

# CBM CONFEDERATION OF BRITISH METALFORMING

## METAL MATTERS

Take up of  
automation  
across the  
metalforming  
sector

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### FASTENERS

Barton Cold Form's managing director joins CBM as board member to champion fasteners

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### FORGING

Forging a path from the "black arts" to the modern age

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### SHEET METAL

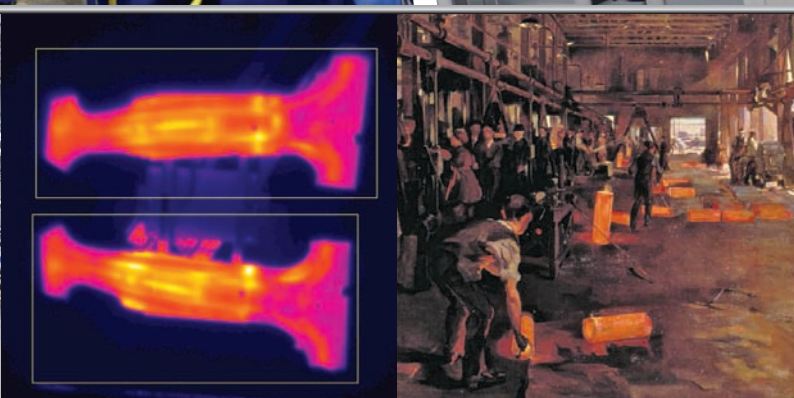
New system for process monitoring results in higher product quality

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### CBM EVENT

JCB event celebrates our past - and looks ahead

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# BROOKS FORGINGS



## FORGING, MACHINING AND FABRICATION SERVICES

## OVER 20 MANUFACTURING PROCESSES



Counterblow Forging



Split Die Upset Forging



Closed Die Upset Forging



Drop Forging



Open Die Forging



Hand Forging



Hot & Cold Bending



Hot & Cold Pressing



Swaging & Pointing



Machining



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events & features.

For anyone who is interested in the effect of Brexit on UK automotive supply chains I recommend you read the Financial Times article The great car parts race of 31st July if you haven't already, and it's not just because Ken Campbell, one of our sector specialists is quoted by name.

Ken and the CBM had quite an input into the background the two authors followed through. Please ask CBM if you would like a copy of the article.

The authors found that the UK-based OEMs started to respond to Brexit and were already taking action to secure more UK suppliers last year.

This is good to have confirmed independently because other economic indicators are very mixed. I sometimes wonder if pundits try to read into indicators to back up their own pet theories. Well they're only human and I do the same.

One point it does demonstrate is that business is way ahead of government on its response to Brexit and our Industrial Strategy and probably explains our frustration of trying to get government to do anything.

For anyone who reads this column, you may recognise the following comments. I understand that government works in a different world to business where they have to win elections and try to keep everyone on board but surely the Industrial Strategy is independent of this and already has cross-party support. We should be seeing some progress by now.

Unfortunately we also see government-funded support schemes for business work at just the same speed. I have seen several of these since I've been president with the effect that projects are delayed to suit form-filling not business needs. Many smaller amounts are just not worth the management effort of applying and reporting back and should be scrapped.

CBM signed up to the Metals Council as we believed it would be a good route directly into government policy making. I have to report that experience to date is that this is also slow. And we are just one voice out of the big crowd. On the brighter side, we have some fresh blood in our Board of Directors who are keen to go out and get things moving. In parallel, we have found a small number of MPs who seem genuinely interested in industry and fighting our corner. We are working at connecting these two parties, so let's see what we can achieve on our own.



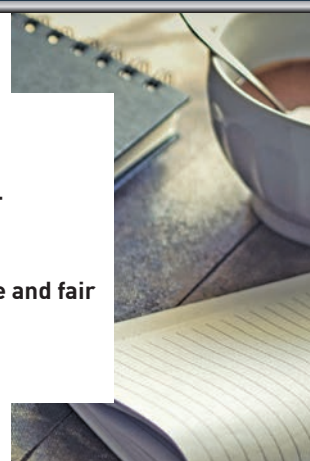
If you know of any MPs who are genuinely interested in listening to a voice of industry then please put us in touch and we will make sure they hear from us.

Continuing in the positive frame, Tata Steel have just released a report *Charging towards a sustainable future* showing that the use of steel will increase with the electrification of our road transport system which should be good news for many of our members.

David Eales,  
**President of the  
Confederation of British Metalforming**

## DIARY DATES

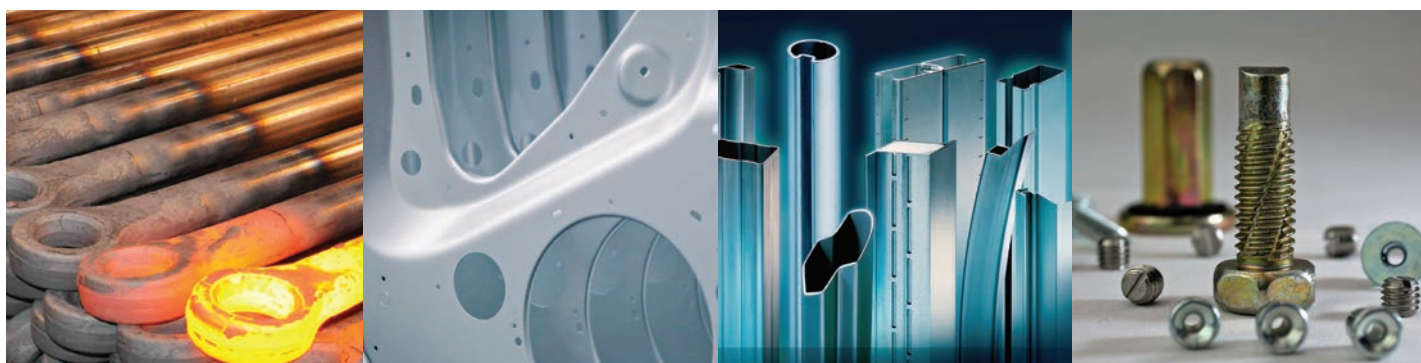
- **Reshoring UK - Supply Chain in Practice (SCiP) Networking Event-** Warwick  
26 September 2017
- **CBM Health, Safety & Environment Group Meeting -**  
19 October 2017
- **Advanced Engineering 2017 -** NEC, Birmingham  
1-2 November 2017
- **CBM 'Metallurgy for Non Metallurgists' course -** NEC, Birmingham  
13 - 14 November 2017
- **CBM forging sector centenary celebration and visit to JCB -** Rocester  
15 November 2017
- **CBM Executive Board Meeting -**  
13 December 2017
- **MACH 2018 -** NEC, Birmingham  
09 April 2018
- **Fastener Fair Italy 2018 -** Italy  
26 September 2018
- **1st European conference and fair for the forging industry-** Germany  
13 - 15 November 2018



**FOR FURTHER DETAILS PLEASE VISIT:** <http://www.thecbm.co.uk/events.aspx>



## THE CBM – HELPING THE UK'S METALFORMING INDUSTRIES TO PROSPER AND GROW



# CBM MEMBERSHIP... WHAT'S IN IT FOR YOU?

CBM is the leading trade association for UK manufacturers of fasteners, forgings, pressings and cold rolled products; the very building blocks of UK manufacturing. CBM members provide high quality components to key industry sectors; indeed virtually every manufacturing sector buys components from a CBM member company, most of which hold a range of third party quality accreditations.

In additions to CBM's manufacturing companies, its associate members included suppliers of materials, equipment, consumables and services, universities and research bodies – a true reflection of CBM's support of a totally integrated metalforming community.

### GOVERNMENT LOBBYING

- Lobbying
- Industrial strategy
- Submissions to government

### ENERGY

- Climate Change Levy rebates
- Energy services: measurement, ESOS audits, energy efficiency training and workshops

### MEMBER PROMOTION

- Enquiries
- Buyers' guide
- CBM website
- Exhibitions
- Metal Matters magazine

### TECHNICAL SUPPORT

- Expert knowledge about fastener, sheet metal/presswork and forging techniques

### HEALTH & SAFETY

- Regular health, safety & environment group meetings
- Accident statistics
- Helpline
- Private healthcare scheme
- Occupational health services

### TRAINING / SKILLS / ENGAGEMENT WITH SCHOOLS

- Tackling the skills agenda
- Industry specific courses
- Raise awareness of career potential within our industry

### KNOWLEDGE TRANSFER

- Monthly Market Reports
- Project opportunities with Advanced Forming Research Centre (AFRC)
- Regular networking opportunities
- Briefings and Seminars
- Metal Matters magazine
- CBM website

### OTHER BENEFITS

- Members' buying group
- R&D tax claims
- Business support helpline
- International links
- National Metalforming Centre
- British Standards Institution

### CBM MEMBERSHIP

- Membership is available to companies who manufacture in the UK, by metalforming processes, particularly those who are engaged in hot and cold forging, and the shaping, cutting and forming of sheet metal.
- Associate membership is available to companies and organisations who are allied to the manufacture of metal formed products but who are not eligible for full membership.

**CONTACT CBM NOW ON 0121 601 6350**

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Confederation of British Metalforming • National Metalforming Centre • 47 Birmingham Road • West Bromwich • West Midlands B70 6PY

**MOHS -****providing occupational health and wellbeing for the modern workforce**

Next year, MOHS Workplace Health celebrates 55 years of providing occupational health and wellbeing services to both the public and private sector.

MOHS was set up in West Bromwich as a charity in 1962 by a group of Black Country industrialists concerned about the lack of nursing and first aid provision for local factory/foundry workers.

Fast forward to today and, although we are still located in the town, MOHS has significantly changed since those early days.



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

Our service portfolio has expanded, we have attracted a UK-wide client base and have gone through several name changes to reflect our changing status from local to national OH provider.

Our highly qualified and experienced team of occupational health physicians and nurse-led advisors provide a range of cost effective services including health surveillance/screening; absence management; medicals; travel health and vaccinations; and wellbeing and health promotion initiatives.

We have a medical centre near jct 1 of the M5, which offers consulting rooms, psychology suite, and modern training facility. It is also a yellow fever registered centre.

MOHS operates a fleet of fully equipped mobile health screening units, taking services direct to clients' premises.

We also have a training arm, offering first aid at work and defibrillator training; health & safety courses including IOSH workplace safety courses, manual handling and ergonomic, workplace and noise assessments; and mental health awareness training.

For further information about MOHS, please email [info@mohs.co.uk](mailto:info@mohs.co.uk), visit [www.mohs.co.uk](http://www.mohs.co.uk) or call 0121 601 4041.

**EVENTS**

## METAL MATTERS TO THE WHOLE ADVANCED ENGINEERING SUPPLY CHAIN AUTOMOTIVE TRENDS

Leading players from across the metals industry are gearing up for Advanced Engineering 2017, the UK's largest annual gathering of performance metals engineering professionals. The demand for lightweight and high-performance metals is continually growing across many industries. The UK metals sector boasts more than 11,000 companies, employing 230,000 people directly and a further 750,000 jobs indirectly.

The Show connects the entire supply chain of the UK's advanced engineering industry with R&D, design, test, production and procurement from large and small companies, through to top tier industry players in a two-day free to attend exhibition and high-level conference.

Registration numbers for visitors this year are nearly 50% more than at the same time last year and it has already attracted leading names from the industry including Toyota Motor Manufacturing UK, Airbus, Delphi and BAE Systems who will be looking to meet and do business with other industry individuals.

Visitors will see cutting edge technology and materials, everything that is needed in today's performance materials industry, including: processes for casting, extrusion, forging, joining and sheet & tube forming; powder metallurgy ...; friction drilling equipment; manufacturing techniques; metals heat treatment; testing and characterization of metals; electrochemical & power beam processes; ... and many more.

Alison Willis, industrial divisional director at Easyfairs, said: "The demand for performance metals is growing at a fantastic rate, and the Performance Metals Engineering zone is the place to be to see the latest technological developments. These are revolutionising a raft of



markets, from planes, trains and automobiles, through to oil & gas; benefitting millions of people worldwide who consume these products – which means practically everyone on the planet!

"And the industry shows no sign of slowing down. This year, as in previous years, we will welcome thousands of visitors and exhibitors whose businesses are in performance metals engineering. Come along and see for yourself the fantastic industry we have."

Commenting on last year's show, exhibitor Roberto Fernandez, Sales Operations Manager, OLMAR SA, added: "The quality of visitors was once again second to none, with several enquiries to follow up on by the end of the first morning. It was another great show."

Organised by Easyfairs, Advanced Engineering 2017 includes five co-located zones under one roof: Performance Metals Engineering, Aerospace Engineering, Composites Engineering, Automotive Engineering – and new for 2017, Connected Manufacturing which focuses on Industry 4.0.

The Show takes place on the 1-2 November at the NEC Birmingham in halls 2, 3 and 3a.

For more information on Advanced Engineering 2017, or to register to secure your free ticket, visit: [www.advancedengineeringuk.com](http://www.advancedengineeringuk.com)



# METALLURGY FOR NON-METALLURGISTS

NATIONAL METALFORMING CENTRE, WEST BROMWICH, WEST MIDLANDS B70 6PY

**MONDAY 13 & TUESDAY 14 NOVEMBER 2017**

**CBM** CONFEDERATION  
OF BRITISH  
METALFORMING

THE METALLURGY FOR NON-METALLURGISTS PROGRAMME IS A TWO DAY COURSE DESIGNED FOR ANYONE WHO NEEDS TO KNOW MORE ABOUT METALS AND PROCESSES USED IN THEIR COMPANY.

## OUTLINE OF COURSE CONTENTS

- Metal properties
- Metals structure
- Ore smelting
- Metals making & casting
- Rolling and metal forming
- Mechanical Testing and NDT
- Hot & cold working/shaping/forming
- Heat treatment
- Metal alloy classification
- Corrosion

## BUSINESS BENEFITS

The Metallurgy for Non-Metallurgists programme will enable participants to:

- communicate more effectively with technical colleagues
- be better informed and more efficient when dealing with customer enquiries
- avoid mistakes caused by lack of understanding
- understand the production, processing and testing of relevant metals and alloys
- appreciate the properties and applications of relevant industrial alloys

## PROGRAMME CONTENT

Courses commence with delivery of core knowledge components and progress onto a series of extended knowledge modules.

## PROGRAMME DELIVERY

Courses take the form of participative workshops, led by an expert metallurgist with extensive metals industry experience.

The content, length and structure of the course can vary according to individual company needs.

A folder of course materials is supplied and all attendees will receive a certificate after completing the two day course.

**COST:** CBM members £310 + vat per person  
Non Members £430 + vat per person

Places are limited, so to avoid disappointment reserve your place(s) now: contact Kirsi Lintula at the CBM on 0121 601 6350 or email: [kirsi.lintula@thecbm.co.uk](mailto:kirsi.lintula@thecbm.co.uk).

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**nmc**

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EXHIBITIONS • SEMINARS • WORKSHOPS • TRAINING • TUTORIALS

# JCB EVENT CELEBRATES OUR PAST - AND LOOKS AHEAD

**JCB World Headquarters, Lakeside Works, Dunstone Road, Rocester, Uttoxeter ST14 5JP**  
**Dinner at: Boars Head Hotel, Station Road, Draycott-in-the-clay, Ashbourne, Derbyshire, DE6 5GX.**

**15 November 2017**

It's almost 100 years since forging companies came together in Birmingham, to form a trade body capable of transforming our floundering war effort; the Association of Drop-Forgers and Stampers. It is long gone, but we're holding an event at JCB's global headquarters at Rocester, on November 15th, to mark its centenary, discover more about our host's operations, hear from keynote speakers about challenges in the Brexit era - and enjoy an evening at the nearby Boar's Head Hotel.

**All members are welcome to attend both events.**

## - PROGRAMME

- 12.00** Start with buffet lunch at JCB
- 13.00** Presentations:
- JCB supply chain requirements  
Chris Bell,  
General Manager Group Purchasing, JCB
  - Review practical productivity measurements to assist members to improve and challenge Government  
Prof Paul Forrest,  
Director, West Midlands Economic Forum
- 14.45** Tour of JCB
- 17.00** Tour finishes
- 18.00** Welcome drinks
- 18.45** Three course dinner at Boards Head Hotel
- 20.45** History of forging industry  
Dr Peter Standring
- 21.00** Finish/continue in the bar area

## - REGISTRATION

Please indicate your preferences at the time of booking as described below.

Overnight accommodation options available on request.

## - COST

JCB event including tour and lunch: **£35+vat**

Forging centenary celebration dinner: **£50+vat**



**CBM** CONFEDERATION  
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**To book a place please contact:**  
**Kirsi Lintula at CBM on 0121 601 6350**  
**or email [kirsi.lintula@thecbm.co.uk](mailto:kirsi.lintula@thecbm.co.uk).**



# EIFI ANNUAL GENERAL ASSEMBLY FOCUSES ON AUTOMOTIVE TRENDS

*Andrew Nuttall, who recently joined the CBM board to represent fastener members, attended the Annual General Assembly of the European Industrial Fasteners Institute in Marstrand, Sweden. Key interest was on discussion of global automotive market trends.*

The CBM is an EIFI member, together with national fastener associations from Germany, Italy, France and Spain. One of the most important membership benefits emanates from the EIFI's research and analysis into key market sectors, notably automotive, something that featured strongly in this year's assembly. Attending for the first time, Andrew also valued the opportunity to network with representatives of other fastener manufacturing associations, many of the members of which are major volume producers to the automotive sector.

EIFI Automotive Group President, Paulo Pozzi - together with Fredrik Sidhal, managing director of the Swedish Automotive Supplier Association - provided a detailed presentation of trends in the sector. Findings from EIFI's 2017 survey of Automotive Group members demonstrated growth in confidence this year, with around 78% of respondents scoring better than 7 out of 10 in the survey. This reflected a noticeable shift from 2016, with the peak confidence level shifting to eight in 2017 (53.1%) from seven in 2016 (50%).

Top amongst the challenges identified by automotive suppliers were the global localization process and emerging market investors and suppliers but the maximum high score was attached to ambitious price reduction plans by OEMs. Other less critical concerns noted included Powertrain electrification and Industry 4.0.

Not surprisingly respondents' priorities echoed the hierarchy of concerns. Continuing to follow the OEMs globalisation process and managing the challenge of Asian competition rated highly. 62% of respondents rated counterbalancing OEM price pressure as high concern, with increasing or maintaining the flexibility of the entire supply chain also scoring strongly. Monitoring a possible market downturn attracted lower priority, mirroring the overall improvement in survey confidence.

Looking specifically at the 'hot' topic of vehicle powertrain electrification Mr Pozzi said there was "no disruption by now, but the future path was clear". EIFI currently forecasts that full electric vehicles will achieve an 8% market share in the EU by 2025, accelerating to 20% by 2030. PHEV and hybrid gasoline powered vehicles will also grow in share with diesel powertrains the major casualty sinking from more than 50% share in 2015 to less than 10% by 2030. The share of solely gasoline-powered vehicles is expected to decline to 25% by the same year.

Mr Pozzi concluded that EIFI saw a positive economic climate with improved forecasts but volatility risks. There were record volumes in the automotive industry but a slowdown could be foreseen in both China and North America. Protectionism was clearly challenging world trade volumes. On the other hand EIFI continued to be deeply concerned about the risk of growth in Chinese fastener export to Europe. Mr Pozzi also foresaw continued inflationary pressure on commodities including fastener raw materials and utility costs.

Copies of the full presentation slides are available to CBM members on request.



## SLIGHT GROWTH IN UK FASTENER PRODUCTION IN 2016

*CBM has analysed 'Prodcom' production data on UK fastener manufacturing for 2016, which suggests around a one per cent increase in output across the broad range of steel fastener products.*

Prodcom data for 2016 has now been published and suggests around a 1% increase in UK production of the broad range of steel fastener products. The 2016 total for PCC codes 25941113 to 25941270 indicates the UK produced in excess of 66,200 tonnes of steel fasteners, compared with 65,500 tonnes in 2015.

Prodcom data needs to be treated with caution because of its collection methodology - a survey of around 90% of companies employing more than 20 people for each PCC code. It is also possible for a market dominant company to request suppression of its data on the grounds of commercial confidentiality, which can reduce the overall figure and create skews at a detailed analysis level. Results should, therefore, be treated as indicative of trend rather than definitive.

The 2017 survey shows the largest UK output was in high tensile steel hexagonal bolts, representing around 42% of the total in 2016. This category also recorded the greatest volume growth at 12.3% year on year. Second ranked were steel bolts without heads (13.5%) followed by steel rivets (9.3%) with pins and other non-threaded fasteners - excluding rivets and washers (8.7%). Washer production accounted for 5.3% of the UK total output as recorded. The greatest fall was in woodscrew production dropping from around 885 tonnes in 2015 to zero in 2016.

The European Industrial Fastener Institute will eventually produce a comparison of production in six major EU countries, which will be circulated to CBM members. EIFI's 2015 analysis shows Germany as the largest producer, with output of more than 875,000 tonnes of steel fasteners, followed by Italy with more than 629,000 tonnes. France, Spain and Poland each produced between 123,000 and 130,000 tonnes, roughly double the output of the UK.

Significantly UK imports in 2015 were estimated at nearly 270,000 tonnes, ranking it only below France (339,000t) and Germany (851,000t) in volume. EIFI estimates that 34% of UK imports in 2015 were from Asia, around the same proportion but higher in volume than Italy, and higher in percentage than the other four countries analysed by EIFI, including Germany of which around 16% of imports were from Asia.

# GESIPA® IS CONTINUOUSLY STRENGTHENING ITS CAPABILITIES AS GESIPA GROUP CENTRE OF EXCELLENCE FOR FASTENING TECHNOLOGIES



A company of **SFS** intec

**GESIPA®** has invested in its UK manufacturing facility over the years in order to achieve a strategy to centralise its production of threaded inserts and carry-out a gradual transition of the product range from catalogue parts to specialised products. Growth of the GESIPA® has been very evident in terms of bespoke blind rivets nuts and rivet nut studs manufacturing. Today, around 430 special types of blind rivets nuts and 30 different varieties of rivet nut studs are manufactured in thread sizes M4 up to M12.

Manufacturing with variations such as hexagonal body – giving higher torque to turn, square body – to form a secure lock, profile body – giving a pivot point, wedge head – to provide higher torque to turn in softer materials and, large flange – providing larger load bearing surfaces, there is always a possible variant available to fit specific customer application requirements.

Furthermore with its latest multi-window process control technology, WinTech, GESIPA® is now able to guarantee that the right rivet nuts and nut studs are placed in the right place and in the right quantity in safety critical applications.

The setting process is evaluated with the aid of position and force sensors as well as integrated electronic circuitry. Up to three evaluation windows can be configured with special setup software. If an irregularity is detected, the process is immediately stopped. It is only after the customer has acknowledged the malfunction that the process can continue – making human error more or less impossible.

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# NEW CBM BOARD MEMBER TO CHAMPION FASTENERS

*Andrew Nuttall, managing director of Droitwich-based fastener manufacturer, Barton Cold Form, has joined the CBM board to represent its fastener manufacturing members and encourage other manufacturers to take advantage of all that the CBM can offer.*

**Barton Cold Form** has an 80-year pedigree in cold forming and is now one of Europe's leading manufacturers of bespoke critical fastenings and special cold forgings, and a proud member of the Jaguar Land Rover supply chain. In November 2015 US-headquartered global parts and fasteners supplier, Optimas OE Solutions, acquired Barton as its European centre of manufacturing excellence. The ensuing intensive investment programme radically enhanced both Barton's capacity and capabilities and included the installation of an advanced development and quality laboratory. This year Barton became the first non-aerospace European licensee for the Phillips MORTORQ Super™ spiral drive system, which combined with Barton's existing Taptite® Trilobular™ thread, is already providing major productivity and weight reduction advantages to OEM customers.

"It is a really busy and exciting time for Barton right now," says Andrew Nuttall, "but I believe it is crucially important as the UK's trading relationship with the world faces major changes to champion British fastener manufacturing, which is why I have agreed to take up the CBM board position. At this pivotal juncture it is crucial that the fastener industry's voice is heard around the CBM board table as well as throughout industry generally."

"I am particularly excited," continues Andrew, "that the CBM is on the cusp of providing crucial educational resources that, I really believe will help address the critical shortage of young tool makers and machine operatives. In common with most fastener manufacturers in the UK, Barton has an aging skilled work force and both our and the British fastener making industry's ability to rise to the opportunities of the coming decade will depend strongly on investment in skills as much as equipment."

In order to hear first hand what existing and prospective fastener manufacturing members would like to see from the CBM, Andrew will host a fastener sector meeting at Barton's Droitwich Spa facility on 20th September. The day will include an important update on coatings technologies from UK leading applicator, Anochrome Group. "With the REACH sunset date for the use of hexavalent chromium compounds in coating application in the EU this September," says Andrew, "fastener and parts manufacturers need to be aware that some historically significant coatings will not generally be available and assess new coating technologies that could well enhance the performance of their products to OEMs." The interactive heart of the sector meeting will aim to explore what existing and prospective members would really like to see from the CBM, which will be followed by a light lunch and a tour of the Barton production operation.

Metal Matters will report on the outcomes of the fastener sector meeting in our next issue.



**Left:** Andrew Nuttall, managing director, Barton Cold Form and new CBM board member



**Above:** Barton Cold Form, Droitwich Spa, Worcestershire

## RECENTLY PUBLISHED FORGING STANDARDS

### **BS EN 10222-1:2017**

Steel forgings for pressure purposes.  
General requirements for open die forgings **2017.05.22**

### **BS EN 10222-2:2017**

Steel forgings for pressure purposes. Ferritic  
and martensitic steels with specified elevated  
temperatures properties **2017.05.17**

### **BS EN 10222-3:2017**

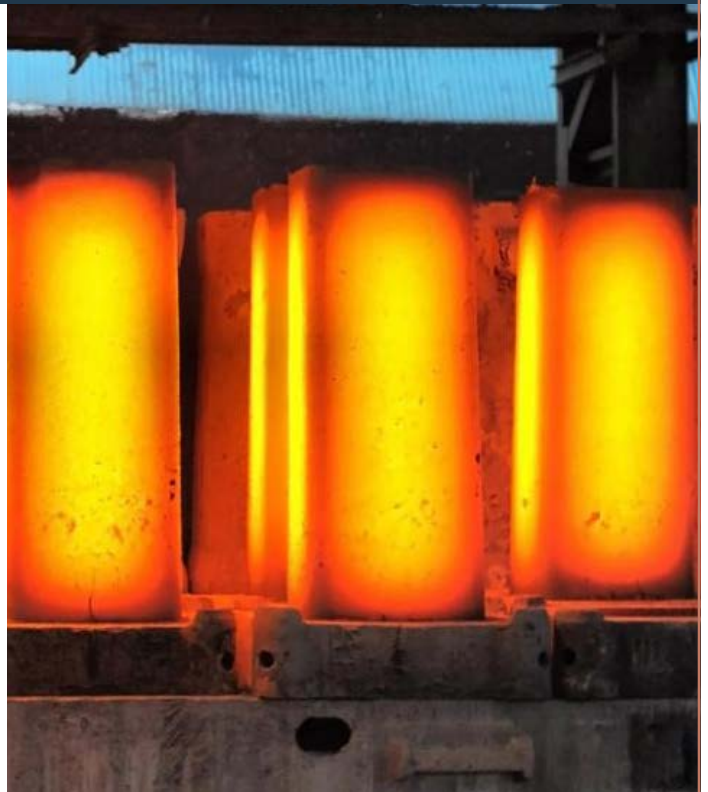
Steel forgings for pressure purposes.  
Nickel steels with specified low  
temperature properties **2017.05.31**

### **BS EN 10222-4:2017**

Steel forgings for pressure purposes.  
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Martensitic, austenitic and austenitic-ferritic  
stainless steels **2017.05.18**



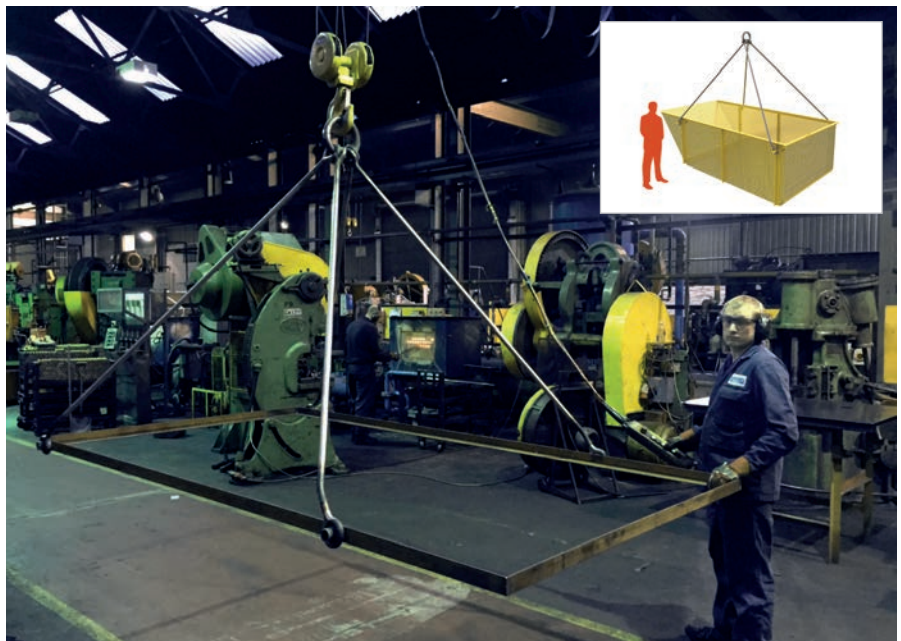
## BROOKS FORGINGS USE ON-SITE PROCESSES TO PRODUCE SPECIAL LIFTING ASSEMBLY FOR INDUSTRIAL DIPPING STILLAGES

Brooks Forgings was approached to produce a special lifting assembly that is used to lift and relocate industrial dipping stillages in a chemical treatment plant. As a leading UK manufacturer of the components used in the assembly, we were able to meet the clients specific requirements.

The lifting assembly comprises of a single master link and 4 double ended eye bolts, produced in 316 stainless steel material. The master link, used as the primary lifting point, was manufactured from 35mm diameter material, hot rolled to achieve an inner diameter of 140mm and then flash butt welded using on-site capabilities.

A total of 4 double ended eyebolts / eye rods are attached to the master link, paired in 2 different lengths and symmetrically cranked. The components are designed and manufactured to ensure the stillage remains perfectly horizontal when lifted.

The double ended eye bolts / eye rods were produced from 25mm diameter material, hot bent, welded and cranked on-site to achieve eye-to-eye centres of 1885mm and 2070mm.



*Brooks Forgings produced a test frame, based on the stillage used in the final application, to test the assembly.*

For more information please contact Brooks Forgings Ltd  
Tel: **01384 563356** or Fax: **01384 563357**  
Email: [enquiries@brooksforgeings.co.uk](mailto:enquiries@brooksforgeings.co.uk)  
Website: [www.brooksforgeings.co.uk](http://www.brooksforgeings.co.uk)

**BROOKS**  
FORGINGS



# FORGING A PATH FROM THE “BLACK ARTS” TO THE MODERN AGE

By: John McBain, Chief of Forging at the University of Strathclyde's Advanced Forming Research Centre

**F**orging has been seen as something of a “black art” in the manufacturing industry. In fact, countless engineers regard the variability inherent in the process as inevitable.

Many manufacturers think it's extremely expensive to control variables in forging, but the reality is very different. An attention to detail within a current process can remove and control inconsistencies, ultimately lowering scrap levels, and increasing profitability.

One common variable affecting forged parts is the presence of oxygen and other gases in a furnace. Oxygen can chemically combine with the component material, forming an oxide or scale. This scale is abrasive, and can quickly deteriorate the die surface, leading to poor quality output and premature failure of the die.

These forged materials often serve the aerospace and automotive industry; therefore, it is vital that they are processed to a high-quality standard and produced in a repeatable manner. Titanium will absorb hydrogen in a furnace, and hydrogen embrittlement can occur.

Hydrogen embrittlement occurring at an early stage can lead to the workpiece being scrapped, thus increasing scrap costs and reducing efficiency. Understanding and controlling furnace atmosphere is vital in the reduction of this phenomenon.

When manufacturers come to the AFRC to enhance their forging process, the centre assesses every seemingly innocuous

variable, with the understanding that every detail is important to the success and repeatability of the process.

The AFRC will begin assessing a process by undertaking a fact-finding mission on the company's existing setup – observe the process in-house, while making notes and videoing each stage.

Then, the forging team will identify what is leading to the variation in production. By systematically reviewing the forging operation using the eight tools in the AFRC's forging tool kit, we can identify these variables and reduce or eliminate them from the forging operation.

The AFRC is the only research centre in the UK equipped with such industrial-scale forging capability, enabling industrial-scale trials to be carried out within a research environment.

Improving the forging process through reducing variability is not as expensive as many in the manufacturing industry think. The ongoing savings in scrap reduction, re-work and increased output can more than off-set this initial cost.

Analysing processes and identifying the source of variations is the key to improving success rates. This ensures more parts pass first time, and, ultimately, has a positive impact on the bottom line. It's time to move forging out of the “black arts” and into the modern age.



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PAGE 6



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**CBM**



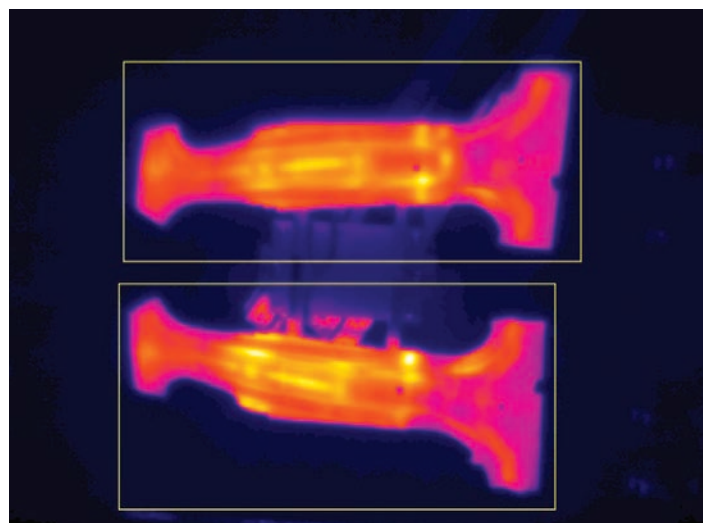
# PRESS HARDENING FROM AP&T: NEW SYSTEM FOR PROCESS MONITORING RESULTS IN HIGHER PRODUCT QUALITY

**AP&T's** in-line process monitoring measures the material's temperature with a high degree of precision both before and after pressing.

It is crucial that the blank is heated up, formed and cooled down at exactly the right temperatures to ensure that the finished vehicle part obtains the desired material properties.

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Higher and more consistent quality of the formed vehicle part, possibility for shorter cycle times and better control over the entire manufacturing process. This is what customers can expect from AP&T's new process monitoring system for press hardening – in-line process monitoring – which is now being introduced to the market.

Pyrometers and infrared cameras are used to measure the material's temperature with a high degree of precision both before and after pressing. The pyrometer registers the absolute temperature at a certain point, while the infrared cameras are used to read the heat distribution on the part's surface. All of this takes place without any of the equipment coming into physical contact with the material. It is crucial that the blank is heated up, formed and cooled down at exactly the right temperatures to ensure that the finished vehicle part obtains the desired material properties. The higher the degree of precision, the better and more consistent the result.

"Our monitoring equipment enables our customers to achieve an optimized and well-controlled process that gives the end product a higher level of quality," says AP&T Project Leader, Technology Development Jörgen Theander.

In-line process monitoring was developed from the start to meet the demands placed both by the process and customers, and it satisfies the car manufacturers' standards, such as CQI-9.

"The system was produced in cooperation with our customers, and it is designed completely in line with our specifications. It has been tested during practical operation both externally and in our own press hardening line in Ulricehamn over a one-year period. The results have been excellent, and several of our customers have already decided to invest in the new system.

The press hardening technology enables sheet metal parts to be manufactured with low weight and high strength, which results in lighter, safer and more energy-efficient cars. AP&T is one of the world's leading suppliers of complete production solutions for press hardening. The company has installed close to 100 press hardening lines globally since the beginning of the 2000s.

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# ADVANTAGES EXPERIENCED AT UK PRESSWORK COMPANIES USING METAFORM W550EP

*Metaform W550EP is a newly launched product from lubricant specialist Metalube Ltd, UK.*

*It has been adopted by several companies in the UK and has been giving some major advantages in production.*

**C**Brandauer, a world leading independent high-precision metal component specialist based in the Midlands, initially trialled Metaform W550EP on the production of push fit grabber rings manufactured from 0.35mm stainless steel sheet. Using Bruderer progression presses at blow rates of up to 700/minute the tool life was increased from 4 million components to 16 million components. Subsequent trials on heavier gauge grab rings manufactured from 0.8mm stainless steel strip increased tool life from 500 components to >27,000 components.

Metaform W550EP is a water extendable grade meaning it can be used neat (as above at Brandauer) or diluted with water. In neat form, the product is capable of performing very arduous work but is easy to clean due to its compatibility with water. Diluted, it gives excellent lubrication but reduces oil drag-out further easing cleaning.

APS Metal Pressings, Birmingham, produce a special deep drawn stainless steel drinking pot using a 600T AIDA press. Using previous lubricants they experienced scratching during drawing, staining of the part, corrosion of the press/tools and issues cleaning off the oil. Metaform W550EP was trialled, first in its neat form, and then at a 50% dilution. The 50% dilution was capable of achieving the draw with no scratching or staining and the residual oil was incredibly easy to wash off. Metaform W550EP was adopted across the factory for the production of their core business automotive components with a typical dilution rate of 20%.

Most presswork operations can be performed diluted so Metaform W550EP can also give a significant financial saving. As well as the above mentioned advantages Metaform W550EP is also chlorine, boron, formaldehyde releasing biocide and secondary amine free.

For further information please email:  
[wayne.thornhill@metalube.co.uk](mailto:wayne.thornhill@metalube.co.uk)



# TAKE UP OF AUTOMATION ACROSS THE METALFORMING SECTOR

Government ministers are fond of saying that the UK has lower levels of productivity than our international rivals and often identifies lower levels of take-up of automation as a reason. We decided it was time to try to check this premise out in our own industry by asking a number of CBM members and suppliers for evidence.

For this we took “automation” to cover mechanical handling, process control and now the digitisation of Industry 4.0 / the internet of things.

Automation projects are usually financed through savings in labour but there are extra benefits which are more difficult to put a cost to. We found these can include improved product consistency, less reliance on key staff, reduced energy consumption, cleaner environment, less accidents, lower levels of work-in-progress, faster turn-around times and longer tool-life.

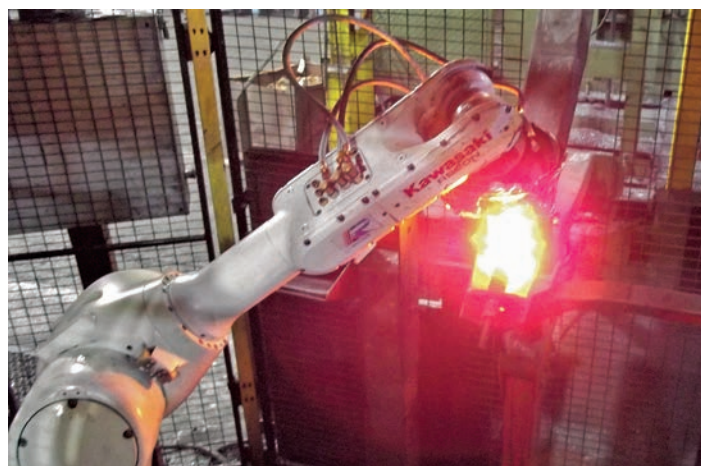
Some of these gains can be more important to the customer than the producer - hence we see the automotive OEMs pushing for automation in their supply chains. They can offer the standardisation of parts together with the volume needed to drive the cost down while knowing it will bring them improved quality. It is well-known that they look for automation when assessing new suppliers and often ask for it to be installed if not present.

There have been automatic lines for several years and it has been the auto industry that has driven its development. CBM saw this for themselves back in the nineties when a group of automotive suppliers visited Japan and saw one forge shop that only made two products - and both were for the same customer. This enabled them to have a far higher degree of automation, and hence productivity, than anywhere in the UK.

Nowadays, when installing new kit, most producers will choose to have high levels of automation as the machines are built for it, the extra cost is therefore small and they gain immediate benefits. Sertec have done this with their current programme of installing new presses where they expect to see greater levels of quality as well as performance. Another member company, European Springs, were so impressed with the improvements from their new presses that they will go back to their older ones and retro-fit automation (see following articles).

Not everyone can buy new presses though and then automation has to be retro-fitted around older machines. As older plant is not usually laid out for automatic handling and the control system needs to be completely replaced, it becomes more expensive. Hence we often see robots being used to replicate the human operators instead. Stokes Group in Dudley have recently done this on a forging cell where four robots have been installed to handle the hot parts at each step between the heater exit and trimming press.

Recently, aerospace have been catching up with automotive as they can see the tighter tolerance bands of finished parts bringing them real benefits. However, with the wider product ranges and smaller production runs, it is not often worthwhile and the skilled human operator is still indispensable.



Images courtesy of Stokes Group  
continued on page 17 >>



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Kevin Kirk from Forge Tech Services has seen several such installations but believes that a dedicated team of operators will outperform robots on a forge cell over the short term so that smaller batches are best left to the human touch. He does consider that the less variable finishing and auxiliary operations can safely be left to the machines, a point confirmed by automation system suppliers Kuka and Bauomat in their following interviews.

This observation is mirrored by experience from the Catapult's Tony Rodden at the Advanced Forming Research Centre. They had the benefit of adding a robot to their full-size test facility but know that the operating conditions on a production environment impose several limitations on the robot's performance (see following article).

Without that standardisation and volume however, the cost of installing automatic handling system rises while the gains diminish - a point well known in smaller companies with a wide range of product and customer.

To summarise;

*Larger companies with larger volumes / more standardisation / larger budgets = good return for automatic handling*

*Smaller companies with smaller volumes / less standardisation / smaller budgets = poor return for automatic handling*

Turning to process control now, automatic operation has been around for many years but here both hardware and software are still developing giving higher levels of accuracy and repeatability. These high levels of accuracy help reduce wear and damage to tools and machines by removing excess loads.

Servo-drives offer the product consistency needed by precision manufacturers when producing in large numbers, often of small parts. This is not just for auto but in volume markets like consumer and building products where millions of parts are ordered and all need to be the same.

Feedback from machine control functions now continuously monitors machine performance, not just raising alarms when there is already a fault. Most new presses can have this supplied and on European Springs latest presses, they have been guaranteed improved production and tool-life via this.

Linking in some intelligence enables further automation as in vision systems that are able to guide tools in automatic assembly, welding, grinding and polishing and then inspect the finished operation, preventing even one poor piece getting through. Automatic laser hardening of trimming tools saves time and energy and is entirely repeatable - watch Lase's video to see just how fast it can be.

Central monitoring software systems allow machine and production information to be analysed in real-time and displayed via the web for everyone to see, from lineside displays, office PCs and mobile devices. Stadco are considering installing a network of machine monitoring software at their plant in Telford so they can see machine performance in real time. Charles Marine, Process Development Engineer, says they expect to improve overall OEE across the plant from this up-to the minute information. From his experience of other automation systems, he also expects added value coming from real-time standardised reporting, improved capacity planning and integration with continuous improvement and preventative

maintenance activities, not just the productivity improvements that justify it.

This visibility and easy access to information is seen by several manufacturers as a key in their continuous improvement journey and is merging into the digitisation of Industry 4.0. For example, JLR's press line in Halewood recently installed a system that assists tool-setters, helping to cut change-over times by having the correct information at hand and giving feedback as they progress (see following article).

Again we are seeing a similar trend here of faster take-up from large to small companies as even monitoring systems cost money but maybe the latest developments will change this.

Online monitoring can help identify areas for improvement and the added ability to see small changes in the process, opening a window for engineers to take corrective action early, tackling issues before they become problems. There are software packages that can help do this and some of this is cloud based, a development that may make the latest solutions equally available for large and small companies alike. One of these will continuously watch machine data to identify the root cause of faults so these can be engineered out rather than keep replacing the same part (see link to Smart Alarm).

This has been a quick overview, but it does seem that member companies have taken a business-like line on automation, implementing it where economic, improving safety, quality or a customer benefit, but not otherwise. Larger companies usually have a higher take-up. Automotive are the leaders in this and will be pushing digitisation through their supply chains next.

Separately, there are new possibilities coming from the latest monitoring software which may be equally worthwhile to small and large companies in any supply chain.

More and more we are seeing that automation is the glue that holds the whole process together, making it more robust as well as productive.

Our thanks to all who helped contribute;

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## AUTOMATION CAN TRANSFORM YOUR BUSINESS, BUT IT'S A STRATEGY REQUIRING LONG AND CAREFUL THOUGHT. METAL MATTERS ASKED TWO SPECIALISTS ABOUT THE ISSUES INVOLVED.

**D**ave Burns heads the aerospace team and special projects division at Halesowen-based **KUKA Systems UK**, the German-headquartered group which is one of the world's leading suppliers of automated manufacturing and assembly systems for industrial production.

So he's well-placed to judge the mood among the UK's metalforming community, about switching from the use of labour-intensive production processes to next-gen robotics.

"We've been seeing a lot of interest, across all sectors, about automation in recent months. I'd say we're now back to 2008 in terms of business," says Burns.

"Between 2010 and 2012, recovery was underway, but most companies - especially SMEs - didn't feel they could commit to major investment, which automation represents, but now the mood is much more positive.

"KUKA UK's focus is on special projects aerospace and nuclear decommissioning. We do have a huge product portfolio though, and a very active R&D team, so if we can't handle something immediately from here, our colleagues back in Germany certainly can.

"We had an inquiry about automated laser welding last month, for example, and were able to show examples of work we'd done in other countries, and the advances we'd made on laser head technology."

Inevitably, acquiring sophisticated automation isn't cheap, even for a relatively small installation, but Burns says the immediate benefits are significant.

"If your business carries out very repetitive tasks over long periods, you need to consider automation. For short production runs, it might be trickier to justify, but companies should still see if automation could release skilled labour to work on other tasks, especially if they're manufacturing high-value products.

"I visited a company manufacturing high-value products, and they had two well-paid employees just putting metal into a machine, and picking it up at the other end. Releasing people from such mundane tasks is a huge benefit of automation, it makes workers feel better, and productivity rises as a result."

Enhancing product quality is another major benefit, and Burns cites spot-welding as one area of work where companies are increasingly turning to automation.

"Robots will repeat and repeat welds at least as good as your best welder, but they'll also spot defective welds impossible for the naked eye and notify the operator.

"Another bonus is increased health and safety standards. Grinding and polishing work can easily be automated, as can repetitive lifting of heavy items."

However, despite the welcome trend for automation, Burns thinks the UK lags behind other major industrial countries in Europe.

"Too many SMEs still have a reluctance to abandon old labour-intensive processes, and embrace the new ways, and I don't see that mindset changing quickly."

# KUKA



Body welding line



Van body welding



Pipe fabrication welding

continued on page 19 >>



<< continued from page 18

**Bauomat** is one of the market leaders in designing, manufacturing and installing automated welding systems, and robot-controlled machinery, from its factory in Telford, and sales director Jason Aulton spends much of his time working with the automotive sector.

Like Burns, he sees a growing appetite for robotics, and says it's often cheaper and more cost effective for companies to install new systems, rather than to automate existing cells or machines.

"In some cases - like manipulating tubes, for example - you can add 'automation' and also automate tool changes fairly easily. It depends how old your kit is," says Aulton.

"If the automation becomes a greater part of the process than the metal-forming itself, it's often cheaper to install a new system, then to try to upgrade what you have."

He identifies a much bigger issue, the desire of some management teams to demand very short pay-back periods for their projected investment.

"Many companies want pay-back within a year, which is simply unrealistic. The period depends largely on how much labour they can remove from existing processes, but setting an impossible timetable helps no-one.

"Also, some companies still don't place serious value on the quality of their output. If an automotive supplier sent just one defective part to a customer, the time and effort put into tracing what went wrong, making sure it didn't happen again, and placating that customer would cost thousands of pounds. More seriously, the supplier-customer relationship is damaged."

However, Aulton also reports that the trend for automation is well underway, as many suppliers look to improve quality standards.

"Most big Tier One auto suppliers have already introduced as much automation as they can, to ensure that they don't build defective parts, but even then, with all the checks in place, human error can creep in and there'll be the occasional mistake.

"We're also seeing more Tier Two suppliers installing automation to increase quality standards. If you looked at JLR's supply chain ten years ago, and today, the quality has come on remarkably - not just in terms of product consistency, but also in terms of working environment.

"It's a very expensive and time-consuming process to recruit skilled labour. If you can offer employees better conditions in which to work it will both help reduce employee turnover, and keep a product-experienced workforce."

Unlike KUKA's Burns, the Bauomat observer doesn't think UK companies are trailing their international rivals with regard to automation.

"Not as a country, no. If we're looking at Tier One suppliers in automotive and food, they have lots of automation, not least as they are always up against overseas competition," says Aulton.

"Access to finance is still an issue though. If you're turning over £50m or £100m, it's easier, but for companies with a turnover of £1m to £3m, it's much harder. Unfortunately, that's one major area where UK lenders still lag behind banks and finance houses in other European countries."



Robotic CMT welding cell for veterinary cages



Robotic windshield sealant cell

# SERTEC PRESSES AHEAD WITH £10M+ 'ZANI' INVESTMENT

**T**he Sertec Group, which is a world class manufacturer of stampings and welded assemblies, has tapped into the 'machinery' expertise of Bruderer UK to identify and purchase 12 machines to help them meet growing volume demands from many of the world's largest car makers.

The first tier supplier has committed more than £10m to the three-year modernisation programme that has seen it start to install a host of ZANI Motion Master presses (with unique ram velocity slow-down kinematics), ranging from 250 to 800 tonnes.

It initially started out as six machines, but quickly grew to 12, with all of them being fitted with coil lines and servo feeds.

Dave Steggles, Managing Director of Sertec Group, added his support: "We expect to grow our £197m turnover significantly in 2016 and the key to continuing this momentum is to ensure we are investing in our technology and our capability."

"This project is unprecedented in terms of size and has quickly escalated from 6 presses to 12. It's a learning curve, but one we'll complete and one that will deliver greater quality, manufacturing performance and capacity to our customers."

For further information, please visit [www.bruderer.co.uk](http://www.bruderer.co.uk) or [www.sertec.co.uk](http://www.sertec.co.uk)





# INVESTMENT IN BRUDERER PRESS DELIVERS GROWTH AND NEW JOBS FOR EUROPEAN SPRINGS & PRESSINGS

Investment in a new high-speed precision press is already paying dividends for one of the UK's leading spring and pressings specialists after it announced 10% growth in 2016 and the creation of 35 new jobs.

European Springs & Pressings Ltd, which provides springs, wire forms, pressings and assemblies to a global client base, has secured a string of new orders after installing its first Bruderer high-speed precision BSTA 500-110 press.

The latest B control system of the press has also reduced set-up times, which shortens time to market on new products and improves efficiency on small volume production batches.

"We have experienced significant growth through the acquisition of a number of new product programmes, requiring us to invest in a more flexible machine that offered speed, accuracy and repeatable quality," explained Stuart McSheehy, Managing Director of European Springs, who is part of the Lesjöfors group.

"I gave a 'wishlist' to Bruderer UK, who sat down with us, examined what we needed from the new press and recommended the BSTA 500-110, promising it could be operational from January 2016."

The BSTA 500-110 is one of the world's most advanced high-speed precision presses, and comes with semi-automatic stroke length adjustment, the latest in control technology and dynamic ram correction; the latter guaranteeing bottom dead centre accuracy.

It also boasts a unique drive and lever system allowing full dynamic balancing throughout the entire press speed range.

European Springs was able to work with Bruderer UK to make slight modifications to the machine, including the addition of an acoustic sound booth and integration of 'Unidor' tool and press monitoring technology.

The latter – along with a full servicing and maintenance package – is guaranteed to extend the life of the press and increase machine productivity in the process.

Stuart concluded: "We have been very impressed with the Bruderer approach and its level of support, so much so that we have just commissioned the company to complete a full refurbishment and update of an existing Finzer multi-slide machine that we use to form strip and wire components.

"If this works out well, we will refurbish and update all 6 production machines to the same specification."

For further information, please visit [www.bruderer.co.uk](http://www.bruderer.co.uk) or [www.europeansprings.com](http://www.europeansprings.com)



## Pressing for growth

Left: Adrian Haller (Bruderer UK) with Stuart McSheehy (European Springs & Pressings)



# DECADE MONITORING SOLUTIONS

Press Automation / IOT

The Decade 160 monitor helps protect power press and the tooling used within them. It does this by monitoring the load curve from the press and analysing the curve data against a pre learnt good curve. It also uses various analogue and digital to monitor the position of the material passing through the tooling to ensure every part is pressed correctly.

The 160 monitor can also be used to automate some of the presses controls. It fires simple CAMS to control feeders, pilot releases, spray systems and robots. These are all saved in a "tool" to reduce the setting process. The unit can communicate with the press PLC to preload the correct tool into the Decade.

On a tool change the setter can predefine three positions PARK, CLAMP and RUN. These are measured using an encoder coupled to the presses slide motor. The Decade will control the presses slide position and automate the tool change. Companies like JLR have seen big time savings on their tool changes where they have six presses running as a line. Saving around 30 minutes on a tool change can be massive for them as there press availability is always pushed to keep up with demand.

As our industry is changing fast and data from machines is becoming more critical our units can contact to our MARS software. The system is designed to be simple to use and install and fills the gap between a 'paper' system and an integrated MES (Manufacturing Execution System). You can monitor just one or many machines in the factory, or just target a problem process. An LCD touch screen provides a simple, easy to use interface for the operator. 'Traffic Light' status beacons can also be connected to the unit and an output prevents the machine from being started when operator input is required. Either an Ethernet or Wireless network link is made from each remote terminal back to the server PC. The server PC(s) hosts the MARS system MySQL database the MARSweb web application and provide connectivity to each of the Remote Terminal units. Once production activity data has been collected from the remote terminals downtime analysis and OEE reports can quickly be produced.





# AUTOMATED FORGING OVERVIEW

By Tony Rodden CEng MIMechE. Senior Manufacturing Engineer, Advanced Forming Research Centre

*The UK's forging industry can be classified across several industries including Oil and Gas, Automotive, Aerospace, and Medical being dominated by relatively high value-added operation, much of the remainder having migrated overseas.*

**T**ypical product families that have been automated include the production in the automotive industry of gears, hubs, crankshafts with the concurrent objective of optimising materials performance by manipulating materials structure by the automated forging processes themselves.

Forging presents a tremendous challenge to the systems integrator wishing to build in automation to the manufacturing process, combining as it does the effects of varying temperatures, immense potentially destructive forces, and accumulations of hardening lubricant. This combined with the high cost of replacing forging/forming presses where economic lives can be decades, means that retrofitting automatic systems is one feasible industrial approach.

The key advantages of automated forging include:

- Improved Quality – via consistency of manufacturing and reduction in variability.
- Reduced Costs – reduced dependency on hard to find labour to work in harsh operating conditions.
- Improved Safety – powered presses are a source of industrial accidents.

A key issue to be addressed in forge manufacturing is that of the variability introduced by manually controlled methods. Individual forge operators tend to use individualised technique which means that the output varies according to the speed of the operator and the amount of lubricant applied. Automation of this process, as well as leading to increases in production volume additionally gives improvements in quality and especially in consistency of output.

The operator skill level is relatively high and the process is not always completely understood which presents difficulties for the automation engineer. Current manual handling approaches are most frequently based on an operator using skill and a delicate sense of feel to remove the hot components from the furnace or press. One potential approach is for active force measurement, or current feedback/monitoring to be used allied to an advanced vision system. Here again the difficulty is based on the high temperatures encountered.

## - FORGING ENVIRONMENT

Hot Forging in particular means that handling equipment must be designed to cope with metallic materials at up to 1150°C (e.g. steel forgings), so replaceable, robust handling systems such as gripper jaws are one possible solution for long term use. Smart techniques for advanced handling or sensing must be sufficiently robust as to cope with locally high temperatures. The level of robustness for any equipment to deal with these temperatures should not be underestimated, and in super-plasticity, high temperatures are encountered in combination with saggy, tricky to handle and position materials, often in combination with specific cleaning requirements.

Even smaller presses are easily capable of crushing a handling or lubricating robot which means that the system has to have extremely reliable methods of controlling the operations in the tooling area.

Often forming and particularly forging tends to use lubricating/release agents and the result is that equipment is covered in a thin dusty black film of graphite. This detritus also presents difficulties for the picking and placing operations since the compacted/layered material tends to strongly adhere (at high temperatures) to the tooling.

In manual situations this is dealt with by intermittent cleaning based on operator knowledge of where and how the build-up occurs, however in an automatic context provision has to be made otherwise toolsets become damaged as the effective cavity volume reduces.

## - PRESS INTEGRATION

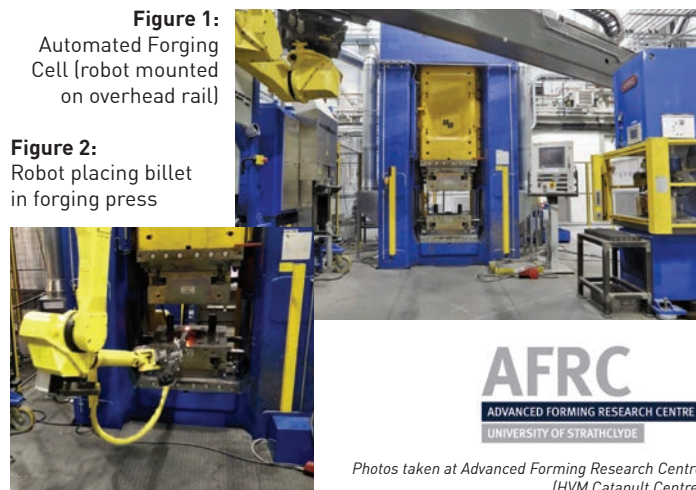
Integrating with existing manufacturers presses presents major challenges and one approach is to go back to the original manufacturer, or specifically the press controller. Presses have long lives typically 50 years+ but much longer is not unusual – with upgrades in controllers in order to interface with advanced metrology, (displacement, force measurement typically) often via industrial style PLC interfaces. Fortunately specialists exist that can deal with this, skills which are often employed by the systems integrator, including the critical safety elements, safety interlocks, guarding as required.

## - ROBOT PROGRAMMING

The majority of robot programming is still done in practice via the traditional teach pendant – Illustration – backed by vendor training courses, heavy course documentation and support channels. The reason for pendant based operation is that the real world is still difficult to model at the sufficiently detailed level in order to allow true offline programming to occur. Program capability is thus dependant on high levels of familiarity with the various menu trees, detailed co-ordinated systems, tool coordinate variants, in variable declarations, screen prompts and the like. In short it is still fundamentally a programming task requiring programmer skills, which present challenges for the occasional user/and often it means that external expertise has to be bought in to complete a specific task in a scheduled time, especially when production downtime is involved.

**Figure 1:**  
Automated Forging Cell (robot mounted on overhead rail)

**Figure 2:**  
Robot placing billet in forging press



**AFRC**  
ADVANCED FORMING RESEARCH CENTRE  
UNIVERSITY OF STRATHCLYDE

*Photos taken at Advanced Forming Research Centre (HVM Catapult Centre)*

# BRANDAUER PRESSES FORWARD WITH UTILITY COST SAVINGS

The boss of one of the UK's leading presswork specialists is urging his fellow manufacturers to take a closer look at their utility costs after his firm saved £10,000 in just two months.

Rowan Crozier, CEO of Birmingham-based Brandauer, believes it is a hidden cost that can quite easily be eradicated if the right expertise is sought and if companies aren't afraid to ask questions.

His firm tapped into the expertise of Control Energy Costs (CEC), a specialist in utility management, procurement and support services, to explore the process and was amazed how quickly they were able to identify pricing issues, incorrect billing and opportunities for smarter energy management.

This led to over £10,000 of savings within a few months of the relationship starting, with the option to save thousands more when the supply contracts are up for renewal.

"We manufacture millions of components for the automotive, domestic goods, electronics, plumbing and renewable sectors every week so you can see how energy is a massive overhead for us...the fact costs are rising all the time can really impact on our ability to compete globally," explained Rowan.

"There are some things we can't do anything about, but there is a massive opportunity for us to look at our combined utility costs of electricity, gas and water to see if there are ways where savings can be made or supply issues that can be addressed. This is where CEC has been so important."

He continued: "We were approached by Liam Conway of CEC to see if they could carry out an initial audit to prove the value they could provide over an energy broker. It seemed like a good idea so we agreed and we're delighted with the £10,000 savings within two months of working together."

CEC work with more than 450 manufacturers across the UK every year, providing companies with a full utility management, procurement and site works service covering electricity, gas, water and associated costs.

Its team of analysts provide an initial, no-obligation audit and then work with the customer to identify existing issues and opportunities to reduce bills or secure better supply contracts.

Unlike energy brokers, the company earns its fees by taking a share of the savings based on the results it achieves.

Mark Stephenson, Analyst for CEC, is leading on the Brandauer contract: "The nature of its business is energy intensive so there are lots of ways we can work with the management team so they are getting the most out of their utility costs."

"We've immediately secured a £5000 refund due to a wrong agreement and topped this off with a £4200 mid-contract saving. There will be even bigger reductions to come when we get to the renewal stage and we can look at securing the best supplier deals."

He went on to add: "There was also a couple of billing issues we've put right and I'm going to be continually monitoring the relationships and charges...all of this will be done with very little input from Brandauer, ensuring staff stay focused on their day jobs."

Rowan concluded: "If we'd have realised how easy the process was we'd have done it ages ago. Manufacturers are always moaning about rising costs, this is one way of negating some of them."

"The additional money will be spent on growing our motor lamination business and the launch of Elopim®, new technology we've developed that allows the solderless connection of terminal pins to a PCB."

For further information, please visit [www.brandauer.co.uk](http://www.brandauer.co.uk) or [www.cec.uk.com](http://www.cec.uk.com)





# ENERGY SAVINGS OPPORTUNITY SCHEME (ESOS) PHASE 2 COMPLIANCE **HAS STARTED**

## THE CONFEDERATION OF BRITISH METALFORMING IS HERE TO GUIDE YOUR COMPANY THROUGH THE AUDIT PROCESS WITH OUR EXPERT KNOWLEDGE OF YOUR SECTOR

Are you aware that Phase 2 of ESOS has already started which means that you can start working on your audit and identification of energy savings opportunities now!

The legislation means all qualifying organisations have to prepare **mandatory energy audits** and if you know you will qualify for Phase 2 there is no reason why you shouldn't start doing your energy assessments now. The audits identify cost-effective measures to cut energy spending.

All companies with at least one of their UK group members with 250 employees or more, turnover above 50m euros, or a balance sheet value above 43m euros will be affected, which is likely to be more than 9,000 enterprises across the UK, and will affect 40+ CBM members. Please remember this is based on your organisation group structure. The scheme covers all power and fuel used by a company for industrial processes, building and transport.

Phase 1 has taught us that detailing all energy uses throughout a large business, and calculating means of reducing costs can be complex and time consuming, particularly for those already dealing with Climate Change Levy (CCL), the Carbon Reduction Commitment and the Mandatory Carbon Reporting Systems. Starting your audit early can minimise disruption and potentially reduce costs and problems that may occur during the 2nd compliance period.

From the 100's of ESOS Phase 1 compliance audits conducted, only 16% were fully compliant. The audits received by CBM members, where CBM carried out the audit for them were amongst the 16% that were fully compliant. If your business will be affected, you must start now to put in a comprehensive programme of analysis and data collection for the months ahead to complete the audit.

This is where the CBM can manage the ESOS process for you. We have specialist technical expertise in the metalforming industry processes and many years of energy expertise gained from the administration of its current climate change agreements and other energy regulation schemes.

Our members said this of the ESOS Phase 1 service we provided:-

"We had our ESOS stage one audit undertaken by the CBM and were very pleased with the knowledge of the auditor and the recommendations that came out of the final report. As a result we will be using the CBM for our stage 2 audit."

*Glyn Rowles - Health, Safety & Environment Manager, Bisley Office Furniture.*

"In my opinion, the services offered by the CBM have been exemplary with contact being made throughout the ESOS audit process, the completion of the audit and assisting with the recommendations made."

*Colin Bennett - Group H S & E Coordinator, Sertec Group Ltd*

**We are now taking bookings to carry out ESOS assessments and the following packages overleaf are available:-**



&lt;&lt; continued from page 25

## ESOS ASSESSMENTS



### ESOS AUDIT MEMBER PACKAGE

- **£2000 plus VAT** for ESOS assessment meeting and audit report sign off +
- **£495 plus VAT** per day, **per site**, required for energy measuring and report writing
- Reasonable travel and accommodation costs will be charged in addition to the costs above if required

### ESOS AUDIT NON-MEMBER PACKAGE

- **£3000 plus VAT** for ESOS assessment meeting and audit report sign off +
- **£795 plus VAT** per day, **per site**, required for energy measuring and report writing
- Reasonable travel and accommodation costs will be charged in addition to the costs above if required

The member package and non-member packages include the following:

- An initial kick off meeting with the company, involving CBM and the lead assessor;
- A mid-term review of the audit report by the lead assessor
- Energy measuring and audit work
- Final sign off of the audit by the lead assessor. At this meeting the audit process and timetable will be discussed and actions identified and agreed as who will carry the actions out.

CBM members who are **not** required by the legislation to have a formal ESOS audit can also benefit from voluntarily opting to carry out an audit to identify practical energy saving projects for themselves. The cost of this service is £2,500 plus reasonable travel and overnight accommodation costs if this is required and will include energy measuring and audit work plus a final report prepared by our internal energy consultant.

The CBM audit package will enable you to achieve the required ESOS audit compliance. The prices quoted by CBM for members are designed to provide a cost effective membership benefit and not generate a financial profit for the association.

If you would like to book your ESOS package and diary date or require further information please contact Louise Campbell at CBM – [louise.campbell@thecbm.co.uk](mailto:louise.campbell@thecbm.co.uk).

## ENERGY BROKERS HIDDEN COMMISSIONS

Fuel type:	Electricity
Number of sites to be supplied:	9
Supply period:	01 October 2015 to 31 March 2018
Commission payment periods:	Quarterly
Commission rate:	0.6 pence per kWh
Estimated commission for supply period:	£9,478.51

We signed a new client that had been working with an energy broker and got sent a copy of a commission statement by accident. They were unaware that their 'trusted' advisor had built in such a large commission - in this case 0.6p/kwh - and started to understand why they had been encouraged to sign such a long term contract with the supplier they were recommending. A good example on the level of commission some brokers earn for simply setting up a supply contract and nothing more. In this case it works out at nearly 15% of the customer's expenditure.

Part of our work is to help members on ways to reduce their energy costs and give them a transparent view of the market with 'masked' energy broker uplifts and commissions.

We would encourage all CBM members to have a working client agreement in place with their energy broker / consultant. The

agreement should outline what they will do for you and how much this will cost.

If you can't answer the following questions it would be worthwhile talking with us:

1. How are you paying your energy broker/consultant?
2. How much are you paying them?

Clients more often than not are completely unaware of the hidden commission associated with energy contracts and procurement. The example above of 0.6p/kwh isn't uncommon and we have seen significantly worse!

If you have been using an energy broker for some time and are curious to discover how much this may have been costing you please get in touch and we can assist you.

[www.cec.uk.com](http://www.cec.uk.com)

 Control Energy Costs Ltd



# CBM HEALTH, SAFETY AND ENVIRONMENT GROUP UPDATE

*The latest meeting of our health, safety and environment group included accident statistics update and a 'best practice' workshop.*

The CBM H, S & E group chairman, Ged Robinson, HSE manager at Stadco's Shrewsbury plant, opened the debate by introducing his colleague, Steve Croft - Stadco's group operations director, and a CBM board director, who spoke about our health, safety and environment group business targets.

Forging presents a tremendous challenge to the systems in "We aim to increase the number of member companies completing accident returns to 42 by the end of 2017, and the number who take part in our HSE meetings to 40," he said.

"We are looking to hold a joint HSE day with other trade associations, obtain safety pledges from at least ten member companies, and collect and review the old 'best practice' guides, ready to update them."

Laura Blackmore, of SafetyCulture, spoke about her company, which aims to help companies achieve safer and higher-quality workplaces through innovative low-cost mobile products and services.

The group was launched in Australia in 2004, and more than 30m inspections have now been carried out worldwide via its iAuditor app, through its head office in Sydney, and satellite offices in San Francisco, Kansas City and Manchester.

The iAuditor is believed to be the world's most-popular check-list inspection app, now used in more than 80 countries. SafetyCulture's clients include Electrolux, Honeywell, Magna, Siemens and Thies.

Laura said the sophisticated app allowed faster and more efficient inspections, improving health and safety by reducing workplace incidents, and cutting the time and cost of making the inspections and preparing reports.

The Health & Safety Executive's HM Inspector for the manufacturing sector, Jenny Skeldon, updated members on the key themes of her organisation's 2017-2018 strategy; acting together, supporting SMEs, tackling ill-health, keeping pace with change and managing risk.

She highlighted the importance of working together, and along manufacturing supply chains, and also via cross-sectoral initiatives, and said the Health & Safety Executive would be carrying out proactive inspection programmes to address serious occupational health issues.

The HSE priorities are to control exposure to substances causing occupational lung disease, reduce the incidence of common work-related ill-health conditions, and prevent serious incidents involving heavy loads, during both maintenance activities and catastrophic events.

Ged Robinson then led a best practice workshop on 'near-miss' reporting; asking if the CBM's current statistics were useful, if companies recorded near-misses as a KPI, and what corrective action they subsequently took.

He also revealed the latest Safety and Health in Metalforming Sector (SHIMS) accident data, based on reports from 32 CBM members between January and April 2017, showing no deaths, two major injuries and 18 'over-seven day' injuries.

The CBM's chief executive, Geraldine Bolton, concluded the discussions with an update on the Energy Savings Opportunity Scheme (ESOS) and a reminder that phase two compliance was now underway.



## COME & JOIN US.....

The next **CBM Health, Safety & Environment group meeting** will take place on **Thursday 19 October at Tinsley Bridge in Sheffield** - all members can attend these meetings free of charge; for further information please contact **Kirsi Lintula** at **CBM** on **0121 301 6350** or email [kirsi.lintula@thecbm.co.uk](mailto:kirsi.lintula@thecbm.co.uk).

If you would like to find out more about our **accidents statistics scheme** please contact CBM.

# CONTROLLING EXPOSURE TO OCCUPATIONAL LUNG DISEASE

By Simon Jukes, Deputy Occupational Health Advisor, MOHS Workplace Health

*A significant proportion of work related ill health is caused by occupational lung disorders.*

According to the Health & Safety Executive (HSE), they are responsible for up to 12,000 deaths each year. In addition, around 14,000 new cases are diagnosed annually, resulting in an estimated 568,000 working days lost each year.

## - OCCUPATIONAL EXPOSURE

Exposure to some vapours, particles or gases at work may make existing breathing disorders worse or contribute to the development of new problems. Well known workplace substances that are known to contribute to breathing problems include:

- asbestos
- fine respirable silica dust
- solder fume
- some types of welding fume
- some types of 2 part paint and foams
- dust or fume containing chromium, nickel or cadmium

When considering these types of airborne hazards, employers should follow guidance and industry best practice to control the risks that exposure may bring.

Reference should be made to the hierarchy of controls, remembering that provision of Personal Protective Equipment (PPE) should be considered a control of last resort, to be used only when all other options have been considered.

Ways of preventing or avoiding exposure to hazardous substances may include:

- removing toxic materials (or substituting less toxic ones, if possible)
- eliminating processes which might cause exposure; or enclosing these processes, providing proper filtration and extraction as required
- isolating harmful processes, limiting the number of employees that may be exposed

- automating harmful processes, if possible. If not, limiting exposure hours by introducing shorter working periods or rotating jobs.
- maintenance management to ensure machinery and dust control systems are working appropriately and to manufacturers' specifications.
- appropriate training and management oversight to ensure that employees understand how to use equipment and controls and to ensure that once trained, they adhere to company policy and instruction.
- provision of appropriate Respiratory Protective equipment (RPE) where the above controls cannot be implemented fully or effectively.

## - ASSESSING THE RISK

Control measures should be formulated as part of an overall, robust risk assessment strategy. The assessment process should:

- identify the potential hazard
- determine who may be harmed
- quantify the risk and identify ways to minimise it
- provide a record of the findings
- implement a suitable review period to ensure controls are effective

As part of the process, employers may decide to employ an occupational hygienist to take environmental samples such as air or noise monitoring. This will help then to identify and quantify which potential hazards put their employees at risk.

## - OCCUPATIONAL HEALTH

Employers may also appoint an occupational health provider where there is a high risk of harm, or following advice from a third party. Occupational health provides many services but in this instance, the two most appropriate ones would be:

- health surveillance to aid in the early identification of work related illness, allowing prompt intervention to minimise the likelihood of further harm.
- measurement of the effectiveness of control measures by feeding back the outcomes of specific (in this case respiratory) surveillance, in relation to employee demographics, to identify groups or 'poor' results which may indicate a control failure.

For further information about occupational lung disease, please email [info@mohs.co.uk](mailto:info@mohs.co.uk), or visit [www.mohs.co.uk](http://www.mohs.co.uk) or call 0121 601 4041.

**Left:** Wearing RPE could help prevent occupational lung disorders



**mohs**  
workplace health



# UK METALS COUNCIL UPDATE TO CBM METAL MATTERS - AUGUST 2017



**By:** Giles Willson, Manager, UK Metals Council

In May we reported that the UK Metals Council had responded to the Governments Green paper on the Industrial Strategy and what the key issues were for the UK Metals Sector.

Following the Metals Forum (Heads of the Trade Associations) meeting held in May the key "asks" from Government to help the metals sector are:

**Energy** – to be compatibly priced for UK Industry compared with main land Europe.

**Procurement** – UK Governments infrastructure investment should benefit local suppliers.

**Exports** – assist companies to start exporting or to export more.

**Skills** – assist with all levels of training to ensure we have a competent workforce for the future.

**Productivity** – assist with improving output.

**Sustainability** – to ensure there is no damaging long term impact on the environment.

**Supply Chain** – improve communications and working together along supply chains.

Each of the above is currently being worked on by the UK Metals Council workstreams, who are represented by the following for CBM:

**Energy (new workstream)** – Ken Campbell.

**Supply Chain** – Phil Brown.

**Skills, education and training** – Adrian Nicklin.

**Innovation** – Geraldine Bolton.

**Sustainability** – Mandy Stoker.

The sector deal which is being developed will have asks from Government as well as explain what the industry will be giving back in return.

One of the key ways to move forward is to have an evidence based argument; this means we need case studies from industry i.e. you!

What we need to explain is the challenges you face within your business which prevent you from being more productive and competitive (based on the above criteria). If you are interested in providing a case study please contact Giles Willson at the UK Metals Council (giles.willson@ukmetalscouncil.org or telephone 0121 601 6356).

We are also pleased to announce that the UK Metals Council communications workstream has been relaunched. We are now primarily using staff from the Trade Associations within this group (their marketing experience within their Trade Association means they have a knowledge for a similar market for the Council). We are very pleased that Kirsi Lintula is representing the CBM on this workstream.

The key stakeholders for the UK Metals Council are identified as:

**Government** – Central, devolved, and local.

**Local Enterprise Partnerships** (LEP's).

**Trade Unions.**

**NGO's.**

**Research Institutions.**

**Media** – trade, local and national.

**Metal Forum members** (and their membership).

We already have a web site [www.ukmetalscouncil.org](http://www.ukmetalscouncil.org) however, we need to explain to the stakeholders more about who the Council are and what we are trying to achieve.

The one key unique feature to the sector is the circular economy and positive impact this has on sustainability, this has been integrated into many businesses however, this may not be fully appreciated by all stakeholders, we therefore will be preparing in conjunction with the sustainability workstream documentation on this feature.

It is planned that in September we will have consolidated our plans to start delivering before the end of 2017.

## BUSINESS SUPPORT

## COST SAVING MADE EASY

Non-core spend is an area very often overlooked within a SME. However, it is an area where hundreds and thousands of pounds can be saved. Most SME's do not have the time or the man power to be able to effectively check their costs and subsequently pay more than they need to.

The CBM Buying Group specialises in saving their members money on their **overheads, utilities and consumables**. Members see us as an extension of their procurement department, an extra pair of helping hands in their cost-saving strategy.

Eden Group have been members of the Buying Group since July 2016, they have made some significant savings in several areas.

Chris Brown, Financial Controller at Eden recently advised at a review meeting, that

the savings achieved to date had been well received by their US parent, as un-targeted savings.

One example of a category Eden has made a saving in, is propane. By using the Buying Group pricing Eden have reduced their cost of propane by **42%**. They also have made a **31%** saving in stationery by swapping over to the Buying Group supplier.

Other areas Eden have seen a reduction in their costs are in trade supplies and printer cartridges. In addition, due to discussions with the Buying Group supplier further savings of **£15,000** were found in Eden's Palletised Road Freight.

**CBM** CONFEDERATION  
OF BRITISH  
METALFORMING  
MEMBERS BUYING GROUP



Next  
CBM Buying Group  
event will take place on  
18 October at the National  
Metalforming Centre  
- for further information  
please contact  
Kirsi Lintula at CBM  
on 0121 601 6350 or email  
[kirsi.lintula@thebcm.co.uk](mailto:kirsi.lintula@thebcm.co.uk).

For a free consultation or if you are interested in more information please email [cbm@independentbuyers.com](mailto:cbm@independentbuyers.com) or ring head office on 01283 711551. If you prefer you can visit our website [www.independentbuyers.com/cbm/](http://www.independentbuyers.com/cbm/).

# SUITE INVESTMENT – BRAND NEW IT FACILITY CONNECTS YOUNG TALENT

*Sertec CEO and Coleshill School headteacher unveil new IT ‘Sertec Suite’ to students*

**A**n enterprising partnership between education and industry saw the launch of a new £16,000 IT suite at The Coleshill School.

Leading Warwickshire engineering firm, Sertec, is investing in the future of thousands of young people by funding the purchase of new digital equipment at the popular Coleshill School.

‘The Sertec Suite’ officially opened at the academy on Tuesday 18 July. Boasting 32 computers, the new facility will provide hi-tech education to the academy’s 1,000 plus students, as well as pupils at neighbouring primary schools.

Group CEO, Grant Adams said: *“We are delighted to be working with a forward-thinking partner in Coleshill School; they are an outstanding faculty and Sertec will continue to support the educational needs of the next generation of students about our hi-tech industry.”*

The facility marks the school and business’ first year of working together to help young talent. Both organisations have collaborated to actively promote apprenticeships and support a number of opportunities for students, including work experience placements, career-related events and mock interviews.

Ian Smith-Childs, headteacher of the Coleshill School, a business and enterprise academy, said: *“This is a fantastic opportunity for the school and community and we would like to thank Sertec for its continued support and generosity. They share the value we place in our young people and our commitment to equipping them with the right education and skills for a successful future.”*

*“The Sertec Suite will enable us help young people switch on to technology from an early age and to develop that passion into the workplace. We are also excited to be able to open this facility up to our community primary schools – Coding is a key part of the national curriculum and thanks to this welcome investment, we can unlock the potential in even more children.”*

The collaboration is also a positive experience for Sertec. Through developing key relationships with local schools in the community, Sertec has been building awareness of the value in apprenticeship schemes and by doing so, this greatly supports its search for technical staff, which are critical for the company’s future growth and development plans.

Steve Moore, group HR director, added: *“This is only stage one of an important journey for Sertec and the Coleshill school. The youth of today have the opportunity to become part of the structure of a successful business and there are no boundaries that will limit the aspirations of all students.”*

*“We are committed to this project and greatly appreciate having the opportunity to work with a successful school and the dedicated staff, without whom, none of this would be possible.”*





# SPRING 2018 LAUNCH FOR ECMS SKILLS PROJECT

*As planning for the Black Country's innovative Elite Centre for Manufacturing Skills (ECMS) moves ahead, we held a meeting at the NMC to hear the latest.*

**F**or those who don't yet know, this initiative is a collaboration between Confederation of British Metalforming, Cast Metals Federation, Institute of Cast Metal Engineers, University of Wolverhampton and Dudley College

The hub of the £12m project is at the former Springfield Brewery site in Wolverhampton, with 'spokes' in Wolverhampton, Dudley, Tipton - and at the CBM headquarters at the National Metalforming Centre in West Bromwich.

The CBM workshop will train the next generation of tool-makers, along with process and tool design engineers.

Adrian Nicklin, the CBM's specialist for sheet metal and cold rolled products, reminded his audience that the presswork sector was suffering from a massive skills shortage, as identified in a CBM survey last year.

"Our workshop will include a mini-press shop - the first in the UK - allowing sheet metal forming processes to be demonstrated, so trainees can receive hands-on training in all aspects of press work and tool design, and be educated about tool-making as a rewarding and long-term career opportunity," he said.

"The press shop technicians will train apprentices, upskill existing workers through 'bite-size' courses, enlighten engineering graduates about the processes involved and educate visitors from schools and colleges."

Ian Fitzpatrick, ECMS chief executive, said the courses would provide foundation stage training at Level 2, as well as qualifications at Levels 3 and 6, where the latter was equivalent to NVQ Level 4.

"The training will be a mix of tutor-led sessions, workshops, tutorials, practical work, study assignments, all delivered using leading-edge industry expertise, and underpinned through the provision of support materials and work-books," he said.

His colleague, Trevor Codner, the ECMS business development manager, said National Apprenticeship Service research showed an array of business benefits to employers which took on apprentices, including higher productivity, reduced labour turnover and improved levels of product quality and service standards.

He stressed that apprentices could come from a company's existing workforce, be new employees, or be identified by an ECMS recruitment drive, could be any age from 16 upward, and could have a varied range of previous achievements.

The skills on offer will cover tool-making, foundries, pattern-making, metalforming, advanced CNC machines, and manufacturing, management, leadership and project management.

Colin Parker, Black Country Skills Factory director, looked at the new 'bite-sized' training courses, which have been tailored to meet employer demands.

He said each element would last between two and four hours, be delivered by the best training providers in the region and pointed out that the costs would be fully met through the European Social Fund.

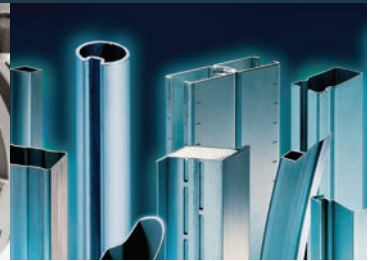
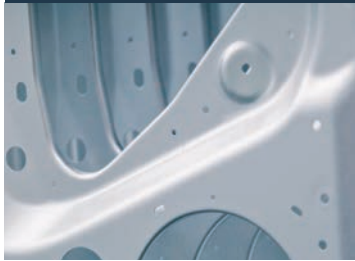
"At the moment, we have more than 80 courses, under such categories as Autocad, Microsoft Excel, team leader management, welding, pneumatics, hydraulics, 'lean' and quality control systems, office skills, personal development, and health and safety," said Colin.

"There is no cost to employers, the time trainees will spend away from their company is minimal, there is no limit on the number of courses one employee can attend, and no limit on the number of employees one employer can send."

If you would like more information about apprenticeships and our training centre please call or email Kirsi Lintula at CBM on 0121 601 6350 - [kirsi.lintula@thecbm.co.uk](mailto:kirsi.lintula@thecbm.co.uk).



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