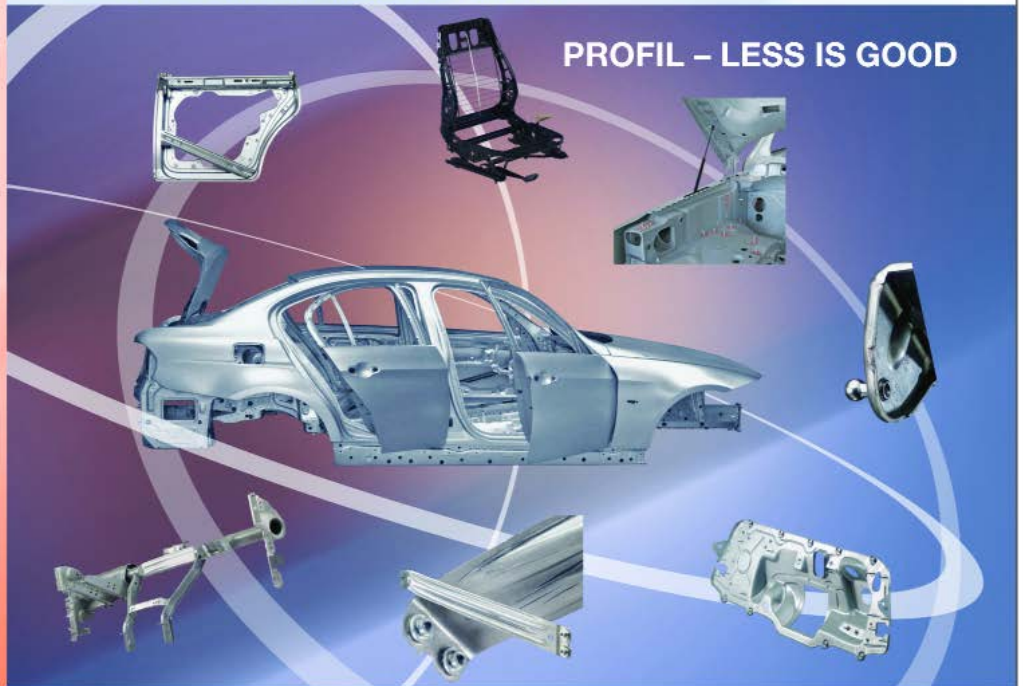




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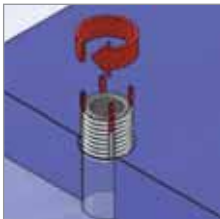
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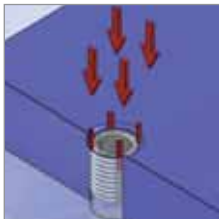


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## FASTCASE STUDY

## Clamp nut keeps turbochargers sealed

Turbochargers, which have long been used in heavy commercial vehicles and performance cars, are increasingly being used in light trucks and cars to deliver high power outputs from smaller engines, resulting in lighter vehicles with better fuel economy. But V-Band clamps, which seal off hot exhaust so the turbocharger can force compressed air into the intake, have presented a challenge when traditional fastening nuts loosen in the extreme heat and vibration turbocharger environment.

Now a novel internal thread form is helping the truck and auto industry withstand extreme turbocharger heat and vibration, while reducing cost, assembly, and warranty issues.

With exhaust temperatures exceeding 700°C, the V-Band Clamp assembly could quickly be

compromised if exhaust leaks. Component temperatures around the turbocharger can reach over 500°C, meaning that nut locking features using adhesive or nylon rings would burn up.

Vibrational fastener loosening, already a challenge in well-supported engine blocks, can be a bigger problem in turbochargers, which typically hang off the side of the engine, with less structural support and, consequently, more vibration.

Since V-Clamp nuts must run down the length of the long T-bolt stud, which can be 6-8 times the body diameter of the nut, prevailing torque type locking features can gall and wear out before the nut is properly seated. If this happens on the assembly line, there is a major cost to stop the line, remove the engine and remanufacture the V-Band Clamp assembly.

For this reason, plain metal V-Clamp nuts are typically used—but as soon as they lose tension they can start to back off, which can raise performance and warranty issues.

To keep turbochargers sealed and prevent exhaust leaks, automotive engineers are turning to an innovative V-Band Clamp Nut from Spiralock. Its internal thread form is helping withstand extreme turbocharger heat and vibration, while reducing cost, assembly, and warranty issues. This re-engineered thread form adds a 30-degree wedge ramp at the root of the thread which mates with standard 60-degree male thread fasteners.

The wedge ramp allows the bolt to spin freely relative to female threads until clamp load is applied. The crests of the standard male thread form are then

drawn tightly against the wedge ramp, eliminating radial clearances and creating a continuous spiral line contact along the entire length of the thread engagement. This continuous line contact spreads the clamp force more evenly over all engaged threads, improving resistance to vibrational loosening, axial-torsional loading, joint fatigue, and temperature extremes.

A major heavy turbo manufacturer in the USA was breaking T-bolts driving a clincher nut that galled on a V-Band Clamp assembly previously. The company had to take the turbo off the production line to repair. Switching to the free-spinning Spiralock V-Band Clamp saved the loss of about 15 V-Band Clamp assemblies per day at the plant, eliminating related production downtime and remanufacturing cost.

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*The re-engineered thread form of the V-Band Clamp assembly adds a 30-degree wedge ramp at the root of the thread which mates with standard 60-degree male thread fasteners*



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## Q &amp; A

# SPR questions answered

**The trend for lightweight materials has led to an increasing interest in self-piercing rivets. Phil Halsall answers some typical questions he receives from manufacturers interested in adopting this technology**



Philip Halsall, 47 lives in the North West of England and has worked for Henrob for nearly 11 years as the company's Business Development Director. Previous to that, he worked for Honeywell Turbocharger (Garrett) for 13 years, rising to European Director Sales and Applications. His role at Henrob is to generate new business, maintain existing business, project manage the new business going through the production builds and finally co-ordinate the installation teams. He also manages the company's distributors and agents around the world.



*Is it known who claims to have invented the self-pierce riveting (SPR) process and when it occurred?*

The Self Piece riveting technology originated in Australia and was invented at a Brisbane University in the mid-1970s. Keith Jones, who is the owner of Henrob, was out in Australia on a business trip and came across the technology. Keith quickly latched onto the technology and saw it as a real business opportunity back in Europe. The intellectual property was purchased by Keith and the technology was brought back to Europe for further development in the last 1970s. In 1985 Henrob was established in the UK and the business has been steadily growing, up to the last couple of years were we have seen a real rapid up take of the SPR technology.

*At what point in a company's manufacturing process does SPR begin to show financial advantages?*

Henrob typically is targeting a manufacturing requirement that is very difficult to produce, other than by using SPR. The markets we work in are typically trying to join dissimilar materials steel to aluminium, steel on steel and aluminium to aluminium and the process can accommodate gaskets and glue in the joint. These types of joints are very difficult to make with existing fastener technology. So if SPR is the only method to create these joints, the financial advantage is clear.

*What material types can SPR be used on?*

There is a myth with SPR that it is only good for all aluminium joints, this is obviously not true. But as aluminium to aluminium joints are difficult to make with welding or other fasteners, SPR is typically specified. The range of materials we join is now very broad, we have the basis steel on steel, aluminium on aluminium or a mixture of steel and aluminium joints. To some extreme high strength steels joints, high strength aluminium extrusion, castings and mixtures of the two. We can join plastic to other materials and circuit board material again to steel or aluminium base plates. Our market place is very large and we offer solutions from the steel frame building industry through to BIW vehicle construction, to busbar manufacturing, to road signs, all the way down to aluminium watering cans for B&Q.

*Is there any difference in joint strength between riveting that involves pre-drilling the holes and SPR joints?*

SPR offers a far higher strength joint to conventional pre-drilled holed joints and typically we work on a two for one basis; so two blind fasteners to one SPR. A good example is in the automotive sector: the original steel Jaguar XJ saloon car had over 6,200 spot welds. When the aluminium vehicle was launched, it had 3,150 SPRs.



*Is there any difference in service life between a pre-drilled and riveted joint and one that is joined using SPR?*

The fatigue life of an SPR to blind fastener is extreme, we are looking at a 10 fold improvement in fatigue life. That is why SPR have been so readily adopted on many BIW vehicle applications.

*Where does Henrob see its future growth?*

Henrob has seen a year on year growth of over 40% for the last few years. This has been fuelled by the automotive industry on a global basis. As the automotive OEMs struggle to hit the emission targets, they are all rapidly changing over to lightweight materials or dissimilar material structures. Henrob has worked very hard to make the SPR process more and more flexible and cost effective.

*In what ways has SPR technology become more flexible?*

The SPR technology has been in the past restricted to one rivet per insertion tool although this doubled a few years ago to two rivets. However, the equipment was not very reliable and for the automotive industry this was not acceptable. There were also restrictions on which combinations of rivets could be fed. So Henrob developed a new technology called the magazine system, which allows a rapid insertion process which is currently over 30% quicker than its nearest competitor. It also allowed the company's full range of rivets to be fed through one system, this means that the vehicle designers do not need to be that specific with the joining process in the early stages of development. Henrob will launch some new technology into the market later this year which will resolve the final flexibility issues.

*Are you concerned that companies in the Far East will copy your products and flood the emerging market?*

Henrob has carefully patented its technology over the last 20 years and currently holds patents on all of its new technology including the magazine design. We have been challenged on a number of occasions, but the patents are strong and have stood their ground. We have found that the major OEM's are preparing to launch vehicles at multiple locations around the world

and they respect patents that you have in place. We have seen a couple of Chinese companies copying some of the products but they have not been able to achieve the quality of the final joint. SPR is not that simple to copy and the imitators have run into major quality issues and been taken off the applications.

*What are the challenges over the next five years?*

Henrob's business is built around the technology and the people who work in the business. With the rapid expansion of the SPR market, our challenge is to grow the business with great people who will add value and this year we will see a 30% increase in staff. At the same time Henrob needs to deliver the new technology to the market with the same care we have taken on the current product, reliability is key in the automotive market.

*Is Henrob investing for the future?*

We have to: Henrob has a whole series of work streams from plant updates through to new machine tool investment. During 2009/10, we extended the UK factory and invested in a state of the art heat treatment plant. During this year we will invest in a mechanical plating plant, which will bring our capacity up to 1.5 billion fasteners. This will be one of only a few factories in the world that can offer a complete rivet manufacturing process under one roof and we are the only SPR manufacturer. The total investment in the rivet operations is over £5.0 million in the last 3 years. Currently we are taking delivery of a whole suite of machine tool centres which will allow the company to mass produce its products. The equipment assembly area has doubled in size in the last 12 months and we have also purchased a similar size factory in the US.

*Why have you not built a factory in a 'low cost' country?*

We don't believe those markets can offer the quality levels we need for our products, we have sourced finished material in China and the results were not to the levels we expect. But our processes are very automated and therefore we don't get the advantages of a lower cost labour content. Typically we have machines running unattended, only requiring intervention when a new setup is required. It's probably something for the future but if volumes become

that high in China it might be the natural option to establish a facility there.

*Do you see any uptake of the SPR product in emergent markets?*

We do and we have a great company out in China who are uncovering lots of new markets for us, in addition they are servicing European and US transplant programs. We saw a 50% growth in China last year and expect the same this year and in 2013.

*What is the future for SPR and Henrob?*

Difficult question to answer but this is the first time in the company's history when we have a full order book for the next few years so we can plan with confidence. The market place has changed over the last three years and there has been complete swing in the way aluminium and high strength steel has been adopted in the automotive market place on a global basis and at every OEM.

The growth is there and we need to keep one step ahead of the competition to continue our rapid expansion. At the same time we need to manage the growth and deliver the profitability which will allow us to continue to invest in the technology development and high production volumes. We also need to work closely with our staff as they are key to our success.

*How does the company's philosophy reflect in product development?*

Henrob is committed to pushing the boundaries of self-piercing rivet technology to new levels. Its philosophy is to be an innovator not an imitator and this is realised by a corporate culture based on entrepreneurial and creative flair. To design reliable, robust solutions for production, the company relies on 3D computer-aided design software allowing in-depth modelling of tools and product access studies. Finite element analysis software is used to ensure adequate life expectancy of components. Design data can be exchanged via the web, e-mail or FTP servers, offering rapid turnaround of rivet joint designs and equipment proposals.

Applications engineers add fastening and assembly expertise to customers' technical team. After a careful review of joint and installation needs, engineers will propose a complete fastener and tool specification suited to the particular application requirements and production environment.

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# Engineering adhesives need not be hazardous

**Engineers specifying adhesive solutions can choose products that comply with health and safety regulations and still benefit from high performance without paying the Earth**

Protecting our workforce and environment through ever tightening health and safety rules has a double edge. Of course it's in everyone's interests but for those whose job it is to evaluate the suitability of hazard-labelled products against process needs and company policy, tougher legislation means a lot more work.

The quick fix is to select products that are free from hazard labelling. But in reality, are they as effective as their counterparts whose constituents require them to display health and safety symbols?

In the case of the health and safety range from Henkel, the answer is a resounding yes. The company first introduced its Loctite 2400 and 2700 threadlocking products a short time ago but now these formulations have been joined by others with similar credentials. As a result, Henkel is unique in its ability to offer a comprehensive range of hazard-label-free engineering adhesives that cover the lion's share of applications.

This range has now become the Loctite front line offering, with products carrying health and safety symbols only being called in where a specific performance characteristic is required. And crucially this hazard-free, high performance

is available at no additional cost to the end user.

Henkel, with the Loctite brand has always had a very strong health and safety ethos with its R and D being driven by sustainability and responsibility. Dr Vernon Kreible developed anaerobic engineering adhesives in 1953 and through continuous development, this technology has evolved into a highly effective Loctite product range that covers, threadlocking, thread sealing, gasketing and retaining.

These latest additions to its health and safety range are designed to make the COSHH assessment and acceptance process for engineering adhesives as easy as possible. Instead of safety sheets running to maybe a dozen pages, all the details needed for these products are contained in just four.

The range enables manufacturers to benefit from the many advantages that this technology brings whilst demonstrating responsibility for their staff and the environment. It's not solely a question of conformity however, the Loctite range also outperforms other technologies.

Threadlocking is a good case in point. Take a look at the graph (below) that shows the results of an independent test to demonstrate clamp load retention performance of various locking devices. It can be seen that the use of the threadlocking adhesive gives far better vibration resistance than most methods. And even when compared against



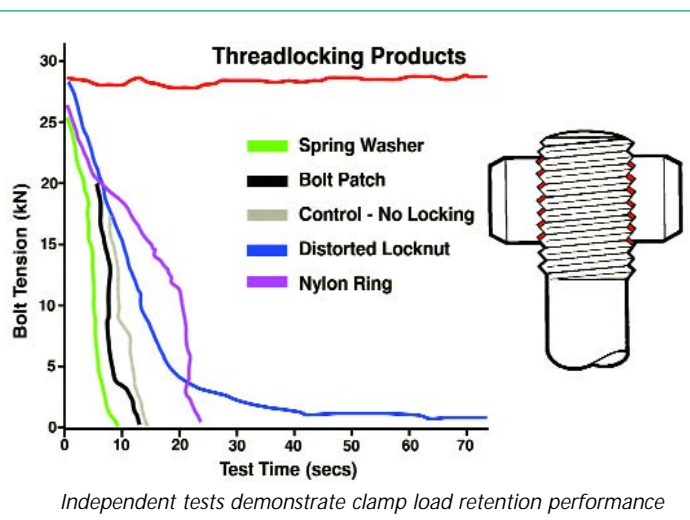
*The Henkel health and safety range does not sacrifice performance*

technologies that provide a similar performance – the adhesive bolt and the saw-toothed flange – the Loctite system introduces further advantages: it costs less and the resultant joint is completely sealed.

In use, this allows manufacturers to dispense with blind hole drilling and tapping and use the simpler practice of through hole drilling and tapping. The threaded fitting is completely sealed with the locking compound so the adjacent water jacket or oil way remains pressure tight. The product is also available in two grades, Loctite 2400 and 2700 respectively, for medium and high strength threadlocking.

From an application point of view, Loctite threadlockers overlap to a degree with the Loctite 5400 thread sealer. Its primary role however is to seal and lock to prevent leakage of gasses or liquids. When the liquid adhesive is applied to a taper parallel thread it provides an instant seal so, if needs be, the system can be pressurised straight away. There is no danger of joint corrosion and of course the fastener can be released at any time.

HENKEL LOCTITE ADHESIVES  
01442 278000



## TAPE TECHNOLOGY

# Bonding films go from strength to strength

**A range of adhesive tapes being launched at this month's Hanover Fair relies on chemical bonding to produce a superior performance film. Paul Gay went to Lohmann's Neuwied headquarters to find out more**

Today's automobile paints are complex and highly technical materials that exhibit better repellent properties than ever. Bonding to such smooth surfaces presents the tape's manufacturer with a real challenge: how to make a structural tape adhere to a perfect paint finish. The product development team at tapes specialist Lohmann is in constant contact with paint manufacturers across the world and have developed partnerships, which will provide solutions for the surfaces of the future.

Lohmann's low surface energy tapes can create permanently safe adhesive bonds, which are effective and reliable, on perfectly smooth surfaces. The company claims its low surface energy tapes provide the best possible adhesion to polyethylene, polypropylene, EPDM and powder paint coatings and no pre-treatment is required.

The company produces high-tech bonding technology: double-sided adhesive tapes, transfer films and reactive adhesive systems. But the latest development in low surface energy tapes is a product described as superior bonding film (SBF)

Launching at this month's Hanover Fair, DuploTEC SBF is described as a semi-structural film with shear strength as much as ten times greater than the more conventional pressure sensitive tapes it complements. Bonding is achieved by a chemical reaction, which is activated by pressure and heat. Being a reactive film, the product is non-tacky at ambient temperatures and needs a heat press to bond the joint.

Not only does the material have an order of magnitude more strength, it can achieve its bond in a smaller area of contact. Lohmann data provides an example using a bonding area the size of a typical 3cm square postage stamp. A bonding area of just 900mm<sup>2</sup> is able to sustain a load of 450kg. And in endurance tests

with weights of between 25 and 40kg, DuploTEC 688 SBF suspended weights for over four months where the best PSA tape failed under a 20kg load bonded with twice the contact area.

The benefits of the new system are numerous. Compared with liquid bonding, SBF is faster, easier and safer while against welding and riveting, the superior film is shorter, lighter and more homogenous.

It is ten times stronger than PSA tape and offers a greater freedom of design. And against other film, it is stronger, stronger and offers better shock resistance.

They may be invisible, but Lohmann adhesive products are all around us, clearly not just in automotive manufacture. The active use of adhesives is a fast growing trend throughout industry and especially in the electronics sector where mobile devices rely heavily on tapes and film in their manufacture.

The advantages of adhesive technology are clear: the material is light, clean and above all safe. Thanks to the precise

adhesive strength, individual components are bonded efficiently and with unprecedented accuracy, ensuring customers receive the best possible solutions from adhesive manufacture to process integration. Lohmann has taken on the slogan 'The Bonding Engineers' for good reason. Experts are on hand to consult on all adhesive matters from global specification work through individual product development to innovative adhesive designs. The Lohmann Tape Group boasts that its adhesive experts cover the entire value chain and enable customer-focused solutions to be found.

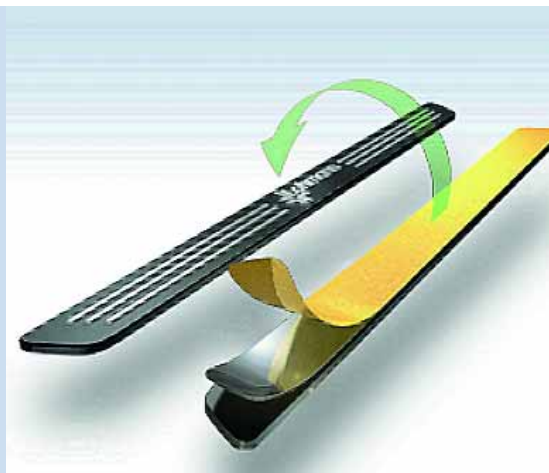
Founded in 1851, Lohmann is one of the pioneering forces in adhesive tape technology and is now active on a global scale. The Adhesive Tape Group is headquartered in Neuwied, Germany. The company now has over 1,500 employees worldwide, 28 international sites, and exclusive sales partners in over 50 countries all around the world. In future editions FAST Magazine will be looking at Lohmann's operations in greater depth.

LOHMANN TECHNOLOGIES UK 01296 337888

The protective strips, roof strip members and decorative strips on a car feature strongly in the design of its exterior but represent a major challenge to adhesive tapes.

On the one hand the strips have to remain firmly in place across all temperature ranges and under all weather conditions. On the other, the adhesive tape must remain invisible for cosmetic reasons. The tape must therefore be tailored precisely to the thermal expansion properties of the strip and the body.

Lohmann currently offers the technical DuploCOLL adhesive tapes to meet these challenges. Their advantages of this established system are high levels of resistance to temperature, ageing, UV and weather. The permanently elastic backing foam provides the flexibility required to adapt to slightly uneven substrates. It satisfies the stringent design requirements and is easy to integrate into the production process. DuploTEC SBF will take the technique to a new performance level with higher shear strength from small bonding areas.







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# As one door closes . . .

## Higher performance composite doors can be produced more cost effectively using structural adhesives in their manufacture

The ability of the right type of structural adhesive to produce a lower weight assembled part with superior mechanical performance such as: improved flexural strength, better creep properties and higher impact resistance are compelling enough reasons for a

company has an established customer base in the UK and Ireland, which is currently expanding with growing export sales in Europe and the USA. In this highly competitive sector of the building market, New World needs to be extremely cost and productivity focused, but with

together the cut-to-size GRP or UPVC profiles used to make the rectangular inner sash frame of the door designs has had a major impact on increasing New World's overall production line productivity and build quality, as well as reducing scrap levels. Asa McGillian, managing director of New World explained: "Due to Crestabond's significantly faster fixture time, we have made significant productivity gains in our door production. The overall cost benefit analysis is commercially very attractive for the business relative to the price of [the adhesive]."

For the pultruded GRP inner sash frames, New World now has a 25% faster cycle time in the bond and assembly stage, down from 16 to only 12 min. Productivity gains were even better for the UPVC inner sash production line, where the cycle time reduced by 73% since switching to Crestabond with its 12 minute fixture time; it replaced a two part polyurethane (PU) adhesive which needed 45 minutes before the assembled frame could be moved to the next production stage.

McGillian again: "Product quality has definitely improved, particularly during colder periods, as Crestabond has proved to be a tougher, more reliable and consistent adhesive, which gives us fewer breakages and scrap loss compared with other MMA and polyurethane adhesives previously used."

To help with productivity, New World use automated 10:1 dispensing machines from the UK equipment manufacturer Liquid Control in combination with 20 litre pails of the adhesive. However, for certain bonding applications, such as a 4mm profile, then using a hand-held pneumatic gun with 400ml cartridges of the product has proved faster to use, with much better application control of small beads of adhesive, so is less wasteful. New World has found that using cartridges is overall more cost effective for the smaller, more intricate bonding applications.



*Crestabond structural adhesive bonding being applied to a New World door*

manufacturing company to economically justify making design changes and rethink production methods. The added commercial benefits of major productivity gains and overall lower production costs, has convinced a number of forward thinking companies, such as New World, to invest time and engineering resources to trial Crystic Crestabond and discover for themselves the performance improvements and significant cost savings they could achieve.

New World is based in Ballymena, Northern Ireland and is a leading manufacturer of exterior and interior UPVC and GRP composite domestic doors. The

no compromise on build quality.

After successful shop floor production trials, Crestabond M1-05 was specified for the key inner sash frame and door skin structural bonding applications. Since mid-2011, the adhesive has been phased in and is now used on 85% of the New World range of doors. This includes a new all-GRP Apeer 70 and 44 doors, constructed with a bonded inner sash made from a pultruded GRP profile which replaced UPVC; the advantage of having the entire door designed with the same material is the elimination of any distortion once installed.

Switching to using Crestabond to fix



Since its launch in 2010, Scott Bader has been converting manufacturers over to their Crestabond range of primer-less methyl methacrylate (MMA) structural adhesives. The range offers a cost effective alternative bonding solution to the ever growing demand for better, faster performing universal structural adhesives capable of bonding not only composites together, but also commonly used metal and plastic substrates such as: aluminium, stainless steel, ABS, acrylic and PC.

The range is aimed at manufacturing companies in the bus, truck, rail, construction, marine and wind energy markets looking for a tough, cost effective, high performance bonding and gap filling structural adhesive, with long term reliability.

An additional production benefit is improved shop floor working conditions; using an adhesive for assembly rather than over laminating eliminates grinding dust, reduces styrene emissions and provides a cleaner shop floor environment.

All Crestabond adhesives in the current range have a 10:1 mix ratio, supplied in a choice of pack sizes from 400ml coaxial cartridges, which can be applied using manual or pneumatic hand gun applicators, to bulk pack sizes in 20 litre (18kg) pails or 200 litre (180 kg) drums for use with proprietary dosing machines.

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## FASTCASE STUDY

# Marine sector moulding materials are an affordable solution

**Two of the greatest challenges in producing plugs and models using traditional techniques are the significant cost and time intensive production processes. Huntsman Advanced Materials has a solution, with a quality range of epoxy seamless modelling pastes**

In looking to improve time-to-market delivery schedules and implement more cost-effective construction methods, many boat builders are increasingly turning to use seamless modelling pastes (SMP), which have a number of distinct



*The process of boat being covered*

advantages. They offer superior milling characteristics so once milled, no joints or voids are visible and the material is seamless. They also provide greater dimensional accuracy and make it possible for complex shapes to be constructed. Less operator skill is required and less finishing is needed to prepare the surface.

The biggest cost when making SMP models is not the SMP paste, but the labour costs as well as the cost of application and CNC machine time. Huntsman Advanced Materials advises its customers that an SMP paste should perform consistently to allow fast application while avoiding replication and costly repair work.

SMP comes in various forms: Polyester SMP is a low cost, low quality material. Issues associated with this low cost, low quality material include catalyst dosing and mixing problems, high shrinkage and high dimensional distortion.

Polyurethane (PU) SMP is generally lower cost than epoxy SMP but is often characterised by low temperature resistance, high shrinkage and poor dimensional stability. Inconsistent rheology and reactivity tend to result in application problems and repair work is often high.

Epoxy SMPs tend to be slightly more expensive than PU. However, in offering low shrinkage, excellent dimensional stability and a consistent high performance in application and use, epoxy SMPs are now very much in demand.

Special pumping and dosing machines are needed to mix and dispense SMP. Hand application is increasingly being replaced by using a robotic arm or CNC machine to apply the paste automatically. This allows an increase in application rate up to 5 kg/min as well as the accurate control of the thickness of the paste. In general, it is only necessary to remove a few millimetres of material during milling. This less labour intensive process saves both time and material. When applied by hand, the paste tend to be thicker and the application inconsistent, resulting in additional material waste.

RenPaste 4666, the most recent addition to Huntsman's epoxy SMP range, has been designed for machine systems while still being suitable for refined hand application as well. This has been achieved through the chemical thixotropy concept developed by Huntsman which allows the user to alter the SMP rheology by simply changing the mixing parameters.

The chemical thixotropy, a programmable paste rheology (PPR) concept changes the SMP's characteristics from a fluid that can be applied quickly in thickness up to 10mm, to a viscous

material capable of up to 40mm thick, with no slump on vertical surfaces and without excessive exotherm. The user can select the paste rheology required for individual jobs – from high speed automated application to thick hand application.

Whichever application method is used, the high quality which results from this SMP's adjustable rheology reduces



*The pastes are increasingly being applied by robotic machine systems*

the need for additional repairs or reworking of the model. In addition, the fine surface quality obtained after milling of RenPaste 4666 reduces any further finishing time. The paste also exhibits excellent dimensional stability and low shrinkage on precision models.

By following the criteria of using an epoxy SMP which performs consistently and allows fast application, a better quality of product requiring less repair work can be constructed and a faster time to market achieved.

All of the SMPs in Huntsman's range are based on the chemical thixotropy concept, producing fast pumping liquid components to develop rapid and reliable anti-slump properties.

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## TOP TIPS: AUTOMOTIVE APPLICATIONS

# Tolerance compensation speeds auto assembly

The use of tolerance compensating fasteners in automotive assembly not only improves build quality but also saves valuable production time. Paul Gay reports from Böllhoff's headquarters in Bielefeld

No one wants to admit to tolerances in a manufactured component but they always exist. Take for example joining a dash board to the bulkhead of a passenger car on an automotive assembly line. Traditionally, this task would have been a manual assembly and any tolerance in the fit of the dashboard to the car's bulkhead would have been taken up by shims or washers.

The tolerance compensating fastener – such as Flexitol from Böllhoff – overcomes the common use of spacers, which were manually selected and inserted, absorbing costly production time. Multi component fixings do cost more than simple fasteners and spacers but their use

provides better quality and reliability but most importantly, they can save assembly time when fitted automatically.

The Flexitol product was first introduced in 2003 as a basic metal version for tolerance fitting in the automotive sector. But now there is also a plastic version with an alloy insert which is being used as a headlamp adjuster. Generally, this fastener will self-tap into the bulkhead and feature a spring assisted ball stud which snaps into the headlamp cluster.

A tolerance compensation element consists of at least two components – an adjustment element and a fastening element. First of all, the tolerance compensation element is installed in the receiv-

ing component. The assembly to be installed is then offered up in the desired position. When the fastener is tightened, the compensation distance between receiving part and mounting part is gradually closed. The friction element serves to move the adjustment element while the adjustment element is connected to the fastening element by way of a left-hand thread. By screwing the fastener clockwise, the adjustment element drives out until touching the mounting section. The fastener can then be further screwed in until the entire assembly is secured by screw preload force.

The benefit of Flexitol is clear: without additional adjustments, the variable gap produced by tolerances is compensated automatically and without deformation. As the expectation for product finish quality is ever growing, it is important that aspects such as gap tolerances are apparently being reduced. The tolerance compensating fastener can literally fill the bill.

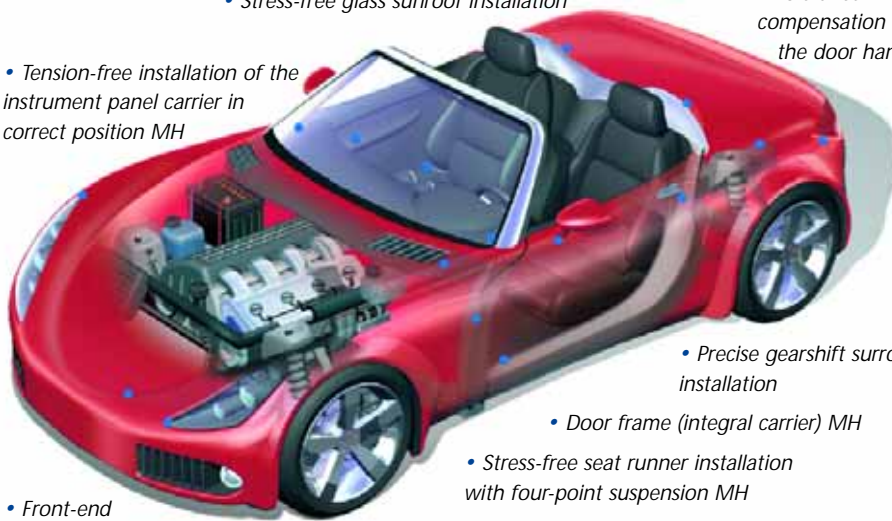
Flexitol also allows higher production rates and therefore saves manufacturing costs. As the effectiveness of tolerance compensation does not depend on changing influential factors, high performance reliability is ensured. With Böllhoff's different systems, a variety of assembly system can be designed to accomplish a specific assembly task. All assembly operations involving Flexitol require access from only one side of the workpiece.

There are currently three variations in the Flexitol range: metal, plastic and hybrid. Different areas of application mean different demands so tolerance compensation systems must be optimised at the outset. Depending on the specific application, Böllhoff will recommend which type to use following design evaluations.

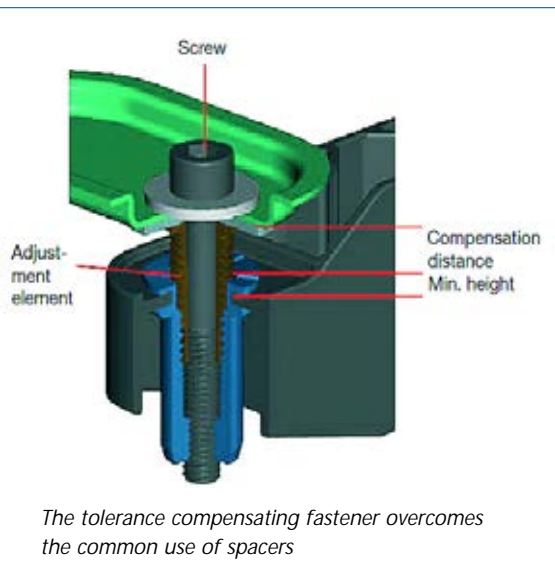
Flexitol metal was Böllhoff's first step towards developing tolerance compensa-

Possible locations for the Flexitol fastener in automotive applications are marked with a dot. Product key: M = metal; H = hybrid; P = plastic

- Stress-free installation of large plastic covers
- Fastening of roof rails
- Stress-free glass sunroof installation
- Tension-free installation of the instrument panel carrier in correct position MH
- Compensation of tolerances upon tail-light installation
- Tolerance compensation at the door handle
- Precise gearshift surround installation
- Door frame (integral carrier) MH
- Stress-free seat runner installation with four-point suspension MH
- Flush-mount installation of body elements with exact gap measures (wing to door) MH
- Front-end fastenings (headlight installation) MHP
- Outside flush bumper installation with respect to adjacent body parts MHP







The wear resistant adjustment element of the fastener can be adjusted manually to take up the tolerance and would normally be installed into bulk material. The fastening element has compact system dimension and is essentially a blind rivet nut available in different designs. It is easy to install into thin-walled materials less than 5 mm, has an integrated fastening thread and may be installed with adjustment thread above or below separation gap and into thick-walled metals.

When no fastening element is required, adjustment and fastening thread may be integrated directly into the attachment component.

The hybrid version of Flexitol is a multi-component system mainly designed for use in large scale production. Due to its modular construction, a variation of different inserted heights and tolerance compensation dimensions may easily be implemented. The force transmitting components of the hybrid solu-

tion are made of metal and they are enclosed by a nut cage made of plastic.

On delivery, the system is pre-assembled and may be installed into the receiving part using a setting tool. Because of the integrated blind rivet nut, a fastening thread is already provided but alternative connections, such as clips, may also be employed.

The all plastic version consists of an adjustment element and a fastening element, which are delivered pre-assembled, and are fixed by self-tapping screw into a mounting hole in the plastic receiving part. An alternative assembly method uses a bayonet arrangement to fix the fastener.

Here, the plastic fastener is inserted into a keyhole-shaped slot and fixed by a quarter turn. The following installation is the same as for the self-tapping method.

The diagram shows where Flexitol can be used in the modern road car.

BÖLLHOFF FASTENINGS  
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tion systems. As its name suggests, this two-component system is made entirely of metal and therefore highly wear resistant. Due to the small space required for installation in the separation gap, this solution may easily be integrated and even retrofit into an existing installation space.

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# Optimising the design of plastics assembly

**In today's manufacturing industry, there are many methods for assembling plastics components. This article compares four of the options**

There's more than one way of joining plastics. Along with adhesives and the encapsulation of individual parts by an additional component acting as a bonding element, designers can choose from rivets, threaded inserts and thread-forming screws. The last two methods offer high mechanical load capacity and low cost if specific conditions are fulfilled.



*Figure 1: A thread is formed in the plastic causing the plastic to be displaced and forced into the spaces between the threads*

Plastic parts assembly using threaded fasteners has the advantage that the joints can be dismantled and reassembled repeatedly, unlike glued or welded joints. Furthermore, the assembly and disassembly operations are clearly defined, unlike some other methods such as snap-fit. Careful study of the construction is often necessary in order to dismantle a snap-fit joint without destroying the parts. Furthermore, threaded fastener joints require only modest investments. As an alternative to threaded inserts, thread-forming screws do not need a mating part in the joint. This effectively eliminates one operation in the manufacturing process.

A thread is formed in the plastic when the fastener is screwed into the hole, causing the plastic to be displaced and forced into the spaces between the threads (figure 1).

The characteristics of plastics can vary significantly when they are compounded with other materials such as filaments and fibres to produce glass reinforced plastics (GRP)



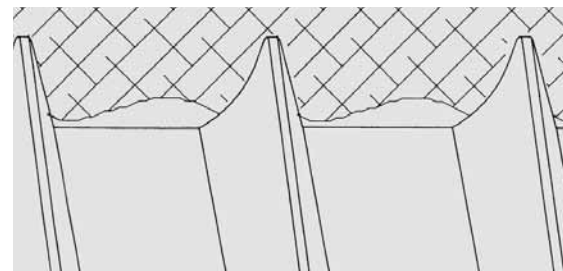
*Figure 2: The thread engagement created by the Remform screw provides joints with high mechanical load capacity*

for example. Each material has its own characteristics with regard to friction, glide and flow and these characteristics have a direct effect on the threaded fastener joint. As a rule, secure joints are only possible with a large depth of engagement between the screw thread and the plastic.

A higher loss of preload than with metals must be taken into account in the joint design. This results from the specific creep and relaxation characteristics of the polymer material. Although this loss can be reduced by using low-stress designs, it cannot be avoided entirely. Hole design is also a decisive factor for the quality of threaded fastener joints in plastics. A remedy for this problem is provided by Remform screws from Arnold Umformtechnik (figure 2), which feature the optimal thread engagement to provide joints with high mechanical load capacity. As the mechanical load capacity can only be determined experimentally, users benefit from a wealth of measurement data accumulated by the manufacturer based on extensive application experience.

Remform's asymmetric thread geometry causes the forces generated during thread forming to be steered in the desired direction. The aim is to form a thread with maximum possible load-bearing capacity over the full length of the screw shank. After the relaxation phase, the plastic should penetrate the space between the threads as deeply as possible. The thread flank facing away from the screw head has a radius to improve material flow, allowing the plastic to penetrate close to the root diameter.

The steep flank facing the screw head accommodates the polymer material displaced in the axial direction. This thread geometry also generates low radial forces during thread



*Figure 3: The asymmetric thread geometry steers the forces generated during thread forming in the right direction*

forming, which allows hole posts to be designed with thinner walls. This is especially important because the thickness of plastic parts should be kept as small as possible for cost reasons. The thickness determines the setting time, which is approximately 70% of the cycle time and therefore a significant cost factor.

The thread profile generates low thread-forming torque and effective material displacement. The high torsion strength of the thread profile ensures a high stripping torque, which is beneficial in situations where screws are prone to break from high torsion stress. To prevent failure due to stripping of the mating thread, the steep load-bearing flank causes most of the force to be steered in the axial direction, resulting in corresponding preload forces.

Optimised material flow of the plastic creates a large difference between the forming torque and the stripping torque. This translates into high process security for users with automated threaded fastener assembly, due to the large tightening torque tolerance range between the two values. This ensures that all fasteners are fully tightened and eliminates the risk of stripped threads. The combination of a flank with a radius and a steep load-bearing flank reduces radial stresses by minimising radial forces during thread forming and screw tightening. The steep load-bearing flank also transfers most of the force generated during tightening.

ARNOLD UMFORMTECHNIK +49 7947 821 170

## HOW TO: LEVEL MACHINES

# Flying carpet for heavy installations

**Flexibility is one of the important features of modern manufacturing so gone are the days of permanent installation for all heavy equipment. FAST looks at a lift castor solution which simplifies machine movements**



*The castor system is used for removable revolving theatre stages*

Setting up and levelling a machine or installation into a relatively permanent position for years to come is no longer necessarily common practice. Until now, individual elements of a facility would, when necessary, be shifted using floor-borne vehicles and, at relatively high costs, be setup once again.

This not only presents the risk of damaging valuable components, but also the high probability that the relocation will require a great deal of effort to level and re-calibrate the machinery. If individual facility components could be relocated with little effort and without incurring any heavy vibrations or horizontal jolts and without being tipped, then a high degree of flexibility with little risk could be achieved.

The use of swivelling rollers is generally prohibited, because even those with brakes do not allow for precise positioning. In addition, the eccentrically loaded swivel bearings are not suited for permanent loads – occasionally in combination with vibrations – without, at least, being re-designed to have the appropriate dimensions.

It is with this scenario in mind that Fath Components has developed a lift castor unit as a plug-and-play solution which has been conceptualised as a mounting for machinery and facilities with a maximum lifting load of 500 kg per unit. The extra flat unit is composed

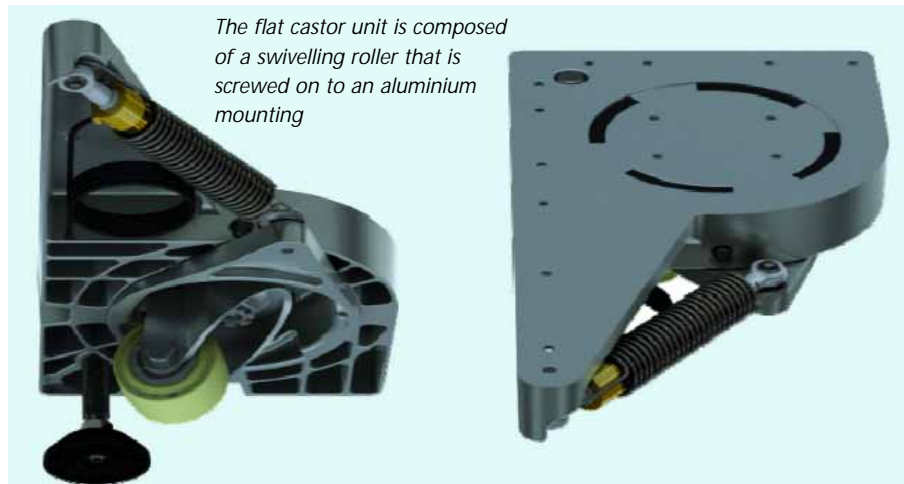
of a Bickler swivelling roller that is screwed on to an aluminium mounting. The rolling mounts of these swivelling rollers are bedded into the die-cast aluminium chassis using a Teflon strip. The helix threading translates rotation of the lift into vertical movement. An Ergoswiss hydraulic cylinder drives the rotation. All bearings are equipped with very durable igus bushings. When the roller is lifted, the load is carried by FATH die-cast zinc levelling feet.

The Lift Castor is delivered as a set containing four lifting units including the levelling feet, a manual hydraulic pump and the necessary hydraulic piping. The lifting units are simply screwed on to the structure that is to be moved. The pipes are attached and can be laid out freely so that the pump can be mounted in a convenient position. There are no levers or rods to be mounted or adjusted.

Just by turning a crank, any machine or installation using this equipment can be lifted by the integrated levelling feet and easily pushed along any normal industrial floor. The lifting motion is conducted evenly so that nothing tilts or becomes unlevelled – even open tanks containing fluid can be moved when exercising due care.

With its combination of high load-bearing capacity, easy and simple mounting, and gentle lifting motion, the Fath Lift Castor is predestined for delicate operations that involve, for example, the use of sensitive measuring and testing devices. The system has already found one special site of operation: It is used for removable revolving stages in the world of entertainment. In the spotlights of large musical productions, functional reliability, rapidness and flexibility are perhaps even more important than in the industry.

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*The flat castor unit is composed of a swivelling roller that is screwed on to an aluminium mounting*



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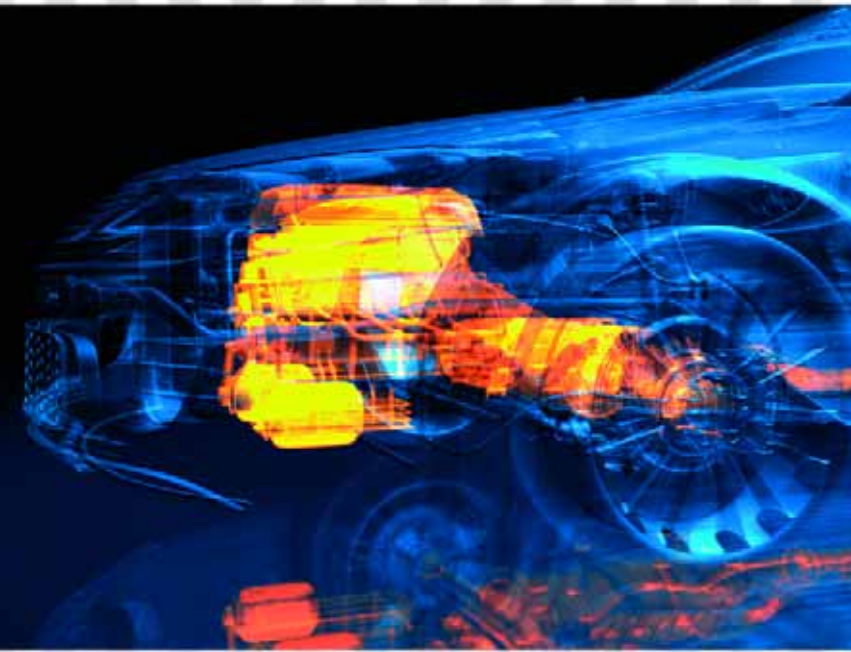
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# Struggling to Keep It Together When the Heat Is On?

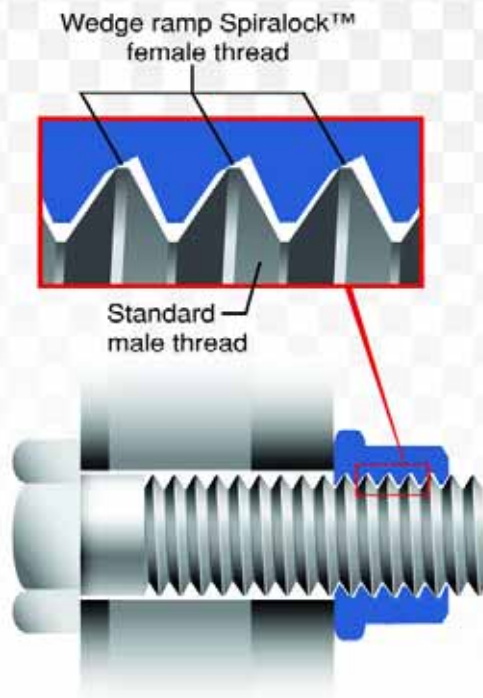


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## HOW TO: RIVET FOR STRUCTURAL INTEGRITY

# Rivet redesign satisfies steering requirement

**According to Lee Irving, OEM applications are characteristically different and challenging. Often, design modifications are required to a rivet, rivet nut or a rivet nut stud in order for a product to fulfil the requirements of the application and the customer**

An automotive OEM required a redesign of a standard stock rivet nut stud for very specific and tight application parameters to be used in a steering column. The design team at Gesipa Keighley worked on a standard M6 rivet nut stud design modifying it to give a high clamp with minimal set length in the steering column. This was done by reducing the counter bore just enough to grip the required material without lowering the torque and using different materials to ensure correct setting for the application.

Poke-yoke troubleshooting was conducted at Gesipa's facility in Keighley to check the performance of this redesigned rivet nut stud during assembly. During this process, the vision inspection system picks the product up and rotates it in front of the camera checking every rivet nut stud for short assembly, rivet nut length, stud length, crimp root diameter, crimp crest diameter, malformed crimp and rivet nut head diameter.

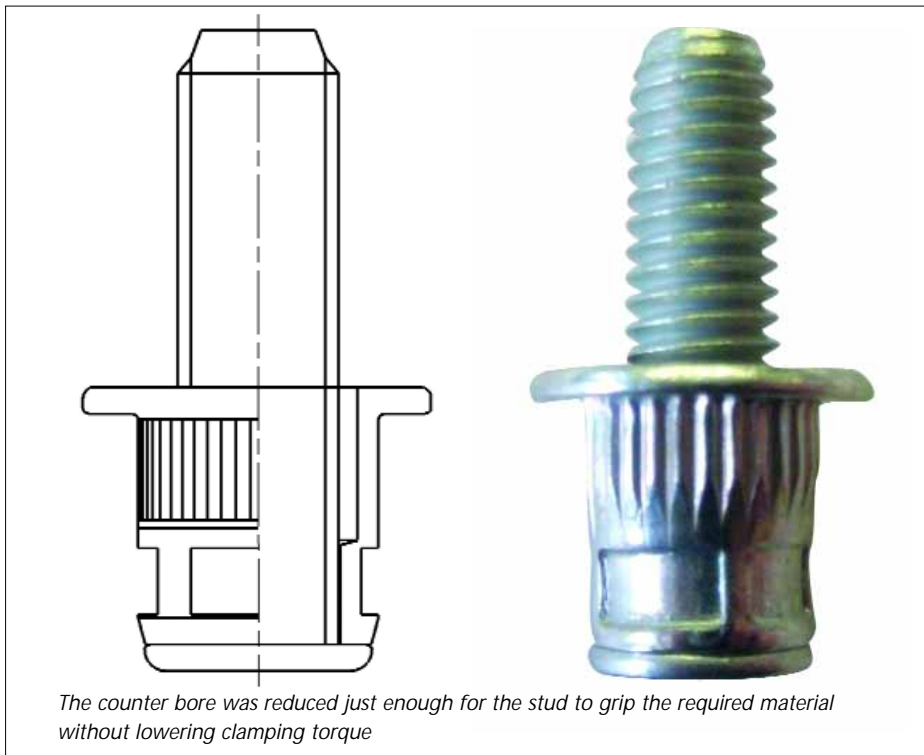
Gesipa started manufacturing a standard range of rivet nut stud in its UK facility in Keighley, West Yorkshire in 2010 and now produces sizes M4 to M12 in a variety of materials and stud lengths to match customer requirements.

Currently being used in automotive, refrigeration plant, HVAC, securing panels and hoses and electrical components, rivet nut studs have huge potential in the aluminium extrusion market and various other applications using thin metals.

## Saving air usage

On the systems front, the company announced in February the launch of its Taurus Eco Range of riveting tools, which save on compressed air, an expensive resource these days.

Pneumatic hydraulic riveting tools use compressed air for setting the rivets into



*The counter bore was reduced just enough for the stud to grip the required material without lowering clamping torque*

sheet metals and ejecting the broken mandrel. Gesipa's Taurus Tools firstly use the air to set the rivet and reuse it to eject the broken mandrel giving a first level of air saving of up to 68%, with cost and environmental savings to the customers.

In similar tools, the air suction mechanism to eject the broken mandrel consumes approximately 100 litres of compressed air per minute. The Taurus Tool switches-off the air suction mechanism completely and due to its double use gives customers an even more substantial saving on the cost. In spite of various air-saving mechanisms applied to tools by the manufacturers, there is still a lot of wastage of this expensive source of energy on the operators end. "I walked on an empty shop floor recently and all I could hear was the hissing of leaking air," said Lee Irving, an account manager, with the company.

It was then Irving felt there was an opportunity in the market for a tool that when not in operation would automatically stop drawing air from the system. Working with Gesipa Germany, the team created the new range with a cut-off switch. And this switch can be fitted at the time of ordering to any of the Taurus/Taurex range. Its sole purpose is to stop the drawing of air to the tool when not being operated. Whether the tool is standing up or lying down the tool does not draw any air and thus stops the wastage without affecting the performance of the tool. Whilst not being used the tool is primed and ready to work as soon as the operator pulls the trigger.

**GESIPA BLIND  
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01535 212208**



# tried&trusted



Images courtesy Fisker Automotive

This is the fantastic new Fisker Karma hybrid electric sports car.

Boasting a revolutionary drivetrain delivering a huge 959ftlb of torque, a 0-60 time of 6.3 seconds and a top speed of 125 miles per hour, the lightweight aluminium body structure requires absolute strength, rigidity and reliability to handle the high stresses imposed.

Fisker rely on Henrob self-pierce fastening technology to provide the structural integrity necessary to cope with this highly demanding and ground-breaking vehicle concept.

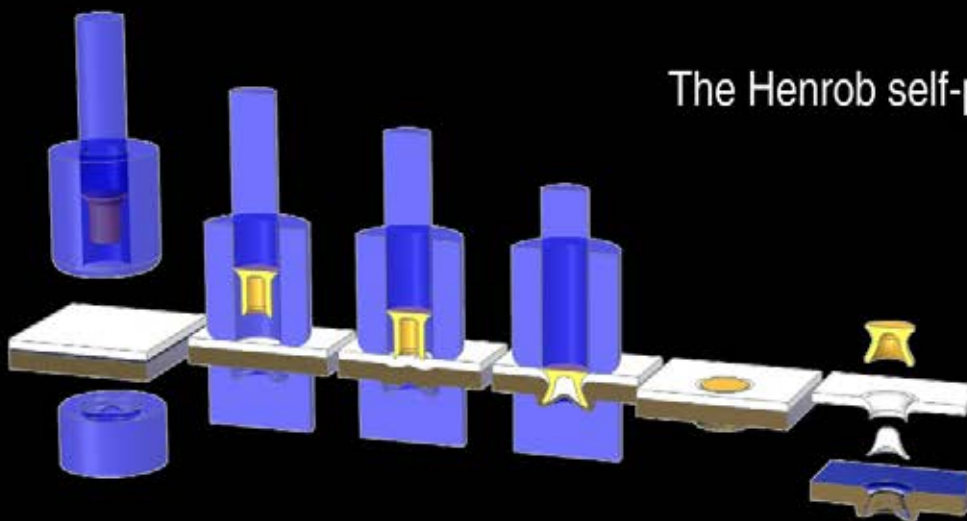
Henrob self-piercing rivets are used, together with adhesives, throughout the body structure to join a wide range of aluminium sheet and extrusion.

Henrob self-pierce fastening systems integrate seamlessly into manual or automated production lines.

With a cycle time similar to spot welding, but without the heat, sparks or fumes, it's no wonder that Henrob self-pierce riveting is becoming the fastening method of choice for forward thinking manufacturers around the world.



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## Sprung hinges complete work holding invention

Springs and pressing manufacturer George Emmott recently came to the assistance of a company to help solve a problem faced by joiners and woodworkers the world over: "How do you hold a large piece of wood that needs planing or sawing, quickly and easily, on-site?"

Shop fitter cum inventor cum entrepreneur David Crampton of Magicfit had an idea where a pair of clamps would act as a vice type arrangement when the workpiece was lowered into them. He developed his idea along these lines but realised that the product would be better if the hinges could be spring loaded and where the weight of the workpiece itself would produce the clamping action needed.

The arrangement involves two feet held together by a pair of hinges, which need to be spring loaded. Ian Spencer of Emmott explained: "It was an interesting brief, the clamps had to be easy to use, rigid when in use, adjustable, reliable, and economic to manufacture." The team came up with several solutions which were trialled before settling on the final version. This

consisted of each clamp being a pair of hinges held together with a leaf spring made from spring temper stainless steel. The unit also included a spring washer which could be located in serrations stamped into the hinge to allow for a positive locking when the clamp was adjusted to accommodate various widths of wood.

Emmott has been in business since 1840 and regularly gets this type of project. Spencer again: "We are a company [with] the ability to provide the whole range of springs and pressings so consequently we have a lot of expertise in many fields. Our in-house development team finds itself working on projects such as this to others involving rewinding cables on safety harnesses or spring clips to hold other components in their place. The fact that we can do this and provide prototypes helps our customers immensely as it ensures they can develop their product with confidence."

GEORGE EMMOTT  
(PAWSONS)  
01535 643733



## Shims provide solution for armoured vehicle door hinges

A military ground assault vehicle manufacturer approached Spirol Industries to provide quick delivery of adjustable shim packs for spacing of armoured vehicle door hinges. The spacing is critical providing proper sealing and locking engagement of the door

systems. Having worked with the customer's design team to determine the required adjustment, Spirol developed three edge bonded shim set proposals. The customer selected the Spirol solution as it offered safe and quick adjustment, a 70% cost

reduction and a short manufacturing lead-time.

Spirol's edge-bonded shim sets have all the performance and cost advantages of solid and loose shims, but instead of having to stack a number of individual shims, a single shim set can be quickly

adjusted to the desired thickness and slipped into position. In this way, variable close tolerances can be achieved, saving considerably on

the time required to pick various different thicknesses of loose shims. The solution has also provided cost savings by reducing assembly time and minimising related inventory storage space. It also provides cost saving advantages over surface-bonded shims because the materials are less expensive. Edge-bonded shim packs offer safe adjustment in seconds rather than using time consuming and difficult to peel surface bonded laminates. Safety improvement is realised because no knife is needed to remove the edge-bonded layers. Cost savings can also be realised because the removed layers are reusable functional parts.

SPIROL INDUSTRIES 01536 444800



adjusted to the desired thickness and slipped into position. In this way, variable close tolerances can be achieved, saving considerably on

## TOP TIPS: JOINING

# Simple assembly of flat pack enclosures

**FDB got very excited about the possibilities of using its Snap-Line range in the fabrication of flat pack enclosures. The technology has been designed for quick easy use and has been applied to a full range of components**

As specialists in cabinet hardware, FDB Panel Fittings offers locks and handles, hinges, compression latches, quarter-turns, swinghandles, joining elements, pull handles and slam latches; in fact most hardware that is likely to interest specialist enclosure or cabinet builders, looking for a simple labour saving way to rationalise panel punching and subsequent assembly. The company's slogan – Panel Fittings for Every Enclosure – is largely satisfied by the Snap-Line system, which features a special clip-in and tool removal system covering metal thicknesses from 0.8mm up to 2.7mm in



*The new snap-in low profile swinghandle*



*D-Snap joiners for panel fitting*

convenient steps to suit normal industrial practice. Degrees of sealing offered by hinges and locks and handles can achieve up to IP65 where specified.

This modular technology requires only rectangular hole punching to suit the relevant component which can then be pushed into place by hand to achieve a firm positive fit. The system can be used to fabricate complete cabinets by means of joining elements which can hold sides to back, panels to frames or other components then complete the assembly with snap-in hinges, door closure or security items. The technology that enables this involves careful use of detail design criteria and spring utilisation to ensure a locked-in tight fit once installed and a robust assembly when in use.

An example of the technology is the 40mm long cast hinges with 180° capability and sealing capacity to IP65 with right or left handed operation. This is par-

ticularly applicable where full door opening is required, either for maximum door clearance – perhaps for the insertion of equipment – or for access to the rear of the door. They may be used on standalone enclosures and racks or on suited style side-by-side installations. There are three versions available: one with M5 cast in screws; another with screws on one leaf and Snap-Line fitted to the other; and a third with Snap-Line on both leaves to enable a simple blind push-in fitting that does not require rear access, saving up to 90% of hinge assembly time.

The D-Snap range of panel assembly joiners, locks and hinges is designed to enable specialist cabinet builders to fabricate housings with flat sheet quickly into a robust structure. These specialist joiner components operate to fasten two or more sheet metal panels together by simply pressing and snapping the joiner into prepared panel cut-outs. They are claimed



ideal for fastening cabinet components, such as the removable top or base, and for robust firm fixing of panels of similar or varying thickness, found in multi-component motor control cabinets.

The 1-044SL is intended for permanent assembly or joining of cabinets side by side whereas the 1-045SL is specifically for situations where one panel may require regular removal, perhaps for maintenance. The 1-046SL also allows one panel to be removed so it is ideal where lighting panels have to be removed. The fixed side is fastened with screws enabling the joiner to be used with materials such as wood or for retro-fit installation where hole purchasing is not a possibility.

D-Snap joiners will adjust to varying thicknesses of panel and use standard 30x10mm cut-outs enabling rapid assembly after painting. Where removable panels are needed then pull-off forces may be chosen from 15N/30N/50N dependent upon component.

As a finishing touch a low profile

Snap-Line swing-handle is ideal for enclosures and control panels where tool-less snap-in fitment and resistance to vibration will be appreciated.

Features of this technology include clamping ranges from 0.7mm to 5.3mm, left and right handed application and blind assembly all in a low cost package. And just like the D-Snap hinges, the fabricator can save up to 90% of assembly time compared to other swinghandles. Fitment is by means of a simple 110x25mm cut-out and removal is also accomplished quickly and without tools.

Readers will get more illustrated tips



From FDB Panel Fittings: 180° hinges in screw fit or Snap-Line

on enclosure assembly in video form by visiting the company's website and YouTube channel.

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# It all hinges on the range

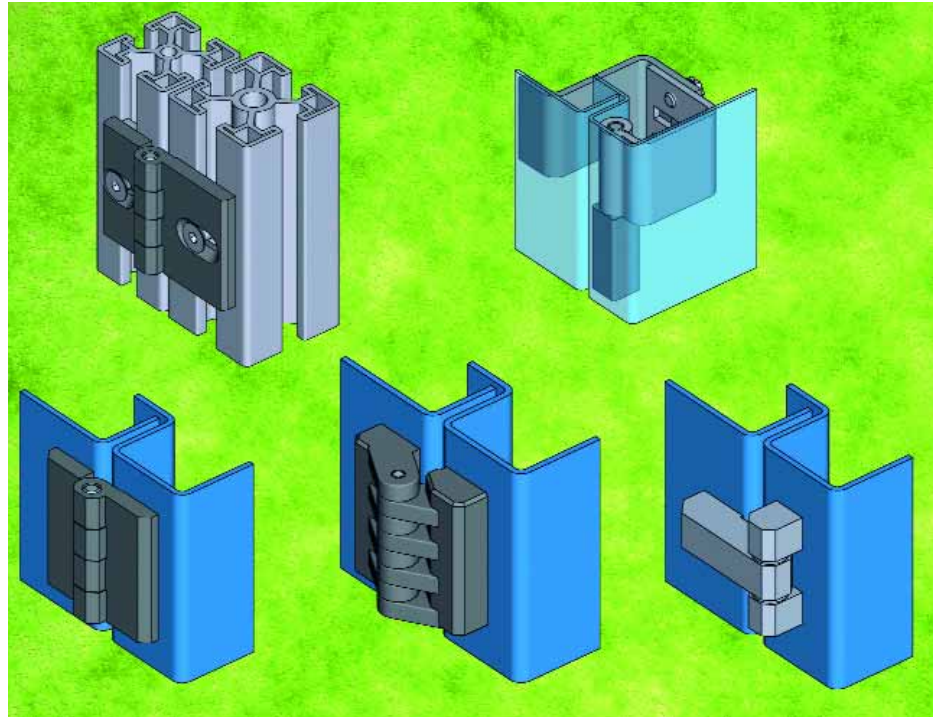
**Design engineers employed in industrial cabinet design will understand that these are common but specialist applications. Just ‘any old hinge’ from a hardware supplier is unlikely to do the job adequately**

A continuing problem for specialist enclosure designers is the correct specification and cost effective installation of suitable hinges. Market leaders EMKA has taken this entirely to heart and has produced what is probably the largest offering of enclosure and cabinet hinges available, specifically to suit the electrical and electronic industries requirements for protective housings.

This specialist series simplifies the hinging of prominent and lay-on doors with a range of 23 different groupings of hinge types, developed in consequence of the growth in electrical and electronic industries. Standardised solutions are special purpose designs to match a defined range of applications, environments and performance criteria, with each type available in various sizes to suit door rigidity, sealing requirements and door loading.

The prominent door hinge program features weld-on or fully finished types with machine screw fixings or fast fixing possibilities. Opening capabilities of 120° to 180° are available as are removable pins or lift-off variants to speed installation.

The company’s hinge manufacturing capability encompasses mild steel, die-cast zinc, glass-reinforced thermo-plastic and stainless steel, to suit the environmental and aesthetic requirements of the



*There are times in industrial design when any old hinge simply will not do*

situation. Hinge selection for cabinets with prominent doors really is not now a difficult matter, especially since the introduction of a dedicated website, which features powerful drill-down architecture to guide engineers.

EMKA’s range of enclosure hardware includes electronic locking systems, stainless steel hinges, spanner locks, wing handle and locks, 19 inch cabinet locks, HVAC locks and profile sealing strips for

enclosure sealing in natural rubber, EPDM, neoprene and PVC. An absolute plethora of hardware but fear not further information and advice on all these products is available online at: [www.emka.co.uk](http://www.emka.co.uk), where it is also possible to download 3D CAD files and any part or the entire EMKA product catalogue.

EMKA  
024 7661 6505

Getting a door to “fit” correctly can be a problem for standard and specialist enclosure producers alike, in particular with flush doors where the visible gap is a significant aesthetic concern and accurate gasket positioning may be critical to match narrow flanges which are needed to maximise aperture clearances.

Standard, accurate and application specific hinge designs from EMKA deal with many of the problems encountered in this process.

EMKA “flush door” hinges are available in 18 different styles/formats and many sizes per program with a spectrum of visual

and functional possibilities. These run from mild steel weld-on concealed hinges along to glass reinforced plastic, zinc die or stainless steel designs.

They offer 90° to 270° opening and have been developed in parallel with the development of control and telco technologies and with the housings demanded for their safe installation.

EMKA’s standard specialist hinges for flush mount doors offer accurate, repeatable, reliable and aesthetic solutions to this common design scenario. As to be expected from a market leader such as EMKA, their website offers a powerful drill-down guide,

together with a wealth of downloadable drawings and other material. EMKA’s range of enclosure hardware includes electronic locking systems, stainless steel hinges, spanner locks, wing handle/locks, 19 inch cabinet locks, HVAC locks and profile sealing strips for enclosure sealing in natural rubber, EPDM, neoprene and PVC. Further information on EMKA products and services may be found at [www.emka.co.uk](http://www.emka.co.uk), where it is also possible to download their 3D CAD files and any part or the entire EMKA product catalogue. Find the latest information and news on the EMKA blog – [www.emkablog.co.uk](http://www.emkablog.co.uk).



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## PRODUCT REVIEW: ADHESIVES AND TAPES

# All taped up and ready to go

**Adhesives and tapes offer significant advantages over traditional mechanical and fusion fastenings but users should take advice on the specification and application of these flexible products**

Mechanical fastenings have provided satisfactory results for many decades, it is becoming apparent that there are more and more scenarios where they no longer offer the most effective solution – for example, where speed is of the essence, appearance cannot be compromised, or the influence of the elements is greater than usual. Alternative media solutions are becoming more easily accessible; tape adhesives in particular are seeing increased usage through their inherent performance advantages over methods such as mechanical or fusion fastening.

Although traditionally popular, there are many downsides to using mechanical fastenings. The application process can be highly time and labour-intensive and also requires the drilling of holes which can cause leaks or weaken the substrate.



The use of mechanical fixings can create points of stress, which are not evenly spread across the surface. The failure of a single mechanical fixing can be potentially dangerous. Mechanical fixings are also often visible, marring the final appearance.

With over 40 years' experience, Viking is a major supplier to some of the UK's largest companies and will be introducing eight cost effective solutions for plastic and metal bonding at the 2012 Harrogate FAST Show. The company's expertise lies in its understanding of the production processes and as a result can offer cost saving solutions for existing applications. The technical team will solve problems and then offer one of the broadest product ranges in the country, available on line with next day delivery.

Finally, they offer little in regard to sealing, leaving the substrate open to the elements.

In contrast to mechanical fastenings, tape adhesives offer aesthetic advantages, with cleaner lines and no protruding nails, rivets or weld marks, while their flexibility and durability frequently ensures consistent performance long after mechanical fixings start to loosen or fail. They are generally quicker and easier to apply than mechanical fastening systems as they offer simultaneous bond and seal, aid the uniform distribution of stress throughout the cladded surface, and do not require the drilling of holes, leaving the substrate intact.

Modern high-strength products draw on extensive research and development over many years to offer outstanding bonding alongside unrivalled durability and versatility.

Adhesives tapes offer excellent resistance against the elements and most importantly bond to a variety of materials, including metals, sealed wood, glass, plastics, composites, paints and powder coatings. They are conformable to allow a perfect bond line between two surfaces with no air bubbles, preventing the ingress of dirt and moisture.

Furthermore, the surface preparation and product application process could



hardly be simpler. Usually, the tape is manually applied to the clean, dry substrate and pressure placed on the area with a hand roller. The liner is then removed and the second substrate added. Further pressure is then applied to the bond areas, with 50% bond strength achievable within 10 min, and full strength in 72 hr; far quicker than by using traditional methods and less affected by the elements and other external factors. Given the speed of application, costs are further minimised in this area too.

Tapes and adhesives are made available to users in the OEM industries by specialist distributors one of which, Viking Industrial Products is one of 3M's premier distributors and has been trading since 1989. Viking was an earlier adopter of the Internet, tailoring its site – [www.vikingtapes.co.uk](http://www.vikingtapes.co.uk) – to provide a safe passage through the maze of available adhesive products. An on line helpdesk is manned by experts and deals with hundreds of enquiries a month.

Even now, 30 years after the introduction of 3M's Very High Bond tapes, people still don't believe the performance

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levels that can be achieved, not only against mechanical fasteners but also against welding. The fact that we are sticking panels on buses, roofs on lorries, windows into buildings, heads onto golf clubs is still a surprise to many people.

There are also misconceptions about the performance of mechanical fasteners given the effect that long term flexing can have on their integrity, let alone the risk of corrosion, nor are the design benefits of smooth unblemished surfaces, tapes and adhesives provide, immediately recognised.

Fear of the unknown and premature failure predominates.

There are two main reasons for adhesive tape and adhesive failure which all too often has been the experience of the sign makers.

#### Wrong specification

Is it the right product? It is essential that all the parameters of the application are understood. The questions to ask include: surfaces to be stuck, are they high or low surface energy; are there temperatures

involved; is the application inside or outdoors?

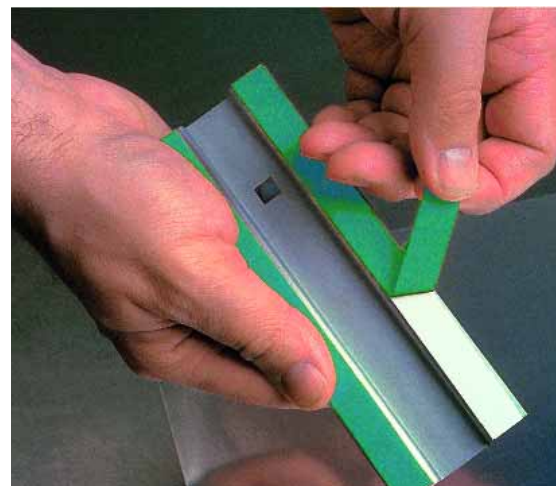
In many cases the wrong tape or adhesive has been specified.

#### Incorrect application

Surfaces must be clean, dry and may need to be abraded to get the right result. On some difficult surfaces we may even have to use a primer. With adhesives, especially two part epoxies, attention needs to be given to the open time and working life of the adhesive. Bond strengths even on adhesive tapes increase over a 24 to 48 hr period. Hence handling time needs to be taken into account.

All adhesive tapes, whether they are foam, filmic, adhesive transfer tape, single-sided or double-sided, can be customised to any shape to suit specific production requirements or individual needs.

Using die-cut parts improves productivity, saves time, saves materials and saves money. These can be presented either on rolls, with or without waste removed, in single cut pieces, sheets or strips.



Tape or foam pieces can have an oversized liner or a split back liner for easy removal. The presentation of the products can be engineered to suit individual applications, incorporating elements such as pre-spaced layouts and specified location holes to reduce both application time and production cost.

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PRODUCT REVIEW: ADHESIVES AND TAPES

Motor sport tapes meet high standards

Speedsport Promotions has teamed up with tapes specialist tesa to combine advanced product development with specialist market sectors skills to create a definitive range of high performance tapes for the motor racing sector. And Speedsport Promotions will continue to be the official supplier

of tesa tapes to this prestigious and highly successful UK market sector from its premises at the home of Formula One.

Speedsport, based in the heart of British Motor Racing at Silverstone's world famous circuit, is a specialist business in the field of driver management,

media communications, corporate hospitality and race car preparation. As part of the latter element of its business, it is also a major supplier of adhesive tapes to the motor racing fraternity.

Managing director Mike O'Brien is a former champion race driver and team owner and a

member of the British Racing Drivers Club who is now mentoring a number of top young drivers such as Darren Manning, in America's IRL series, Clio Cup racer Stefan Hodgetts and Formula Ford champion Callum Macleod. Motorsport is a sector in which there can be no compromise on endurance, quality and performance, which is why he is happy to use and recommend tesa tapes.

The story starts back in the early 1990s when Mike was searching for a general purpose tape that would withstand the demanding environment of high performance race cars. tesa 4651, dubbed 'Race tape', proved to be the solution, a premium grade acrylic paste coated cloth tape, available in a range of colours.

The tape is based on a 148 mesh woven rayon fabric backing with a natural rubber adhesive. In

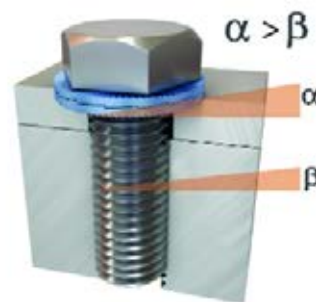


Formula Ford champion Callum Macleod relies on tesa tapes on the track



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## PRODUCT REVIEW: ADHESIVES AND TAPES

the motor racing sector it is used for a multitude of applications like blanking off radiators, holding down fastenings, securing wiring, masking of wires and cables, sealing of tins and tubes, airtight permanent pipe sealing and the like. The product is temperature resistant up to 130°C with a tensile strength of 100N/cm.

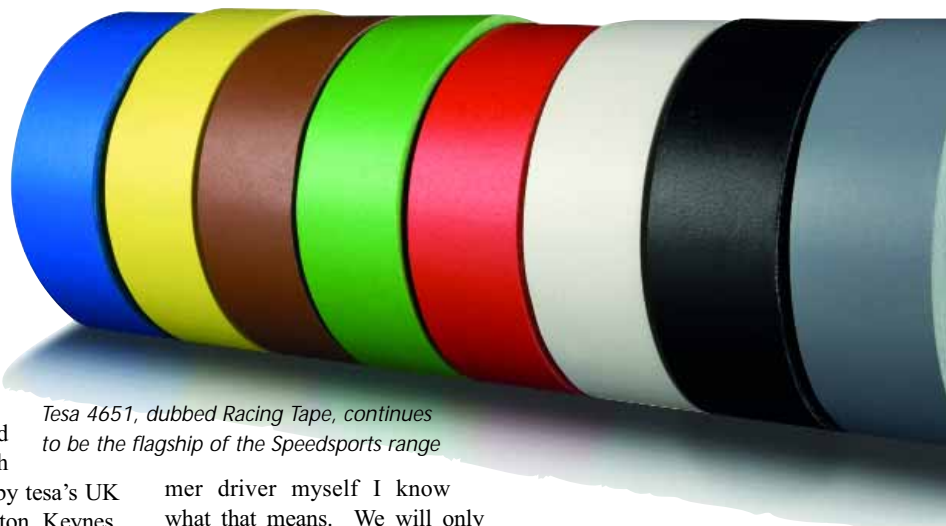
This tape continues to be the flagship product in the Speedsport range, but since being appointed as tesa's official supplier to the motor sport and the downhill biking market, the range has expanded to include protection tape, single sided black foam tape, various masking, double-sided and protection tapes – 16 products in all.

From a somewhat informal relationship and a few rolls of tape, Speedsport and tesa have now built a substantial business which supplies probably the most demanding customer base in the world. F1 race teams and manu-

facturers' competition departments, famous names such as Lotus and Mercedes, use tapes supplied by Speedsport Promotions in both the build and operation of their race cars.

Tape supplies are governed by a programme of customer service called tesacoheion, which has been developed by tesa's UK headquarters in Milton Keynes. The programme is predicated on the four Ps of business: people, products, processes and performance and is an approach enthusiastically embraced by O'Brien.

"My customers demand the kind of performance levels from their cars and drivers that all industries would love to achieve", O'Brien claimed. "And as a for-



Tesa 4651, dubbed Racing Tape, continues to be the flagship of the Speedsports range

mer driver myself I know what that means. We will only work with and recommend products that will enhance our reputation, so they have to be the best. Before we chose tesa, we did comparative tests with other very well-known suppliers but tesa outperformed them."

O'Brien described the level of service: "If necessary we'll hand deliver just a few rolls of tape to

one of our customers because that's the service level we're committed to."

You can find out more about Speedsport Promotions by visiting the tesa stand at the IASE Exhibition.

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## PRODUCT REVIEW: ADHESIVES AND TAPES

# Beating the bonding barrier

**A range of optimum viscoelasticity acrylic adhesive tapes, claimed to be the strongest performer in tesa's portfolio, made a big splash at its exhibition debut earlier this year**

Constructive bonding requires durability even in extreme conditions and needs to be able to endure the dynamic and static stresses that act upon a bond. In outdoor applications there are temperature variations to contend with and often the effects of water, ultraviolet light or even exposure to chemicals. A range of acrylic adhesive tapes designed with optimum viscoelasticity for such applications has been launched by adhesive tapes specialist tesa.

The company reckons it has taken the chemistry involved in tape production forward into a new generation. The new technology, coined ACXplus, enables a functional combination of its chemical components while acting as a solvent-free coating of high capacity acrylates especially developed for constructive long term bonding. ACXplus is claimed to be a new category of double sided tapes for constructive bonding and is the highest performing product line made by tesa.

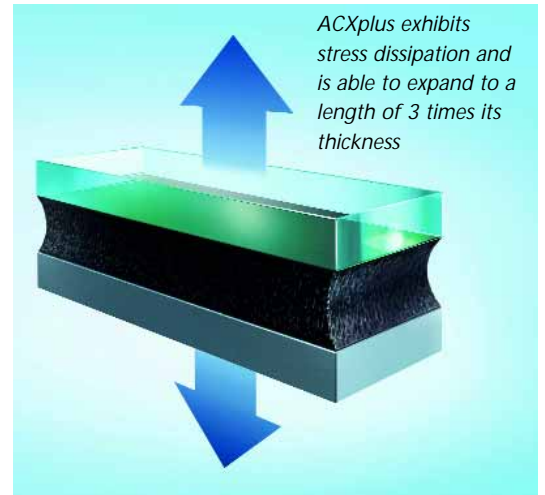
Construction of the coating plant began in September 2008 being completed in July 2009. Tapes production began in 2011 with the global launch last January in time for its UK debut at this year's Southern Manufacturing & Electronics Exhibition in February.

Key performance benefits of stress dissipation, tesa claims, are available to

the ACXplus product range through its viscoelastic properties. Viscoelasticity embodies both elastic and viscous characteristics which allow the tapes to dissipate extreme physical stress. The elastic restoring forces provide inner strength whilst the viscous part leads to relaxation of mechanical stresses. ACXplus tapes use a special acrylic adhesive which combines both effects. When two materials, for example glass and aluminium, are bonded with the new material, an optimal high strength bond is achieved even where extreme temperature conditions and high wind loads are experienced.

The performance of the acrylic adhesive is characterised by certain features including bonding power, stress dissipation, temperature and weather resistance. Bonding power is achieved because the adhesive has very good wetting-out properties. Wetting is the ability of the adhesive to flow across the surface of the substrate: the better the wetting, the higher the surface contact and the better the bond. The adhesive also chemically adapts to the bonded surfaces resulting in a high bond which will last for decades.

Various stresses can act on a bond during its lifetime, especially those caused by different rates of thermal expansion and contraction of different materials.



For example, under a temperature difference of 60°C (from +65°C to +5°C) aluminium expands 1.53mm greater than PMMA, leading to stresses on the bond which if are not dissipated could cause the bond to break. ACXplus exhibits stress dissipation and is able to expand to a length of 3 times its thickness, so a 1mm thick tape is able to expand up to 3mm, thus compensating for the different thermal elongations.

Due to the oxidation resistance of the fully saturated carbon chains, which is the basis of the adhesive used, this tape provides a superior bond that offers both high and low temperature resistance and different weather conditions and chemicals.

Applications in a variety of industrial applications are envisaged. These include building supply, signage, furniture, electronics and solar energy sectors. As part of its tesacohesion philosophy which focuses on people, products, processes and performance, tesa invited visitors to bring their applications to the exhibition stand to discuss how this new technology can help to enhance processes and manufacturing methods. The Southern Manufacturing stand received lots of interest, with representatives from several diverse industries making enquiries on

*Optimal high strength bond is achieved even where extreme temperature conditions and high wind loads are experienced such as in the solar panel sector*





## PRODUCT REVIEW: ADHESIVES AND TAPES

how adhesive tapes can replace the more traditional mechanical fixing methods to improve processes. ACXplus was recommended for processes including bonding aluminium to aluminium in the aircraft industry, aluminium to glass in the building sector and bonding steel parts for permanent external applications in the rail industry.

Initially, there will be three product families. tesa 705x is a high transparency material with a solid pure acrylic adhesive. This will be used for invisible bonding of transparent and translucent materials such as glass and acrylic. tesa 706x is a high adhesion tape containing a foamed modified acrylic adhesive. This will find applications in the bonding of so-called hard-to-bond materials such as low surface energy substrates between 32 and 36mN/m.

tesa 707x is the high resistance version, which includes a foamed pure acrylic adhesive and exhibits high short-term temperature resistance of up to 220°C as well as cold-shock resistance down to -40°C. This product will be used in the bonding of panels and reinforce-

ment bars.

The launch is augmented with three adhesion promoters, which are available for use on different surfaces to raise the surface energy and improve the bond further: tesa 60150 is a universal promoter for PP, EPDM, zinc and painted metal; tesa 60151 ensures permanent bond and moisture resistance on glass; while tesa 60152 is for use on PU and HPVC.

A range of dispensers is also available, including hand-rollers and pressure roller, which ensures the correct pressure is applied by releasing its brake mechanism when a defined pressure is exceeded and re-engaging when it falls below.

Commenting on the launch, Jeremy Smith, Marketing Manager for tesa UK, said: "ACXplus offers a viable alternative to traditional mechanical fastening

Sign makers will enjoy the benefits when invisibly fastening translucent sheets



methods, taking constructive bonding to the next level in offering significant advantages which can be seen in its bonding strength, stress dissipation and resistance to the elements.

"With this technology, not only can we offer solutions for all known adhesive application areas, we can also start to embrace application areas where no adhesive bonding solutions have previously been available."

TESA

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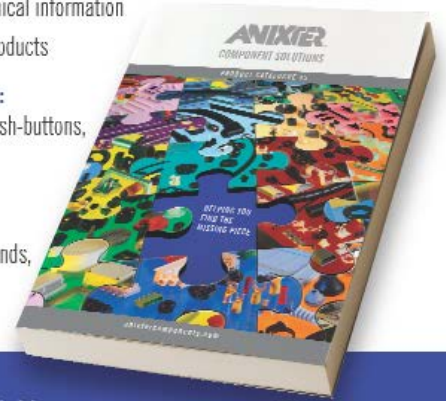
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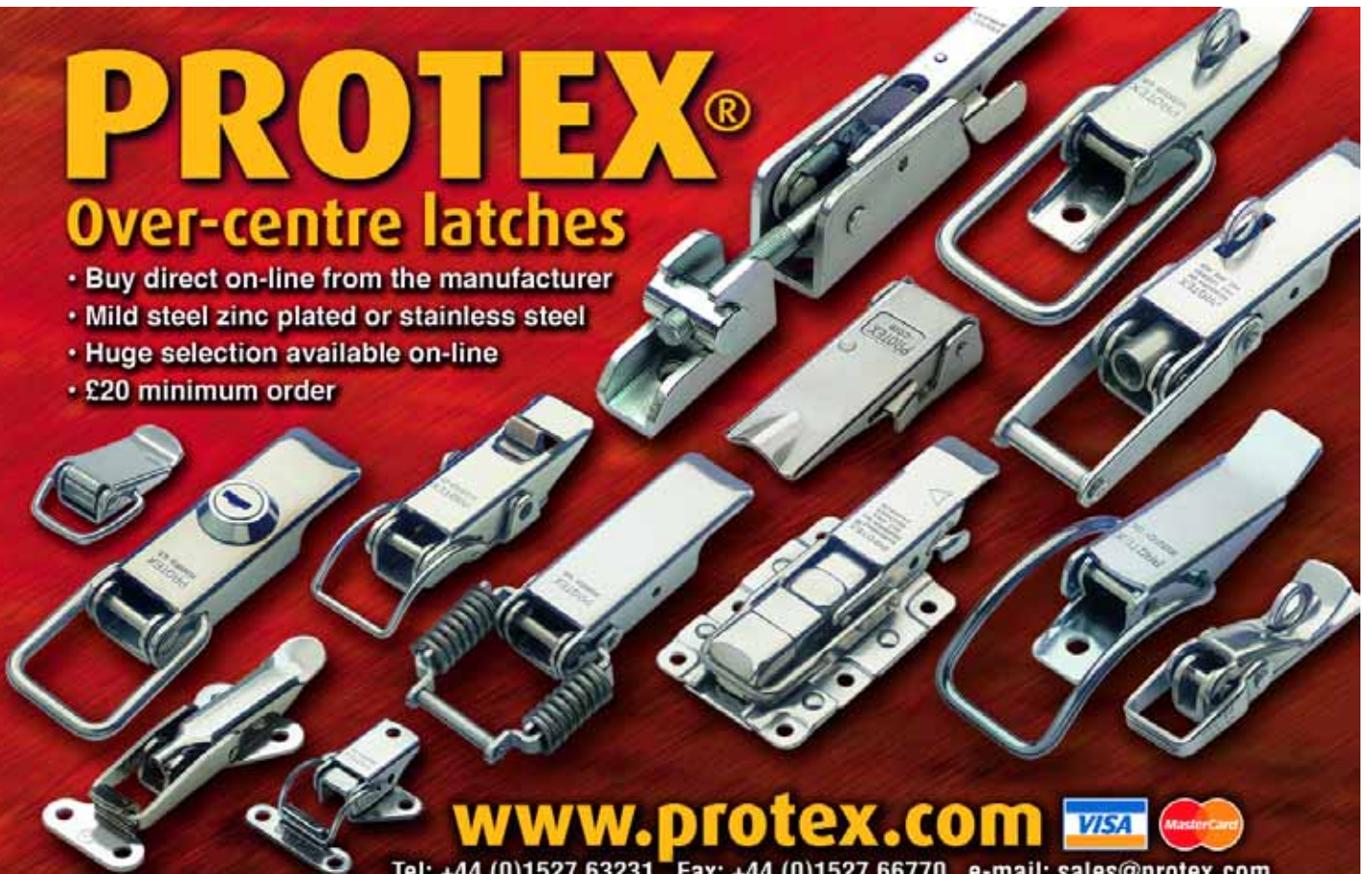
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## Keeping your sensors dry

When aquatic sensor developer Seneye asked Lohmann Technologies (UK) to help in an unusual design problem, they found the process a bit too easy. Setting out to invent a USB water monitor that uses the latest photometric technology for monitoring levels of chemicals, pH and temperature in water is no easy task. Especially when it is a piece of consumer electronics with a target price of just £59; Seneye knew it was going to need good partners.

Innovative component design was critical to reduce both the bill of material and cost per unit while increasing efficiency in manufacture. The problem facing Seneye was to be able to encapsulate a small surface mount PCB with black resin in a plastic housing while allowing its LED warning lights to be seen. Traditional design would have used rigid light pipes and clear windows but for high volume this would have caused potential manufacturing



issues with the resin leaking. The final component was very efficient and cost effective. A clear acrylic adhesive was manufactured and die-cut by Lohmann. This 'simple' solution both sealed and enabled the light pipe to the plastic housing with no extra parts.

John Wright head of engineer-

ing commented: "The component design we ended up with fulfilled the brief but also allowed for dimensional intolerance and is self-supporting; the project is incredibly complicated but this part's simplicity and elegance still makes me smile". Matt Stevenson, MD of Seneye added: "It was great to see how respon-

sive Lohmann were; they seemed to relish in being challenged."

Folk at Seneye can now say: "Thanks to Lohmann our business is going under – water (that is)!"

LOHMANN  
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01296 337888

## Here comes the sun

Dispensing specialist, **Dopag** has helped a manufacturer of photovoltaic products overcome a tricky bonding process. Building integrated photovoltaic (BIPV) is the integration of photovoltaic components with a building skin to create a novel product – a true building component but with photovoltaic functionality. They are flexible, lightweight, easy to install, and produce cheaper electricity than crystalline modules with the same orientation.

However, more than 95% of today's PV systems are still glass-based modules, which as a result of their inherent structural rigidity and weight cannot easily be integrated onto most industrial building components without a rigid substructure that involves additional installation costs.

Located in the town of Yerdon - les Bains in the Canton of Vaud, Swiss company VHF-Technologies, better known under the brand name of Flexcell,

is at the forefront of the design and production of BIPV modules which have a total capacity of 8 megawatts per year.

During production, the panels are laid onto a surface constructed of ethylene tetrafluoroethylene (ETFE), a product that ensures good PV film protection and also provides a smooth surface for the application of adhesive. However, bonding items such as junction boxes satisfactorily to this surface can be problematic and demands a very careful choice of adhesive as well as application method.

Dopag was able to solve the application problem by means of an eldomix 101 gear pump type metering, mixing and dispensing system in order to proportion the two-component polyurethane at the specified ratio of 100:27.

A dynamix mixer was used to mix the two components homogeneously. This was fitted with a cooling jacket in order to dissipate excess heat generation. The mixed polyurethane is dispensed at a rate of 40 ml/min

simultaneously bonding the junction box to the substrate and encapsulating the device to form a weatherproof product, ensuring that BIPV's function equally well in rain as well as sunshine.

DOPAG 01299 250740



## FASTPRODUCTS

### Budget locks fit industry standard cutouts

A range of budget locks from **EMKA** subsidiary Fort include many with master key capability for zone locking formats. Others offer particularly low cost options for workboxes, storage lockers, transit cases, enclosures, cases, cabinets and access security.

The Fort budget range is designed to fit industry standard panel cut-outs and comes with a wide variety of both key combinations and cams to suit common applications. Standard key cylinder quarter-turn locks are complimented with lockable recessed handles, as well as digital combination locks and radial pin tumbler camlocks with or without electronic switches for

securing of electronic equipment or for mains electrical circuits.

Detailed information on EMKA products and services can be found on the company's website, where it is also possible to download 3D CAD files to incorporate into engineering designs. Click on the Info and follow the link to the website.

EMKA 02476 616505



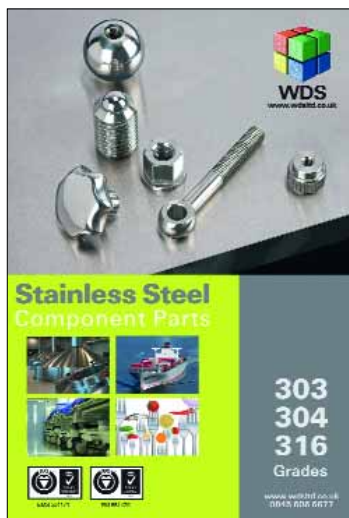
### Stainless standard parts and machine accessories

Standard parts manufacturer **WDS** has launched a new catalogue that brings all of its stainless steel products together for easy reference. Ideal for industrial applications located in clean rooms, wash-down and potentially corrosive environments, the products are available in a number of stainless steel grades.

The WDS range spans castors, gas struts and clamps, to hand wheels, screws and studs. Customer demand has driven the company to develop this latest catalogue as a way of linking all the stainless steel products from across a number of different product ranges into one, easy to navigate format.

Every product in the catalogue includes a picture along with technical drawings, dimensions, specifications and part numbers; the steel grades available for that product are also included. Where products have complimentary or recommended accessories, they are suggested with a page reference. All products in the catalogue are available with no minimum order quantity and without a small order surcharge. Fully annotated files are also available free to download in most popular CAD formats.

WDS COMPONENT PARTS  
0113 290 5845



### Welding system for high purity applications

A welding system from **Arc Machines** has been specifically designed for joining high purity applications used in the manufacture of aerospace systems, biopharmaceutical equipment, semiconductor production, food and dairy cooling distribution systems.



Equipped with a 150 amp power supply, the unit weighs just 23Kg and offers a patented S3 weld schedule. The feature rich Exel EPS1500, offers substantial operational cost savings because it can be used with a wide range of AMI weld heads and those of competing suppliers

The EPS1500's exciting features include intuitive 12 in software driven touch screen, which uses just three dashboard screens to control and monitor the entire

weld process. Fully microprocessor controlled, weld parameters are set by the power supply which records the weld schedule for each size and wall thickness of tube or pipe in the unit's memory. These can easily be recalled and modified for different materials with any subsequent changes logged by the system.

Experienced welders can start programming the unit and setting up multi-level, multi-pass, stepped S3 programmes after only a few minutes training. Less experienced welders can also be trained in a fraction of the time needed to learn comparable systems, significantly reducing the time required for training welding operatives.

The welder has two USB ports that allow for the interfacing of peripherals and storing weld schedules on a memory stick for back-up. In addition, there is a network connection allowing for access to both local networks and the internet, enabling if required long distance real-time weld monitoring.

ARC MACHINES UK 01327 315034

### Corrosion-resistant grab handle has safety lock

A grab handle, manufactured from in glass fibre reinforced techno polymer from **Elesa** incorporates a spring loaded security lock with the operating pin in AISI 304 stainless steel. Consequently high corrosion resistance makes the EBR handle applicable for environments where regulations, hygienic concerns or climatic/ environmental factors make it important to use corrosion-resistant materials.

Typical applications are expected to include sliding style doors in the marine, building and furniture industries and for machine guards in industrial environments. Operation is by means of a pushbutton, which is recessed when closed for security and safety. Mounting is by 8mm hex machine screws concealed by push fit covers.

Related products from **Elesa** include lobe knobs, grab handles, T handles, foldaway handles and a selection of enclosure handles in ergonomic design styles. Further information regarding Elesa products may be found by clicking the Info button

ELESA  
01526 322670





## High-performance struts suit hold-open and lock-in-place usage

A series of high-performance struts designed for hold-open and lock-in-place applications in the aerospace and military industries has been introduced by US based company **QRP**. The struts have been engineered to work with engine cowlings, access panels and maintenance doors, among other end-uses.

In particular, the scissor strut product has been qualified for JSFM62 and JSFM64 (Joint Strike Fighter) programmes by meeting or exceeding JSFM specifications for tension, compression, and handling loads. In addition to scissor versions, the product line-up includes telescoping struts, fixed-length struts, spring struts, and hold-open rods. Depending on type, struts can be specified with automatic or manual lock-in features. Secondary safety-locking features also can be provided.

QRP is a PEM company and has been a leading manufacturer of quick release pins, lanyards and latches for more than 30 years.

QRP +1 910 371 0700



## Quick release pins are good for corrosive environments

Stainless steel quick release pins from **WDS** provide a quicker alternative to cotter pin designs and are less likely to work loose than threaded fasteners in corrosive environments, such as marine where objects regularly need to be fastened or attached and where excessive vibration can occur.

The tough, corrosion resistant, stainless steel design was originally developed for a range of industrial uses, including fabrication, handling and packaging.

However, the special demands of marine, and food industry environments – the latter with its aggressive chemical wash-down procedures – means that the range is particularly well suited to problem solving in these areas.

**WDS** is supplying the quick release pins with a circular head design and full stainless steel (grade 304) construction.

Ergonomic and quick fitting, each pin has a button integrated into its head to guard against accidental activation. A single press of the button allows retraction of a series of locking balls, allowing the pin to be located; the balls then ensure a secure hold, once the button is released. Removing the pins is a simple matter of reversing the operation, making them quicker to use than cotter and split pins.

Products are available with no minimum order quantity and without a small order surcharge, meaning that customers have complete flexibility when placing an order. A catalogue is accessible online ([www.wdsltd.co.uk](http://www.wdsltd.co.uk)) where 3D files of standard parts to suit most currently supported 3D CAD packages can be downloaded.

WDS COMPONENT PARTS  
0113 290 5845



## Two light curing adhesive systems

The adhesives specialists at **Intertronics** recently launched the new BlueWave LED prime UVA high-intensity spot-curing system and a new line of compatible adhesives from technology



partners Dymax. The unit offers many advantages over conventional spot-curing systems, including no consumable bulbs to change, no warm-up, cool cures and constant intensity up to 50,000 hours.

The BlueWave LED Prime UVA generates curing energy using high-intensity and is believed to produce the highest power of any LED spot-curing lamp on the market today. This system delivers maximum curing energy output through a 5mm diameter lightguide, with an adjustable output up to >15 W/cm<sup>2</sup>. The relatively narrow

frequency band produced by LEDs generates cooler curing temperatures for temperature-sensitive substrates and results in reduced power consumption. All of these features make the BlueWave LED Prime UVA the ideal curing system for manufacturers looking to embrace quality and throughput while complementing other green initiatives.

Increasing production throughput of bonded plastic assemblies is high on the list of priorities for both design and production engineers. In these situations Intertronics offers the Dymax Ultra Light-Weld 3069 (pictured), which is a UV/visible light-curable adhesive designed for rapid bonding and laminating of a variety of plastic substrates.

This high performance, solvent-free adhesive cures in seconds to enable faster processing, increased output and lower processing costs. It is specifically designed to bond to a variety of both rigid and flexible plastics including PVC, polycarbonate, polyurethane, PET, and PETG. The system offers manufacturers significant flexibility advantages over other fastening methods such as welding, mechanical fasteners and traditional adhesives.

Ultra Light-Weld 3069 is in full compliance with RoHS directives 2002/95/EC and 2003/11/EC.

INTERTRONICS 01865 842842





# SpecialtyFasteners UPDATE

## RUGGED SOLUTIONS FOR RUGGED SITUATIONS



**QUICK RELEASE PINS**

**QUICK RELEASE PINS** are hand operated and non-threaded, which means they are fast and easy to operate. They are generally used to carry shear loads and are available in plated steel and stainless steel. There are many application areas such as retaining stores and bodywork panels on helicopters, aircraft and military vehicles of all types.



**Camloc** | **KEENSERT**

**KEENSERT** inserts give high strength joints in low strength materials. Typical applications are transmission housings, electronic equipment and suspension units. Available in inch and metric thread sizes, their stainless steel solid bushing configuration guarantees internal thread quality before installation. No special tools are required and standard taps and drills are used for hole preparation.



Call an SFC engineer today on **01803 868677** to discuss your fastening requirements

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## FASTPRODUCTS

## Gasket profiles seal portfolio suits a variety of applications

**FDB Panel Fittings** has assembled a range of specialist products to suit a variety of gasketing applications. Products range from simple closed cell rectangular rubber foam strips in natural rubber or neoprene, through window gaskets in EPDM, up to grooved clip-on profiles with hollow section. Special sections are available to suit EMI/RFI requirements in EPDM with an additional Cu/Sn fleece to provide the necessary conductivity.

Rectangular section foam profiles feature closed cells with low absorption and quick fit self-adhesive backing. Clip-on gasket sections incorporate a metal spine to grip the door flange. Others are designed for easy insertion into a

channel with moulded lips to aid retention in use. Some gasket profiles are especially suited to applications requiring internal pressure either higher or lower than the external environment.

These industrial sections exhibit excellent resistance to industrial or external conditions including weathering. Use of the FDB gasket radius fillet also ensures tidy sealing of square corners when using clip-fit sections. Gasket lengths, together with locks, hinges and other accessories may be supplied under the Rocfast program as consolidated production packs to original equipment manufacturers.

FDB PANEL FITTINGS  
020 8568 1616



## Inserts offer excellent corrosion resistance



Recently launched by **PennEngineering**, Atlas Monel blind threaded inserts provide strong permanent threads in thin panel sections and offer excellent corrosion resistance ideally suited for attachment applications where equipment or components will be exposed to especially harsh conditions. Type AEKM high-strength nickel-copper alloy 400 fasteners additionally feature a minimised-profile head allowing for near-flush installations without requiring special hole preparation such

as countersinking or dimpling.

The inserts can be installed quickly and easily anywhere and at any stage in the shop or field using Atlas Spin-Pull, Pull-to-Pressure, or Spin-Spin tools. An added benefit is their capability to accommodate applications where only one side of a panel is accessible for hardware installation. In these cases, the inserts can be installed from the front side and a single mating screw completes final component attachment.

PEM EUROPE +1 353 91 751714

## Innovative rivet bush joins the Hank family

**TR Fastenings** reckons it is set to capture new European business with the launch of its latest innovation, the Euro Rivet Bush. Designed, developed and manufactured in the UK, the new product will be a part of the Hank family of fasteners and will offer an

alternative to the Kerb-Konus and PSM rivet bush ranges.

The Euro Rivet Bush is produced using multi-spindle machines, offering high performance products, at competitive prices. Designed to offer a permanent female thread in sheet steel

that is too thin to be tapped by conventional methods, the bush is easily installed and extensive in-house testing using the very best engineering equipment shows the product outperforms similar products offered by TR's competitors.

Steve Wallis from TR Fastenings commented: "Prior to the launch of the Euro Rivet Bush, TR [was] manufacturing 3 million parts per month. With the introduction of this new item, production is set to soar as we win new business from the Continent. We are confident that with the combination of a high quality product coupled with a competi-

tive pricing structure customers will be switching to the Euro Rivet Bush."

The product is available for immediate shipment in sizes M3-M8 in self-finish or plated steel and product is offered in a number of different spigot lengths to suit specific applications. Due to the flexibility of the UK manufacturing plant, TR also offers reduced lead times on any non-standard diameters or spigot lengths.

TR Fastenings has been manufacturing genuine Hank rivet bushes for 30 years and now claims market leadership in the segment.

TR FASTENINGS 01825 747200



FASTPRODUCTS

# Adhesives and sealants range includes high-performance cyanoacrylates

Adhesives and sealants manufacturer **Chemence** has announced an industrial range of adhesives and sealants for the UK and Ireland. The Krylex brand has been developed specifically for industry, setting new standards of performance for markets as diverse as construction, automotive, transportation,

medical, gas distribution and electronics and comprises high-performance cyanoacrylates, threadlockers, pipe sealants, gasket makers, retainers, acrylics, UV curing products, activators and primers, meets the needs of

today's engineers and manufacturers.

Manufactured, packaged and supplied directly from modern production facilities based at Corby, the range provides the adhesive of choice for automated manufacturing, low and high volume

applications, product assembly and maintenance.

CHEMENCE

01536 402600



# tesa puts safety first with the launch of strongest ever filament tapes

A range of high strength filament tapes from **tesa** is thought to be suited to a variety of industrial applications, from palletising and bundling to end tabbing, carton sealing, transport securing and fixing. The ability to resist breakage or tearing under tensile stress is one of the most important and measured properties of materials used in fixing, securing and sealing goods.

Offering excellent tear resistance, the new tapes are also the strongest ever to be produced by the company. Even if the tape is damaged on one side, the backing will not break and all importantly, the tape will hold objects tight and intact.

General purpose tapes, tesa 4591 and tesa 4590, are the first products to be

launched. These PET film based tapes are suitable for use in room conditions <40°C and offer high backing stability and easier unwinding features in combination with a tensile strength up to 250 N/cm.

The premium tapes, due for launch later in the year, combine a high tensile strength up to 1000N/cm with unique adhesive properties designed to fulfil many challenging requirements, making tesa's tapes an essential tool where safety matters.

As part of its tesacoheasion programme and its commitment to customer service, tesa offers onsite customer guidance to ensure the right filament tape is selected for the job in question to ensure goods are fixed and secured as safely as possible.

TESA 01908 500235

# Energy chain is 37% lighter



Energy chain expert **igus UK** has completely redesigned many features of its quiet chain – the fast, quiet, and low-vibration E6 series. The second generation E6.1 is up to 37% lighter, easier to assemble and makes new assembly system solutions possible.

The elastic polymer spring elements connect the side parts of the energy chain to one another and prevent relative movements between the joints. Since the clas-

sic pin and bore connection is no longer used, friction and abrasion are reduced to a minimum even after millions rolling cycles. According to an expert report presented by Cologne Technical College, up to 3.8 billion cycles were confirmed possible with the E6.1, depending on the machine program being used.

IGUS 01604 677240



# Compression and torsion springs range expanded

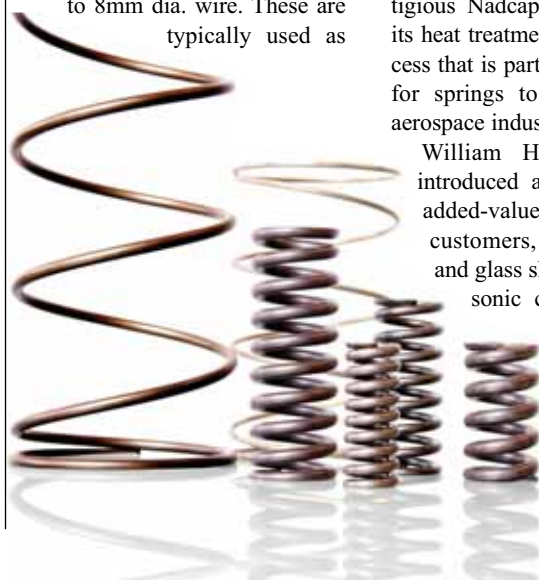
Springs specialist **William Hughes** has made a significant investment in new machinery at its manufacturing facilities in the UK and in Bulgaria so that it can now form compression springs in wire sizes up to 8mm dia. and torsion springs in wire up to 6mm dia. The new coiling machine at the UK factory in Stalbridge, Dorset produces heavier duty compression springs using 5mm to 8mm dia. wire. These are typically used as

return valves in products such as hydraulic valves.

A new machine in Bulgaria has the capacity for torsion springs up to 6.0mm dia. These larger springs are widely used in the automotive industry and have applications in products such as chain tensioners. The news of the increased capacity follows on from recent announcements that the company has gained the prestigious Nadcap accreditation for its heat treatment facility - a process that is particularly important for springs to be used in the aerospace industry.

William Hughes has also introduced a number of new added-value services for its customers, including steel and glass shot peening, ultrasonic cleaning and tensile testing to national standards or precise customer specifications.

WILLIAM HUGHES  
01794 830042





## Bell-shaped rubber mountings designed to dampen shock and vibration



A series of bell-shaped rubber mountings from **Advanced Antivibration Components (AAC)** is designed to dampen shock and vibration for loads up to 887 kgf. The V12Z55M062M series, is made from a combination of natural rubber and styrene-butadiene rubber compound to offer pliability and elasticity.

Of the 12 isolators in the series, two have a four-hole mounting and ten have a two-hole mount configuration. They all feature a welded steel plated nut at the top of the housing and are available at the AAC eStore along with downloadable CAD models.

**ADVANCED ANTIVIBRATION COMPONENTS +1 516 328 3662**

## If looks could kill . . .

**BTM (UK) Automation Products** may have come up with a winner – a clinch joint with an aesthetically pleasing appearance. The V-Loc is a visually improved and stronger Tog-L-Loc joint which features a raised

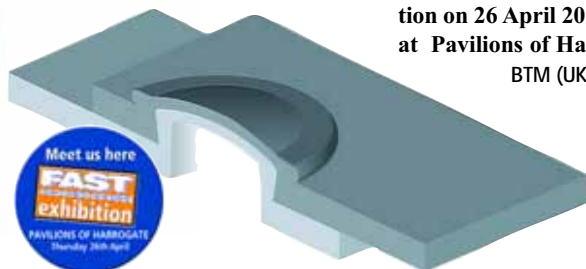


spherical inner diameter with a concentric outer ring. This design is intended to give the appearance of a more traditional fastener, but the process is essentially the same as the trusted joining method which clinches sheet metals together using a punch and a die rather than the application of external fasteners or welding.

The new product suits applications where it will be conspicuous and seen by discerning customers. The V-Loc has proved extremely effective in joining aluminium components, not only for its better appearance but also its greater joint strength. During tensile testing it has proved nearly 30% stronger than the traditional Tog-L-Loc joint.

**BTM will be presenting V-Loc at the northern FAST exhibition on 26 April 2012 being held at Pavilions of Harrogate.**

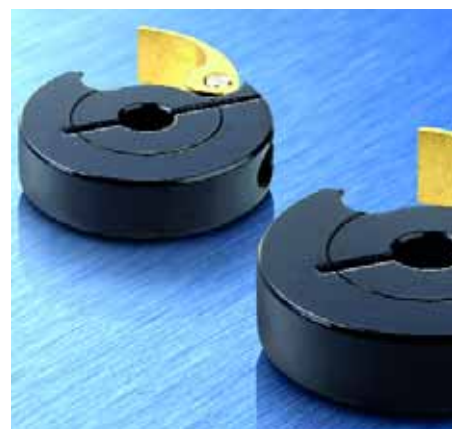
**BTM (UK) AUTOMATION PRODUCTS**  
01767 677001



## Quick release set collars allow adjustment

Equipment with rotating shafts often requires adjustment of the shaft end float or position of its mounted parts – from actuating arms to gear wheels, cams or readout indicators. This can now be achieved quickly and easily without tools, using **Elesa's** new cam lever locking set collar in black anodized aluminium.

The GN704 offers a slim profile which allows for optimal use of space on the shaft and these quick release set collars from 38mm to 75mm dia. also feature an adjustable cam action lock in yellow anodized aluminium which closes flush to the body of the collar. The cam action provides the required locking force without the use of thrust bolts or clamping screws. This is a much faster process and because the



design enables use of aluminium there is significantly less added mass with consequent operational benefits. The GN702 is available to suit 8mm, 20mm and 32mm shafts.

**Elesa (UK)**  
01526 322670



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## FASTPRODUCTS

### Adhesive aided lift wins world record

Scotch-Weld Instant Adhesive from **3M** has helped set a new Guinness World Record for the heaviest weight lifted with adhesive. The product was responsible for lifting an 8.1 tonne forklift truck and suspending it in the air for one hour. The vehicle was suspended from a crane by a steel cylinder only 7cm in diameter, with the two parts of the cylinder secured together with Scotch-Weld Plastic & Rubber Instant Adhesive PR100.

The new world record shows the product's incredible strength in an extreme application, Scotch-Weld Instant Adhesives are also economical to use in everyday applications. Generally, only a few drops of adhesive are needed to develop strong bonds to many metals, plastics and rubber. These fast-curing adhesives reach handling strength with hundreds of material combinations in five to ten seconds, and reach 80% of their full strength in an hour.



Additional qualities like low odour, high temperature resistance and flexibility to resist vibration make them simple and practical to use for almost unlimited applications.

To celebrate the record 3M is offering a temporary special price until May 31, 2012.

3M 0870 608 0050

### Security solutions ensure consignment protection

The need for transparency and reliable protection for consignments across the whole logistics supply chain is of vital importance. Adhesive tapes specialist **tesa** has responded to this challenge by developing a range of SecuritySeal adhesive tapes and labels which clearly show whether a shipment has completed its previous journey in the logistics chain intact and in its original packaging.

Providing a secure seal and reliable protection, the products undergo a physical and visual

change when they are opened. Such changes are irreversible, meaning that any attempted tampering is clearly evident. When the seal on the tape or label is opened, a warning appears and remains visible when closed again.

The products can be printed with logos, serial numbers and item-specific barcodes so they can be used for track and trace purposes. If label barcodes are scanned every time goods are delivered, manufacturers and retailers can immediately see that boxes and pallet packaging have been delivered intact and logistics partners can consistently prove that shipments have been delivered in full and in the original packaging.

tesa 01908 500235



### Closing the gap with interleaf hinges

Recognising the growing demand for a minimal space between the frame and door profile, Master hinge makers **Cooke Brothers** has launched an interleaf continuous hinge. This Phoenix-branded Interleaf hinge reduces the typical gap of a traditional heavy duty continuous hinge from the usual 12mm down to a mere 3mm.

Well suited to both 44mm and 54mm timber and metal doorsets, the aesthetical lines of the Interleaf hinge completely fills the void between the door and frame, reducing the risk of finger trapping considerably. For secure environments where the risk of self-harm is a major consideration, the Interleaf hinge is also available with reduced ligature end caps as a specified option.

Incorporating the Phoenix high performance maintenance free polymer bearings, the new CE marked hinges have been successfully tested to BS EN 1935: Grade 14 (160kg) and are



Certifire approved for use on fire doors. COOKE BROTHERS 01922 740011



### Programmable encoder kit guards against the cost of machine failure

An incremental encoder conversion kit from **Sick (UK)** unique helps protect manufacturers and operators from the costly effects of incremental encoder failure, by providing them with an immediate solution.

Incremental encoders are vital in all fields of operating machinery in critical tasks," explained encoder product manager Darren Pratt. "Speed, acceleration, distance and position are all affected. Programmable encoders have helped reduce specification difficulties for engineers, but there are still a large number of model variations, especially for older machines."

The incremental encoder conversion kit has been designed to replace as many differ-

ent types of incremental encoders as possible, whatever their origin, and thus reduce the requirement for manufacturers to hold specific stock.

Although encoders are highly reliable, failure can lead to downtime costing £1000s per hour, so engineers traditionally required specific replacements available for each variation used on plant; this could be hundreds of different models. Pressure to reduce the cost of holding spare parts have resulted in many plants being left without replacements even for

machines critical to the process; in the case of older machines the original product may no longer be available.

SICK 01727 831121





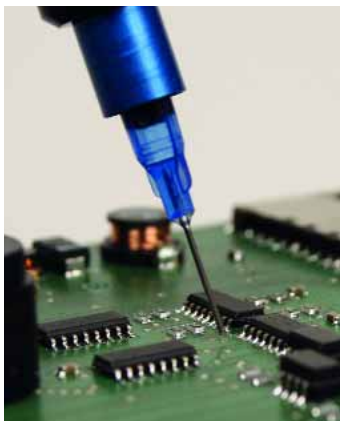
## Precision volumetric dispensing solutions

At first glance the eco-PEN series of preflow volumetric dosing dispensers from **Intertronics** appear to be very similar. This is largely true with the eco-PEN 300, 450 and 600 all showing the same better than 1% accuracy through ViscoTec's patented endless piston design, which is driven by a DC motor with incremental encoder and integral planetary gearing.

However, there are subtle and important differences to be considered; in particular the eco-PEN 300 is suited to a wide range of low to high viscosity materials making it ideal for application of dots and beads with maximum volumetric precision and to joint sealing technologies adaptable to track speeds, making it applicable in electronics, photovoltaics, laboratories, medical, bio-sciences and optics/photonics.

Accuracy is achieved by a rotor and stator pressure tight continuous displacement system, which ensures gentle handling of the dispensing medium without damage to fragile inclusions. Clean control is afforded with suck back achieved by rotor reversal, which ensures clean flow cut off whilst preventing

post-dripping effects.



EC200 controllers for the eco-PEN series are available in bench top or panel-mount format. The units are microprocessor controlled and simple to operate, without submenu, and with graphic support. External signals can be connected via I/O ports to a PLC for control in automated lines. A wide variety of dosing programs with part-management are storable. The supply pressure is monitored and can be displayed digitally in bar or PSI. Error messages for filling level and motor current may also be monitored via an RS232 interface.

INTERTRONICS 01865 842842

## Affordable micro driver is the size of a ball-point pen



Expanding on its already comprehensive range of electric drivers Delta has introduced the a 12 VDC Micro Driver, which comes in four speeds ranging from 200 RPM to 1000 RPM and with a torque range of 0.01 to 0.343Nm. Available from **Total Airtool Services**, the micro range is claimed to be an affordable solution to micro assembly projects.

Each of the four models is available with high/low speed control, variable torque control and left and right hand rotation. All models are supplied with ESD safe housings and at 165mm in length the driver is not much longer than the average ball-point pen. Free no obligation demonstrations can be arranged.

TOTAL AIRTOOL SERVICES  
01926 857193



## The Reell deal

**EMKA UK** has confirmed its previously disclosed co-operation with US supplier Reell Precision Manufacturing and is now in a position to supply standard catalogue products in the UK. Reell is well known on a global basis for its high quality innovative design capabilities, creating industrial hinges and small package torque solutions that help transmit torque, control angular position and protect delicate components from excessive force.

Standard products made available from the agreement come from the Reell's positioning hinges ranges which are well suited to enclosure doors, equipment access panels, laptop screen positioning, kiosks and office furniture.



In many cases Reell hinges offer a direct market equivalent as a drop in 1:1 replacement for competitive units presently available. EMKA forsees many applications for specialist enclosure manufacturers as door stays in windy conditions or to hold open equipment covers during installation, maintenance or repair.

EMKA 02476 616505

## Tooling installs self-clinching nuts in a single operation

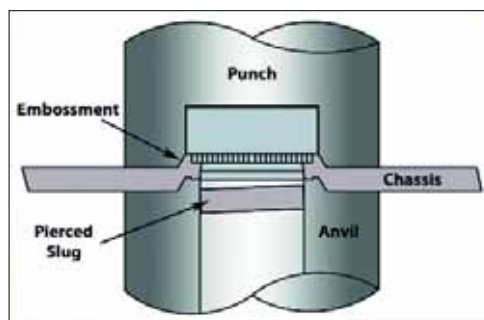
The latest Pemsrter tooling has been designed to install **PEM** Type S self-clinching nuts permanently in thin aluminium sheets without the usual need to pre-punch a mounting hole in a separate operation. The tooling and fastener will pierce the mounting hole during fastener installation, saving production time and money. This process can be accomplished using manual tooling or automatically with in-die equipment.

Nuts with thread sizes ?-20, 5/16-18, M6, and M8 can be installed successfully into alu-

minium sheets, which must be between 1.5 mm and 2.0 mm in thickness and no harder than HB 79.7 (HRB 40). When in-die equipment is not used, a fixture, template, or other location device is recommended to ensure that the fastener is consistently located in the proper position on the sheet.

The engineering of the new tooling integrates a special modified punch and anvil to deliver the benefits. A raised ring on the anvil allows the fastener to pierce its own mounting hole and then assists in the final clinching process. The feature also creates an embossment in the panel allowing sub-flush fastener installation on the shank side of the sheet and contributing ultimately to a clean installation.

PENNENGINEERING  
+1 215 766 8853



## FASTTAILPIECE

# Engineering shows its appeal

**Norbar Torque Tools** held one of its engineering open evening last month to encourage young engineers hoping to follow a career in manufacturing. The company was delighted when the evening broke all attendance records, showing that engineering is increasingly becoming appealing as a career option.

This year's event at the company's manufacturing site at Banbury attracted 140 visitors, mainly school students interested in becoming engineering apprentices or taking a graduate route to working in the sector.

Norbar manufactures its own products as well as the equipment to test them. The family-run company of some 240 employees testifies to the success of UK precision engineering, exporting 75%

of its production and with a network of Norbar companies worldwide, the latest having been launched this year in Mumbai.

The evening featured a tour around the entire site, with guests at the event divided into small manageable groups to visit each department, from design to production and from quality control to sales and marketing. A presentation was given by Norbar staff at each point in the tour describing their projects and the priorities of their work.

Managing director Neill Brodey was there to welcome guests, emphasising the many career paths available in engineering, which the Open Evening was designed to demonstrate. He explained: "We are passionate about engineering and we believe

we can provide a showcase of its challenges and opportunities."

Representatives from Oxford & Cherwell Valley College, Warwickshire College and Oxford Brookes University were also on hand to provide information on apprenticeships and graduate training programmes. Peter Boyle, Engineering Work Based Manager at Warwickshire College, explained: "There are a variety of career opportunities in UK engineering, particularly niche manufacturing, with vacancies for high end craftsmen and in technical roles."

Douglas Higginson a Principal Lecturer at Oxford Brookes



University commented: "This was the third time I have been to a Norbar Open Evening and it was nearly double previous attendances. A lot of people are looking at engineering careers, either through the apprenticeship route, a BTEC at college or a university degree."

**NORBAR**  
**TORQUE TOOLS**  
01295 270333



## Time for a slogan change?

We all know what **EMKA (UK)** does by its slogan 'everything but the enclosure' but an announcement this month has changed all that as the company now offers a range of commercial vehicle accessories. So does this change everything? Perhaps it's time for a change of slogan, maybe to 'everything but the vehicle'.

At present the new range focuses on items such as emergency hammers, door handles, luggage compartment handles, locks, latches, storage nets, cup holders, air vents, strikes, toggles and similar items. The range is

built from EMKA's extensive program of moulded sealing profiles and custom formed gasket rings and frames with vulcanised corners – which have met a significant need within the commercial vehicle industry.

Applications are expected to cover the whole commercial vehicle sector whether for road, rail, marine or all-terrain from bus and coach through rail and tram to recreational, even including military and off-road vehicles. Of course, EMKA's traditional product areas also meet the needs of the commercial vehicle sector, including standard and custom hinges, as well as the sealing profiles for gasketing, edge protection or decorative purposes and available in rubber, plastic and metal spined types.

Not forgetting the world of enclosures, EMKA is looking for a bright future in the commercial vehicle sector. The next edition of FAST Magazine will include a Top Tips article for the automotive industry and no doubt we will get some interesting ideas centred on the commercial accessories range.

EMKA (UK) 02476 616505



## £100 CASH QUIZ!

Win a cheque for £100 from the publishers of FAST Magazine! Submit your answers by faxing this completed entry to us on 0845 280 1587 or emailing them to [quiz@fastmagazine.co.uk](mailto:quiz@fastmagazine.co.uk) with your name, job title, company name and contact number. A draw from all correctly answered entries will be made in the FAST Magazine office on June 8th and the winner notified by phone and email. The winner will also be announced in the next issue of FAST Magazine, published in July 2012.

- Before becoming world famous for producing JCB's, what was made in the factory that J C Bamford moved into in 1950?  
 Cheese       Machine tools       Aircraft parts
- Where was radioactivity pioneer Marie Curie born?  
 France       Belgium       Poland
- Which company made the aeroplane that Peter Twiss OBE DSC & Bar flew to set a new world speed record of 1,132mph in 1956?  
 Avro       Fairey       Miles
- Professor Sir Magdi Yacoub is famous for what?  
 Heart surgery       Lung surgery       Astrophysics
- When did Rudolf Diesel gain the patent for his diesel engine?  
 1901       1898       1891
- Andre Citroen founded the famous French car company. What did his Father do for a living?  
 Policeman       Diamond merchant       Farm labourer

Last issue's winner was Nigel Mortlock, Manufacturing Engineer, JCB Heavy Products. Congratulations Nigel! The correct answers were: Sir Stanley Hooker was a Director of Rolls-Royce. Clockmaker John Harrison was a Yorkshireman. Hubert Booth patented the powered vacuum cleaner. Henry Maudslay invented the first viable screw and thread cutting machine. The first prototype VW Beetle appeared in October 1935. David D Buick was born in Arbroath. Our thanks to the many readers who entered.





# **FAST**

FASTENING & ASSEMBLY SOLUTIONS AND TECHNOLOGY

# exhibition

# **IASE**

INDUSTRIAL ADHESIVES, SEALANTS & ENCAPSULANTS

# exhibition

## **Pavilions of Harrogate**

The Great Yorkshire Showground

## **26th April 2012**

# **SHOWGUIDE**



**FAST**  
FASTENING & ASSEMBLY SOLUTIONS AND TECHNOLOGY  
**exhibition**

**IASE**  
INDUSTRIAL ADHESIVES, SEALANTS & ENCAPSULATION  
**exhibition**

# NORTH

Visit the UK's only dedicated fastening and adhesives exhibitions. Discover the latest advances, innovations, ideas and products for industrial and engineering fastening, bonding and sealing. Meet and talk with some of the best suppliers in the business!

**PAVILIONS OF HARROGATE**

Great Yorkshire Showground HG2

Thursday 26th April 2012

8.30am – 2pm

**Pre-register at**

**[www.fastenerexhibition.co.uk](http://www.fastenerexhibition.co.uk)**

Free bacon bap and brew on arrival for pre-registered visitors





# WELCOME



## WELCOME TO THE NORTH'S FIRST EVER DEDICATED FASTENING AND BONDING EXHIBITION!

It is a sad fact that although the Northern part of the UK is one of the key engines that drives our highly successful manufacturing base, most exhibition organisers ignore the opportunity to stage key events anywhere further up the country than Birmingham. Not so here at NewbyCom Ltd! For the first time, engineers and manufacturing professionals based in the North can now access all the latest fastening and bonding products, practices and processes to have emerged recently by making the relatively easy journey to

Harrogate to visit the acclaimed FAST & IASE Exhibitions.

There really is no substitute for speaking face-to-face with the leading experts in any field, and if you're interested in 21st Century fastening, adhesives and assembly there is no substitute for the UK's only exhibition that remains dedicated exclusively to this fast moving and often fascinating sector. Previous visitor research has proved time and again that 96% of visitors have achieved their objectives for the day, and, perhaps just as interesting, that 60% of visitors also state that they discovered things at the exhibition which they weren't expecting to find. Whether you're involved in design engineering, production engineering, R&D or are running a manufacturing company, there are thousands of very good reasons to attend Harrogate on 26th April: the thousands of products coupled with the hundreds of methods and dozens of leading suppliers available for you to discover and discuss your needs with.

The exhibitors staff are all seasoned application experts who have helped some the UK's brightest stars overcome challenges to lead the world in so many aspects of manufacturing, and they are

waiting to talk to you too!

We're hoping that you are as keen to support the event on its first ever appearance in the North as we have been to bring it to you. Your presence won't just provide some thought provoking – and perhaps even eye opening – opportunities to improve designs, boost productivity and reduce manufacturing costs through better fastening and assembly, it may encourage other organisers to recognise the importance of manufacturing in the North and bring more events to the region. Pre-register in advance as a VIP Visitor at [www.fastenerexhibition.com](http://www.fastenerexhibition.com) and claim your complimentary bacon bap and brew on arrival! Finally, the doors open nice and early at 0830 for a reason: to allow those of you wanting an early start to get in to the show, get round, get some answers, ideas, inspiration and contacts and still be back in the office by midday or early afternoon. The Pavilions of Harrogate is outside the town centre at the Great Yorkshire Showground and there is plenty of free parking. See you there!

*Paul Gay,  
Editor, FAST Magazine*

COLLECT YOUR SHOWGUIDE & ADDENDUM ON ARRIVAL!

## ALCOA FASTENING SYSTEMS

**Alcoa  
Fastening  
Systems**



Unit C Stafford Park 7, Telford,  
Shropshire TF3 3BQ

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e: [info@afsglobal.net](mailto:info@afsglobal.net)  
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Alcoa Fastening Systems (AFS) was established in 2002 with the intention of providing a complete range of fastening solutions for a wide range of industrial markets and customers. The AFS product range currently offers the greatest breadth and depth of fastening solutions available including: self-locking nuts, quick-release fasteners, draw latches, threaded inserts, lock-bolts & structural blind fasteners.

Through decades of experience working closely with major manufacturers from a myriad of markets, AFS has developed the capability to engineer and produce special parts to meet specific fastening requirements. We have successfully worked with some of the world's leading manufacturers to develop unique and cost-effective solutions to fastening problems.

With manufacturing and distribution facilities on all major continents AFS has extensive experience working with customers on a global scale as well as providing for the fastening needs of local manufacturers.

Global experience combined with Alcoa's long-standing leadership and 'commitment to excellence' make AFS the best choice for fastening systems.

## ANOCHROME GROUP



### Anochrome Group

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WV10 8HN

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Anochrome Group is a specialist applicator of surface coatings and pre-applied technologies, serving diverse industries such as automotive, aerospace and telecommunications.

With over 50 years of expertise in the application of corrosion protective coatings for ferrous and non-ferrous components, Anochrome Group offer numerous finishes, including the latest hexavalent chromium free coatings, sacrificial zinc flakes and black topcoats.

A comprehensive range of pre-applied thread locking/sealing products is also available, as well as underhead sealants, including new duplex seals and patches in Precote® 15 and 200 materials.

All companies within the Group are accredited to ISO 9001 or TS16949, where applicable.

## AXSON UK



Unit 15 Studlands Park Industrial Estate,  
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Axson Technologies, global manufacturer of Structural Adhesives and Dielectric resins supply their range of products in the United Kingdom and Eire via Axson UK Ltd.

Manufacturing Epoxy, Polyurethane and Methacrylate Adhesives in the Adekit Cartridge Systems and in bulk for adhesives and Dielectric resins, Axson provide numerous solutions to bonding and encapsulation.

Many diverse Industries have benefited, from Bus and Vehicle construction, Marine, Electronics and multi-faceted GRP manufacturers. Bonding similar and dissimilar materials to each other from Aluminium, GRP, various plastics and coated surfaces, there is a grade of Polyurethane, Epoxy or Methacrylate adhesive to suit the application.

In dielectrics, the range covers simple potting of capacitors and relays to Transformers and Filters.

## BINDER FASTENER SYSTEMS (UK)



Nile Street, Burslem,  
Stoke on Trent ST6 2BA

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Binder Fastener Systems are the UK subsidiary of Gottlieb Binder GmbH & Co. KG based in Germany. As one of Europe's largest and most experienced manufacturers of high quality, technically advanced, reusable and resealable fastener systems. Binder continues to see a large increased demand worldwide for its products. Our uncompromising attention to quality and customer service sees us at the forefront of our industry. An ever expanding product range including hook and loop, mushroom, extruded film fasteners, adhesive systems and plastic profiles coupled with our passion for problem solving, means that we are able to provide our customers with a truly bespoke service. Our products are used extensively in areas such as construction to medical, transportation to sport and everything in between.

Our commitment to you is this: provide the very best, innovative products. Back this up with our drive to give the highest levels of service possible. This in turn means that you can have complete confidence when using Binder Fastener Systems.



## BOLLHOFF ARMSTRONG LIMITED – HELICOIL®



Stoneferry Business Park, Foster Street,  
Hull HU8 8BT

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Bollhoff Armstrong Ltd – the sole UK manufacturer of the Helicoil® range of wire thread inserts, the name that is trusted throughout the world. Comprising the classic Helicoil® tanged insert for high quality aerospace and precision engineering use, the Helicoil®Plus insert for automotive and general engineering, and the Helicoil®Tangfree insert with no tang to remove, particularly suited for electronic and non-critical aerospace use.

The company have now enhanced and rationalised their range of thread repair solutions to provide a product price offering to suit all needs. The 2012 FAST show will see the launch of the Helicoil® Eco-Kit, now supplied in a cost effective blister pack and including the ever popular shepherds crook installation tool for ease of use and simplicity. Ideal for that every day repair situation, this kit has the full Helicoil® quality assurance guarantee. Look out for special show edition offers as featured in the April edition of the FAST show edition magazine.

## BOLLHOFF DIRECT



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West Mids WV13 2JW

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Bollhoff Direct is the UK sales division for Bollhoff GmbH. Over 100,000 Din Standard parts are available from our stocks in Germany, and delivered direct to our customers in the UK.

This emphasis on a seamless supply line is designed to give our UK customers even greater confidence in us as a responsive and reliable source of Din standard fasteners.

Although we specialise in the more difficult to obtain parts, such as fine pitch bolts, non preferred lengths etc. in all grades of Steel, Stainless Steel, Brass and Nylon, we now also offer a new range of adhesives and cutting discs.

Bollhoff Direct couples the benefits of buying from a major European supplier with the convenience of a local distributor.

From our sales office in Willenhall in the West Midlands, our direct computer links with Germany give us immediate access to current stock levels, costs and availability.

## BOLLHOFF FASTENINGS



Midacre, The Willenhall Estate, Willenhall,  
West Midlands WV13 2JW

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BOLLHOFF is a TS-16949 manufacturer of proprietary fastening systems exhibiting a range of proprietary fastening solutions for joining sheet metal where no hole is required. Placing blind threads into thin and hollow section. Providing fasteners, which automatically compensate for tolerance stack-up. Push-On-Pull-Off reusable vibration and noise dampening fixings alongside quarter turn and bespoke plastic solutions.

In short BOLLHOFF provides a basket of innovative and cost effective solutions to the many and varied problems of fastening modern materials. We provide local technical support through a team of UK application engineers.

## BTM (UK) AUTOMATION PRODUCTS



Unit 11B, Sand Road Industrial Estate,  
Gt. Gransden, Bedfordshire SG19 3AH

t: 01767 677001  
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[www.clinching.co.uk](http://www.clinching.co.uk)

BTM, the market leader in providing specialist equipment for the joining of sheet metal assemblies and components using the patented clinching system TOG-L-LOC®. This technology is used throughout the automotive, white-goods, electronic, and construction industries as a cost effective way to join sheet metals. There are no additional fasteners, no heat, fumes, or sparks in the TOG-L-LOC® process which has proven very effective in joining pre-painted, coated, and dissimilar sheet metals. BTM TOG-L-LOC® Clinching is simply the best form of clinching on the market today. The exclusive action of the moving die blades allows the metals to flow into the interlock with minimal stress and force thus providing superior joint strength and tool life. From low production hand held equipment through to high speed high volume dedicated machinery we have a solution for you.

## COOKE BROTHERS



Northgate, Aldridge, Walsall WS9 8TL

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New hinge options from the Master Hinge Makers

Cooke Brothers, one of the UK's leading hinge manufacturers, are launching a number of new and exciting hinge solutions at this year's show. Visitors to the stand will see the innovative, fully adjustable, Pivota Concealed hinges suitable for door weights from 40kg up to 300kg.

Also on display will be the new Phoenix Interleaf Continuous hinge, which provides not only even weight distribution down the door length, but thanks to the unique design, reduces the visible gap between door and frame. Other products on show include the latest Cover Plate hinges together with a comprehensive range of bespoke hinge solutions for engineering applications.

## EJOT UK



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EJOT is a solutions driven business, manufacturing the highest quality fastening products and providing unrivalled technical support. German owned, the Group operates out of 27 countries worldwide, sharing a genuinely vast knowledge pool relating to countless sectors. EJOT fasteners are used extensively throughout Industrial Engineering providing either one sided assembly or part-reduced solutions - achieving significant 'bottom line' assembly savings through consistently high performance.

EJOT's current product portfolio includes high quality fixings for thin sheet through to cast metals, alloys and thermo plastics. Brand names include the original PT plastics screw, Delta PT, ALtracs PLUS, SHEETtracs and FDS.

The EJOT service ethos means pre-engineering is freely undertaken from the initial consultation. Project management is led by experienced application engineers who are supported by the Group's unique and highly sophisticated online prognosis software. EJOT's development unit, APPLITEC, has sister laboratories based in Germany supporting its UK equivalent near Leeds.



## ELESA (UK)



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Lincolnshire LN4 3HX  
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See Elesa's new 1000 page catalogue containing more than 2000 new product codes covering hinges, level indicators, cam levers, magnets, indexing plungers, fork and spherical rod ends and vibration damping elements, with technical data sheets and a photographic index. In total 150,000 codes in one catalogue especially for engineering designers.

They also have many new operating elements including wing screws and lobe knobs, new adjustable handles, clamping nut and cam levers. A new pull handle, new lever arms and rotary controls, as well as new indexing plungers.

New machine elements include split set collars – with lots of new levelling elements – the new CFV four position hinge – also new latches and snap locks.

The list is extensive – new toggle clamps, new hydraulic accessories and float levels, plus a new RE.E2 castor with vulcanized rubber wheels. A free copy can be obtained from the stand or may be ordered at:  
[www.elesanow.co.uk/catalogues](http://www.elesanow.co.uk/catalogues).

## FATH COMPONENTS



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www.fathcomponents.com

FATH is an international company that produces quality mechanical hardware, particularly T nuts, levelling feet, threaded inserts, latches, locks, hinges and handles. FATH is dedicated to providing products backed by excellent customer service and technical support.

FATH has recently developed new products which specifically target the new Machinery Directive and ensures customers are able to meet the demands of this legislation.

To discuss your specific application please visit our stand where our representative, David Hayes, will be happy to advise you, arrange for samples to be sent, or arrange a visit to your site to fully understand your needs.

FATH has manufacturing facilities in Germany, United States and Asia and is able to ensure the reliable supply of FATH products around the world.

## G &amp; B PROJECTS COMPANY



Barnards Green, Malvern WR14 3LY

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www.gandbprojects.co.uk

The UK's leading manufacturer and stockist of Pillars and Spacers, G&B Projects, will be displaying its extensive range of robust and highly adaptable nylon pillars at the FAST & IASE Exhibition Harrogate 2012. The company's acclaimed standard range comes in round, hexagonal and micro specifications. Practically any body length can be supplied with metric thread sizes from M2.5 to M12 as well as imperial and US versions. In addition, G&B can manufacture custom sizes and specifications on request with fast turnaround, in many cases at no extra cost.

G&B pillars feature an innovative insert design and locating process. Thanks to the exceptional strength and resilience of the solid body style and brass insert design, all nylon pillars from G&B are inherently resistant to shock which can cause inferior products to fail. G&B products offer increased strength over wholly plastic parts and excellent electrical insulation properties not attainable with wholly metal parts.

Also on show at the FAST & IASE Exhibition Harrogate 2012 from G&B Projects:  
Nylon and brass spacers (clearance and threaded) • Snap-in nylon pillars and spacers  
Brass and Steel pillars • Headed insulating bushes Metric screws, nuts and washers  
Screwlock assemblies • Earthing bars

## GEORGE EMMOTT (PAWSONS)



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EMMOTT (PAWSONS) LTD designs and manufactures a wide range of springs, clips, washers, pressings and specialist products for most industries and applications.

In addition to standard products, George Emmott works in close partnership with its customers in developing bespoke solutions to meet individual requirements. The company has always maintained an ongoing programme of investment in production equipment and machinery, using in-house expertise to build purpose-designed machines where necessary to fulfil specific manufacturing applications. Capacity is therefore flexible and can cater for prototyping as well as large batches and small production runs. Fast turn-round and accurate delivery ensures that where necessary, even very short lead times can be accommodated. Quality is of the utmost importance and George Emmott is certificated to BS EN ISO 9001:2000, with all manufacturing and administrative process and procedures being carefully monitored.

## GESIPA BLIND RIVETING SYSTEMS



Dalton Lane, Keighley, West Yorkshire BD21 4JU

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The high quality and reliability of GESIPA® fasteners and the innovative, high-quality setting tools have made GESIPA® a valued partner to the trade and industry worldwide. Providing anything from standard product through to fully bespoke solutions GESIPA® can confirm the suitability of their off-the-shelf and bespoke fasteners in any application. With ISO 9001, ISO14001 and ISO/TS 16949:2009 accreditation, technical expertise, advanced equipment, absolute quality control system and professional sales services GESIPA® continues to augment its reputation within the industry as the preferred fastener manufacturer.

## Product Range

- Rivet nut and Rivet nut studs
- Fully automatic or manual tooling with process control
- Specially designed blind rivets for light weight applications

## HENKEL



Technologies House, Wood Lane End, Hemel  
Hempstead, Herts HP2 4RQ

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Henkel is the world market leader in adhesive and sealants, supplying many different manufacturing industries with innovative products and systems solutions.

At this year's FAST Show, Henkel focuses on its latest 'world first' – the Loctite Health and Safety adhesive range that covers the lion's share of applications. The products are designed to make the COSHH assessment and acceptance process for engineering adhesives as easy as possible without any increase in cost price.

The Loctite brand has always had a very strong health and safety ethos with its R&D being driven by sustainability and responsibility. Continuous development has led to the introduction of the hazard-label-free Loctite 2400 and 2700 threadlocking products and now these have been joined by others with similar credentials.

In addition to dedicated threadlocking adhesives the new Loctite Health and Safety range also encompasses threadsealing, gasketing and retaining.

More information on the entire range is available at [www.loctitesolutions.com](http://www.loctitesolutions.com)



## HENROB



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www.henrob.com

Henrob design and manufacture self pierce riveting solutions for joining a wide range of materials in a variety of diverse applications.

The increasing use of coated lightweight high strength materials, has led all industries to re-examine traditional methods of assembling component. As welding of these materials is difficult, and assembly using conventional rivets is slow and costly, the benefits of a process that combines high joint integrity with rapid assembly times become obvious.

SPR is fast (2 seconds). With no drilling, heat, fumes, or swarf. The operation is low noise, and economical.

Visit our stand to organise a free on-site demonstration.

## IGUS (UK)



51A Caswell Road, Brackmills Industrial  
Estate, Northampton NN4 7PW

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igus® develops industry-leading Energy Chain® cable carriers, Chainflex® continuous-flex cables, iglidur® plastic plain bearings, DryLin® linear bearings and guide systems and igubal® spherical bearings. These seemingly unrelated products are linked together through a belief in making functionally advanced, yet affordable plastic components and assemblies.

With plastic bearing experience since 1964, cable carrier experience since 1971 and its own line of flexible cable since 1989, igus® provides you with the right solution based on a very broad selection of standard components, from stock. No minimum order required.

## LEE SPRING



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Engineers from a vast range of industries go to Lee Spring to help them turn their ideas into reality. With over 19,000 off-the-shelf Spring product types, a streamlined Custom Design Service, almost 100 years of spring design and manufacturing experience and world class customer service they are in good hands.

From round wire compression, die, extension, torsion, REDUX™ wave, disc and battery springs to innovative LeeP™ Plastic Composite and Bantam™ miniature compressions springs, Lee Spring can meet the needs of any engineering application.

From 5 springs to 15 million springs, Lee Spring offers the complete package:

- extensive catalogue selection includes almost 2,000 new Metric products
- custom design expertise for specific application solutions
- highest quality spring design and manufacture
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- local technical and customer service is only a 'click' or a telephone call away.

## NELSON STUD WELDING



47/49 Edison Rd., Rabans Lane Ind. Est.,  
Aylesbury, Bucks HP19 8TE

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Nelson Stud Welding is the original inventor, manufacturer and supplier of stud welding equipment and weld studs. We supply equipment and studs to the automotive, shipbuilding, construction and metal fabrication industries and provide a wide range of cold formed weld studs in steel, stainless steel and aluminium.

Our latest range of stud welding equipment, which includes two lightweight inverters, is designed to the latest digital technology. This allows for accurate control of the welding process and gives unparalleled results. Our equipment range is capable of welding studs from 3mm diameter up to 25mm diameter. Various models are available for welding to thin sheet as well as to heavier gauge material.

Nelson Stud Welding is a Doncasters Group Limited company and for the first time at FAST we will be introducing performance critical, cold formed and deep hole drilling fasteners from EBC Industries and Ferry Cap. In addition information will be available on precision forged and machined components from Specialty Bar Products Company.

Visit us today for further information.

## NORBAR TORQUE TOOLS



Beaumont Road, BANBURY  
Oxfordshire OX16 1XJ

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e: enquiry@norbar.com  
www.norbar.com

Norbar is showcasing the world class range of TruTorque™ torque wrenches and torque screwdrivers together with the innovative TruCheck™ torque tester range.

## PROFIL GmbH & CO



Unit 6, Whitwick Business Centre, Stenson  
Road, Coalville, Leicestershire LE67 4JP

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www.profil.eu

PROFIL develops pierce nuts and studs which are fastened to metal components using a riveting process. We are a system supplier who also constructs automated feeding equipment which is customized to meet the production requirements of our customers. The economic advantages of using the PROFIL system in industrial manufacturing is documented by a multitude of applications, mainly in automotive, appliance and construction fittings industries.

All major automobile manufacturers and suppliers are among our customers. Cost savings of at least 30% can be achieved over equivalent welded processes. The quality of the resulting fixing is also superior to welded fasteners. PROFIL fastener technology is suitable for sheet metal components in Aluminium through to high strength steels up to 1500Mpa.



## RICHCO INTERNATIONAL CO



Richco House, Springhead Enterprise Park,  
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Richco designs, manufactures and distributes one of the world's most comprehensive ranges of innovative component solutions, specialising in fasteners, circuit board hardware, cable management products, fibre optic components and telecommunications accessories. Richco will be exhibiting our standard fastening products including: PCB and cable fasteners, rivets, feet, LED spacers, fan accessories, cable ties, EMI shielding products and a new range of Corrugated Tubing. Richco also provide specialist fixings and fastenings, using our comprehensive design and manufacturing service to exactly meet customers' requirements.

Visit our website to order free samples, view product applications and download 3D product models.

## SAVIGNY ODDIE



Wallows Industrial Estate, Wallows Road,  
Brierley Hill, West Midlands DY5 1QA

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www.savigny-oddie.co.uk

Savigny Oddie Ltd is a specialised fastener company based in the West Midlands, the Oddie Quarter Turn Quick Release Fastener can be used for securing panels or components that have to be speedily and easily removed for essential servicing or replacement work to be carried out. The extensive range of fasteners are available in various head configurations, finishes and materials. We can offer standard stock items or manufacture to bespoke customer requirements.

Savigny Oddie has also manufactures a wide range of carrying handles for use on containers or boxes available in Mild Steel, Stainless Steel or Aluminium.

For further details please visit our website [www.savigny-oddie.co.uk](http://www.savigny-oddie.co.uk)

## SPECIALTY FASTENERS AND COMPONENTS



Unit D Seymour Wharf, Steamer Quay Road,  
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Specialty Fasteners, an ISO9001:2008 approved company, is a designer, manufacturer and distributor of quick release fasteners and hardware for the Defence, Aerospace and Industrial markets. SFC design and manufacture the AeroCatch range of panel fasteners used in motorsport applications worldwide, Push Turn Fasteners, Snap-in Captive and SEMS screws for the electronics market. SFC distributes the complete Alcoa Fastening Systems range which includes the well known brand names Camloc and Tridair. Hydraflow fuel couplings and hose assemblies for potable water, breathing oxygen and cooling fluids, Quick Release Pins, Accuride drawer slides and Camloc gas springs complete the range.

## SIL-MID



*Our innovation, your solution*

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 www.silmid.com

With over 30 years' of experience, Sil-Mid Ltd is a global dedicated specialist distributor of adhesives, sealants, lubricants, silicones, cleaning agents and surface treatments for MRO and OEM.

Sil-Mid Ltd supports customers with a single source and point of contact with an immediate supply capability.

Having built a comprehensive infrastructure of inventory and supply management, leveraging worldwide logistics as well as synchronising supply with just in time demand, Sil-Mid Ltd have the capability to source and supply over 14,000 products globally, in partnership with over 400 leading manufacturers.

Sil-Mid Ltd's 24/7 online ordering facility [www.silmid.com](http://www.silmid.com) offers a comprehensive portfolio of products, which are all supplied with full batch traceability. As well as recognising the need to achieve the shelf life requirements of all customers, the company is also an expert in key areas of importance such as safety critical and reliable products and meeting stringent regulations and controls.

## SPIRALOCK OF EUROPE



Stanley Black & Decker, Unit H Gowerton Road,  
 Brackmills Industrial Estate,  
 Northampton NN4 7BW

t: 01604 827216  
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 e: sl-europe@spiralock.com  
 www.spiralock.com

Spiralock has re-engineered the standard (female) internal thread form and added a 30° wedge ramp at the root of the thread. Through this unique design, Spiralock® thread form is exceptionally resistant to thread loosening and stripping, caused by transverse vibration. It is also free-spinning and reusable. Spiralock products include flange nuts, self-clinching nuts, wire thread inserts, threaded inserts, taps and gages, threading inserts and thread milling cutters. Eliminating the need for secondary locking methods, Spiralock provides reliable threaded fastening solutions for critical applications in aerospace, military, truck, automotive, diesel engine, medical, farm, construction, oil exploration and other industries.

## SPRINGMASTERS



Arthur Street, Redditch B98 8LF

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 e: sales@springmasters.com  
 www.springmasters.com

Springing forward with a range from 0.1mm to 50mm

The Springmasters Group, incorporating Valley Spring and Belleville Springs, is one of the leading and most diverse manufacturers of springs in the UK. As a result of multi million pound investment, the group offers a comprehensive range of compression, extension, torsion and flat metal springs

The Group's 50,000 square foot manufacturing facility, encompassing two sites, offers customers CNC coiling from a wire diameter of 0.1mm to 20mm in addition to lathe coiling up to a diameter of 50mm.

The allied product range includes wire forms, clips, disc springs, hose clamps and circlips, which are available from the extensive stock range at the Redditch warehouse.

Manufacturing facilities are complemented by in-house design and development teams and the ability to offer rapid prototyping.

This investment and technical expertise consolidates The Springmasters Group's position at the forefront of spring manufacturing in the UK, offering competitive prices without compromising on quality.



## STAYTITE



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

Staytite has been dedicated to meeting all your fastening requirements for over 30 years. Our unrivalled knowledge, industry experience and outstanding customer service has come to be regarded as the best in the industry.

Our experience makes us the premier supplier of All Metal Self Locking Nuts. We are the number 1 trusted source for both technical advice and extensive range of solutions to the age old problem of sourcing the right nut for the right application at the right price, not to mention availability from stock.

Our extensive range of All Metal Lock Nuts starts from the most basic deformed thread type, to the complete engineered solution offered by the use of the Hardlock Nut.

## tesa UK



Yeomans Drive, Blakelands,  
Milton Keynes MK14 5LS

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

tesa® will showcase a new range of double sided acrylic adhesive tapes with optimum viscoelasticity for constructive bonding applications – tesa® ACXplus.

tesa's® ACXplus high performance acrylic adhesive provides optimal wetting and chemically adapts to surfaces giving a powerful bond on materials with different surface characteristics.

tesa® ACXplus offers a viable alternative to traditional mechanical fastening methods, taking constructive bonding to the next level in offering significant advantages which can be seen in its bonding strength, stress dissipation and resistance to the elements.

As part of its tesacoheion philosophy which focuses on people, products, processes and performance, tesa is inviting visitors to bring their applications to the stand to discuss how they can help. Visitors will also have the chance to see other products within the tesa® range, including a core selection of double sided foam and filmic tapes, heat activated film and laser labels for tamper evident security marking.

## TFC



Hale House, Ghyll Road Industrial Estate  
Heathfield, East Sussex TN21 8AW

t: 01435 866011  
f: 01435 866020  
e: [sales@tfc.eu.com](mailto:sales@tfc.eu.com)  
[www.tfc.eu.com](http://www.tfc.eu.com)

TFC will be pleased to announce at the show, the expansion of their national network as a result of the recent integration of Engineering Services Ltd (ESF) into their group of companies.

Formed in 1973, ESF have established themselves as a major supplier of standard and non-standard fasteners & fixing products in the North of England. Their solid reputation will be enhanced with the ability to add TFC's tailor made Direct Line Feed and KanBan operations into its portfolio of products and services.

In addition, TFC's flat wire Smalley rings and springs will also be on display. These unique products, which offer space saving advantages over conventional retaining rings & springs, are readily available in a wide range of standard and exotic materials. With a method of manufacture that removes the need for expensive tooling, TFC are able to offer prototype and small production quantities at economic pricing and substantially reduced lead times.

## TOTAL AIR TOOL SERVICES UK



Unit A Princes Drive Industrial Estate,  
Kenilworth, Warwickshire CV8 2FD

t: 01926 857193  
e: [info@totalairtool.co.uk](mailto:info@totalairtool.co.uk)  
[www.totalairtool.co.uk](http://www.totalairtool.co.uk)

Total Airtool Services UK Ltd are the sole UK distributors for the Fiam pneumatic and Delta electronic assembly tools. Based in Kenilworth and with possibly the largest stock of both new and used assembly equipment Total offers a unique service to the UK manufacturing base

Always looking to improve the service offered to the end user Total have recently appointed two new sales engineers and are opening a new sales and service depot in Berkshire.

Total are very pleased to announce that they have recently been appointed as the Atlas Copco Industrial tool distributor for the Midlands

## VIKING TAPES & ADHESIVES



Unit 1 Coronation Business Park, Hard Ings Rd.,  
Keighley, West Yorkshire BD21 3ND

t: 01535 610373  
f: 01535 610801  
e: [sales@vikingtapes.co.uk](mailto:sales@vikingtapes.co.uk)  
[www.vikingtapes.co.uk](http://www.vikingtapes.co.uk)

Founded in 1989 Viking have over 40 years experience in providing Adhesive solutions to Industry. They are one of 3M's major Industrial Wholesalers and their principle partner for the supply of 3M Tapes and Adhesives on line. [www.vikingtapes.co.uk](http://www.vikingtapes.co.uk)

The Viking website provides a wealth of Technical Information with easy to follow selection guides ensuring you obtain the correct product for your application.

Viking also provides technical advice, a sampling service and a technical telephone helpline.

Come and talk to our Team at the exhibition. We can recommend a wide range of products and using our specialist Conversion service can tailor them to meet your exact requirements.

We help tens of people everyday either on line or in person with Adhesive solutions. Talk to us...

## ZYGOLOGY



2 Barnes Wallis Court, Wellington Road  
High Wycombe, Bucks HP12 3PS

t: 08458 121220  
f: 08458 121221  
e: [sales@zygology.com](mailto:sales@zygology.com)  
[www.zygology.com](http://www.zygology.com)

Zygology is the UK's largest authorised distributor for Southco quick access hardware, Avdel blind rivets and PEM self clinch fasteners. We are also main authorised distributors for Gesipa riveting systems and BBA - manufacturers of high performance and special purpose rivet nuts. To cater for all needs we also carry an extensive range of ancillary products including our own range of rivet nuts.

To ensure that we provide a complete service, we have a team of experienced sales engineers covering South Wales, the Midlands, Southern England, Northern England and Scotland. If you have an assembly problem that you are not sure how to resolve, we will be pleased to take a look at it for you. To assist with product selection we can provide samples, technical advice, on site demonstrations and line trials. We pride ourselves on our problem solving abilities; and guarantee to go the extra mile to help get your product produced cost effectively.





# NORTH

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## PAVILIONS OF HARROGATE

Great Yorkshire Showground HG2 8NZ

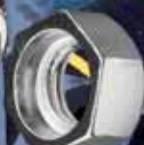
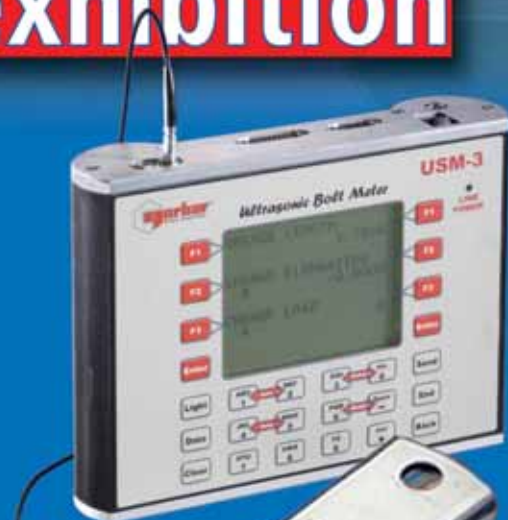
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[www.fastenerexhibition.com](http://www.fastenerexhibition.com)

Free bacon bap and brew on arrival for pre-registered visitors





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