METAL MATTERS

CBM
CONFEDERATION OF BRITISH METALFORMING

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Front cover image courtesy of Derek Barnes.

up and coming events

MOHS Workplace Health:
Online webinar Homeworking and workstation set up 22nd June 2021.

Technology Transfer Group :
September 2021.

Forge Fair 2021:
North America's largest forging industry trade show.
26 - 28 October 2021. TCF Center, Detroit, Michigan.

Advanced Engineering 2021 :
3-4 November NEC Birmingham.

Fastener Fair Stuttgart 2021:
9th International Exhibition for the Fastener and Fixing Industry.
9 – 11 November 2021. Stuttgart Exhibition Grounds, Stuttgart, Germany.

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CBM CONFEDERATION OF BRITISH METALFORMING

Time has certainly passed quickly in the few months since our last edition, and thankfully, in that time the success of the vaccine roll-out to date has continued. This has allowed the government's slow road map to easing the latest lockdown to keep on track. As I write this there is some conjecture whether the last stage will go ahead, we can only hope it does and then hope it will be our last lockdown, for everyone's sake and not just those in our sector.

• Steve Morley, CBM President

It has been an extremely busy few months for us here at the CBM and I strongly believe the team have risen to the challenge and met it more head on. Our lobbying and networking have reached a new level, so much so that we have certainly been 'punching above our weight' and more importantly getting results. This has been proven by recent invites to meetings with Liz Truss, the Secretary of State for International Trade and two meetings with Lord Grimstone, who works for Liz Truss and the Business Secretary Kwasi Kwarteng.

Our meetings with Lord Grimstone were as part of a Materials roundtable, with CBM representing the Metals sector, this brought CBM direct to the 'top table' and allowed us to talk to this influential Minister about the concerns of our members , initially on some of the fallout from the Brexit Trade deal, Steel safeguarding and Trade Credit Insurance. On the latter two issues we covered them over two meetings and followed that up with written submissions to Lord Grimstone, who was kind enough to respond in full to our concerns.

We were also invited to be part of a Steel Roundtable chaired by Liz Truss, the Secretary of State for International Trade and with full representation from all of UK steel. CBM were the only one who wanted elements of Steel Safeguarding removed, while a lone voice, we were still able to make our points heard. It was a sign of how far we have come to be involved in meetings at such a senior level.

Shortly after the Steel Roundtable meeting, TRID released their recommendations to government on Steel Safeguarding. I'm pleased to say that the CBM submissions to TRID have led to most of our members, who raised issues, being supported in those TRID recommendations to government. CBM welcomed the recommendations but in our formal response also highlighted where we still have concerns for our members on some product codes.

It was very disappointing last week to have confirmation that the Government will be ending the Trade Credit Reinsurance scheme, which despite our best efforts will end on 30th June 2021 as planned. We had representatives from CBI and BEIS, who we had sent our case studies too on our call the day after the announcement. They have both been working directly on Trade Credit Insurance with the ABI and the HM Treasury and listened to several members concerns on the call. There was clearly no appetite from HMT or the insurance companies to continue the scheme, the Government have plenty of other concerns and Insurance companies feel they can manage the risk. We all know that they do this by taking 'no risk' and are already removing cover from our members. This is despite the statement released with the announcement "continue to work closely with policy holders and their clients to understand their insurance needs, whilst proactively seeking out relevant information to inform underwriting decisions." This clearly isn't happening, and I have seen plenty of evidence to support this, even before the formal announcement was made, which is scandalous. It hasn't gone unnoticed by our members that insurance executives now qualify for their bonus payments again, which weren't payable whilst the reinsurance scheme was in place.

The removal of this scheme comes at a time when manufacturing, in particular, is facing problems on several issues, repayment of Covid debt, the winding down and removal of the furlough scheme, huge increases in steel prices and other commodities, all of which are also in short supply. The global shortages of semi-conductor chips are stifling the pent-up demand in the automotive sector, with all OEM's having to reduce production and the aerospace sector is still waiting for air travel to return in any numbers.

It's frustrating to be told that a special case couldn't be made to support Manufacturing as there is clearly a need as identified above, to be told this couldn't be done, yet the retail sector had Business Rates Relief during the pandemic doesn't sit well with our members. We are already sceptical of the insurance companies and the evidence already points to a wide scale withdrawal of cover for our sector, we will be watching closely and raising issues through CBI and BEIS as they arise and higher if we need too!

I would like to thank the members and the team at BEIS, particularly David Wilkinson for their ongoing support of our weekly calls, they have created a real bond by sharing each other's problems and ensuring that you are not alone with the challenges you face within your business. As we move forward, we will endeavor to take this collaboration forward striving to support our members on issues so they can clearly focus on the recovery and increasing levels of productivity and profitability.

Finally, at our recent AGM I said a big thank you to the CBM Team who support our work, Marie, Rachael and Mel who are expertly guided by Louise. Our sector specialists, Board members and Finance committee, great work from both Jack from Crowe and Phil Matten our Policy Advisor, which has been invaluable, last but not least, Geraldine who continues to steer the CBM successfully on a day-to-day basis.

I have no problem repeating this message as we are a team who are doing our utmost to support you, our members.

Steve Morley,
President of the
Confederation of British Metalforming

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

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

CONFEDERATION OF BRITISH METALFORMING

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 addition to CBM's manufacturing companies, its associate members include 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 on sector issues and challenges
- Industrial strategy
- Submissions to government consultations

ENERGY
- Climate Change Levy rebates
- Energy services: measurement, Energy Saving Opportunity Scheme (ESOS) audits, energy efficiency workshops
- Streamlined Energy & Carbon Reporting (SECR) Reporting Service

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

TECHNICAL SUPPORT
- Expert knowledge about fastener, sheet metal/presswork, cold rolling and forging techniques

HEALTH & SAFETY
- Regular health, safety & environment group meetings
- Accident statistics to reduce accidents
- Helpline for all your health & safety questions
- Occupational health services

TRAINING/SKILLS /ENGAGEMENT WITH SCHOOLS
- Tackling the skills agenda
- Industry specific courses
- Raise awareness of career potential within our industry
- Metalforming Training Centre

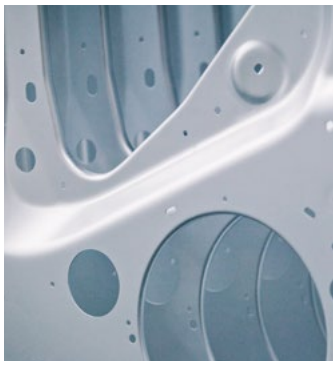
KNOWLEDGE TRANSFER
- Monthly Market reports
- Project opportunities
- Regular networking opportunities
- Briefings and Seminars
- Metal Matters magazine
- CBM website

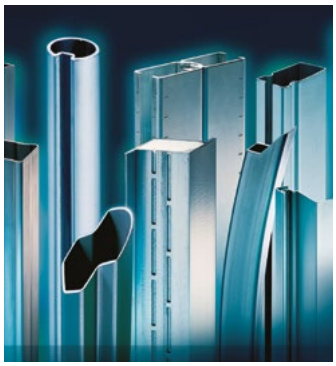
INSURANCE SERVICES
- Cost effective insurance solutions for its members

OTHER BENEFITS
- Members' buying group
- R&D tax claims
- Business support helpline for all your employment and HR questions
- International links
- National Metalforming Centre Conference Venue – Discounted rates for CBM members
- British Standards Institution

CBM MEMBERSHIP
- Full 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 supply services to the manufacturers.

CONTACT CBM NOW ON 0121 601 6350





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Technology Transfer Group Webinars

March saw the successful relaunch of the Technology Transfer Group meetings, due to covid the first meeting took the form of a webinar. This format has proved popular with members and the subsequent meetings will continue in the webinar format.

The aims of the TTG are:

- To invite authoritative and informative speakers on relevant processes and technologies
- To progressively work through and cover as many of those processes/ technologies as we can
- To provide a non-competitive, technology-focused forum in which issues and problems can be explored to everyone's benefits
- To identify industry-wide issues and look for potential solutions and solution providers to resolve them

The kick-off webinar was presented by MacDermid Enthone a global innovator in surface coating solutions.

The presenters were Paul Bray - Northern Europe Regional Director, MacDermid Enthone and Dr Andreas Smie - Anti Corrosion Business Development Europe

They presented their thoughts on these topics:

- Introduction to MacDermid Enthone
- Trends in the market
- Advantages of Zinc Nickel
- Fasteners for Electric Vehicles
- Tin Zinc electroplating

The meeting was well attended by Fastener members and some selected non-members. We hope to hold one every two to three months and future meetings will cover many technical areas relevant to the fastener manufacturing industry and should prove as popular as the first.

The details of upcoming webinars will be published weeks in advance using the usual sources and emails will be sent to members. If you are the contact for your company, please pass on the information to others within your organisation who you think will find it interesting and relevant to their role. There isn't any limit on numbers from individual organisations.

The 2nd meeting was on Fastener Automated Inspection and First Article Inspection, presented by Regg Inspection.

The next Technology Transfer Group webinar will be held in September, week 39 and be presented by Hatebur AG.

Klaus Schreiner *will present an overview of the Hatebur presses. Showing horizontal cold forming and hot forging technology, the machine portfolio and the parts which can be produced on these machines.*

Hatebur Group with Hatebur AG in Switzerland and Carlo Salvi in Italy are specialised on horizontal presses for cold and hot forming in wire/bar diameter range from 1 mm to 90 mm.

Fastener coatings for electro mobility

MacDermid Enthone is pleased to have received an invitation for a presentation at the Technology Transfer webinars organized by the CBM. The topic of the webinar was coating technologies for fasteners and their properties in respect of meeting the requirements for electro mobility.

Located in Birmingham, our 9,000m^2 facility houses the R&D, process demonstration, customer service laboratories and manufacturing departments. This enables us to meet the needs of our customers by developing, testing, servicing and supplying our specialty chemicals from one location.

One of the most important aspects of the facilities function is "customer driven innovation", coordinated through customer workshops and technical partnerships. The final result of this partnership can be seen in the products people use every day. From cars to cell phones, from plumbing to personal computers, our solutions enhance, protect and add functionality.

In respect of vehicle electrification, automotive OEMs are using proven technologies developed for various industries as e.g., heavy vehicles and trains. The need of optimizing the technologies for application in cars and light vehicles is getting more and more important focusing on efficiency and reliable safety.

Weight reduction is an important factor to improve the efficiency of electrical vehicles and the use of light metals and high strength steel is increasing. Coatings like high alloy zinc nickel or tin zinc on fasteners proved prevention of galvanic corrosion joining dissimilar materials like aluminum and steel.

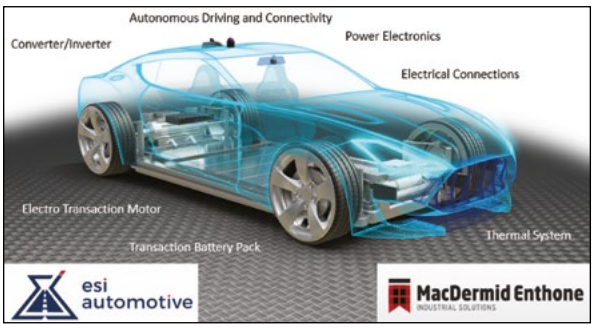
Automotive engineers choose zinc-nickel due to its excellent corrosion and abrasion resistance. This results in the coating retaining its corrosion protection even after handling and assembly operations. An example of this is application are thread forming (self-tapping screws) were abrasion resistance is the most important factor.

Additionally, within the component assembly, friction properties are key critical safety features. Specific coefficient of friction targets as set by the various OEM's must be met against various material surfaces such as aluminum, painted steel, steels and diecast.

Ongoing Surface Finishing Research and Development projects are focused on requirement of vehicle electrification and new fastening technologies.

Electrical resistance [mΩ]	Pre-Test	Post Test
Tin Zinc + Post Treatment	0.07	0.96
Zinc Nickel + Post Treatment	0.12	1.05

• Table 1: Electrical resistance study according to SAE/USCAR 26 using GMW 147872 cyclic corrosion test.



• Left: Multi tightening test results according to MBN10455.

Recent Regg Inspection presentation to technology transfer group at CBM

Regg Inspection is an Italian based company that specializes in the design and production of high speed, technologically advanced, vision inspection machines.

These are not sorting machines, but full inspection machines incorporating new generation features such as 360 degrees thread damage control, high speed hardness checking and dual side control etc.

Regg Inspection specialise in turnkey packages from bulk processing through to final packing, they can also integrate their inspection systems into existing production lines.

Regg presented the recently announced new **i600HS High Speed** machine for fasteners from M4 to M12 up to 80 mm length with a speed up to **1,200 pieces/minute.** Thanks to a new vision control system, the machine can inspect and perform multiple different visual checks at rates previously unheard of.

Included in the recent presentation was also the **Regg Cube** which is a new First Article Inspection device. It is a "stand alone" single piece rapid automatic measuring unit, it is ideal for applications in the production workshop for General Engineering, Medical, Aerospace and Automotive sectors.

Regg is represented in the UK by Carlo Salvi UK Ltd of Telford and RLS Tooling Ltd of Cannock. For any questions relating to the recent presentation or any Regg products please do not hesitate to contact either company or Regg Inspection directly.

Regg Inspection SRL Office: Phone +39 02 9574 6376 / Fax: +39 02 9574 4153
Via Ticino, 30G / 20064 Gorgonzola MI, Italy

Carlo Salvi UK Ltd: Phone +44 (0)1952 587730 / Fax +44 (0)1952 327180
Unit 4, Cedar Court, Halesfield 17, Telford, Shropshire, TF7 4PF

RLS Tooling Ltd: Phone +44 (0)1543 271808
Apex Business Park, Walsall Road, Norton Canes, Cannock, WS11 9PU

Regginspection

CBM would like to welcome The Rical Group as new members

The Rical Group is a privately owned group of UK-based manufacturing companies which includes William Mitchell, the country's leading producer of Fine Blanked components.

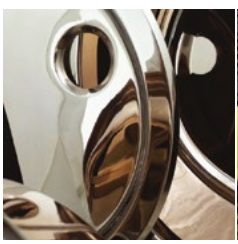
Rical specialises in; Fine Blanking, Fabrication, Conventional, Multislide and Deep-Drawn Metal Pressing and High-Pressure Die-Casting in both Zinc and Aluminium; whilst the production of copper-based products for Electric Vehicle and in antimicrobial applications, is an area of particular growth.

Rical serves the Automotive, Electronics, Construction, Commercial Catering, White Goods, Aerospace and Medical sectors and includes leading OEM and Tier 1 enterprises as direct customers, both domestic and international. Exports account for more than quarter of sales.

Having a Fine Blanking capability extending up to 630 Tonnes, Rical can produce precision components up to 10mm in thickness which can in-turn offer considerable benefits, when compared to conventional alternatives requiring additional processing or machining. Recent investment has also seen further expansion in the High Pressure Die Casting sector.

As it emerges from the twin difficulties of Brexit and Covid with renewed confidence and ambition, Rical's recently appointed Group Managing Director, Paul Morgan is delighted to bring the company back into the CBM fold and looks forward to playing an active role within the community. Rical can be contacted at sales@ricalltd.com

RICAL group



Congratulations - Charlotte Robinson

Charlotte Robinson (right), a Hospitality Team Member apprentice at NMC Venue, like many apprentices across the country faced the prospect of having to complete her apprenticeship remotely this year.

Charlotte is a lady with a good work ethic and a lot of ambition. She began her Hospitality Team Member standard when she had not worked for the company for very long and took it all in her stride. She was always willing to take on the challenges thrown at her and began working on her business project and preparing for other parts of the end point assessment. She was very good at her job and had such a friendly personality which helped in the customer service delivery.

Then when Covid 19 hit, unfortunately, Charlotte was put onto furlough. However, she did not let this stop her, she continued to complete work and create the business project with support given over Zoom meetings. Even though circumstances were difficult Charlotte stayed positive and ensured that she was prepared for her end point assessment (EPA) at the beginning of this year.

With the ongoing pandemic even her end point assessment was affected. Charlotte had to have the EPA remotely, ensuring she had all the technology needed and had downloaded the relevant apps for the day. She would have no support with her, as due to the national lockdown she was at home, but she stayed calm and completed the EPA with no hiccups. To top it all, she got a Distinction in all four elements of her EPA and had fantastic comments and praise from the end point assessor!

Charlotte should be very proud of herself because she has completed a massive part of her qualification while on furlough, but she has stayed committed throughout. I am proud of how she has been through this whole process and how she has grown in confidence. I am sure that she will get to her goal of organising conferences and events herself and make a success of her career.

"During my time completing the hospitality team member apprenticeship, I have gained confidence and increased my knowledge in the hospitality sector. Completing my apprenticeship in the middle of the pandemic proved difficult at times with technology not working and learning to use alternative types of communication such as zoom. I would like to say a special thank you to my tutor Marie, I felt supported throughout my apprenticeship which led me to successfully achieve a Distinction which I couldn't be happier with."

Charlotte Robinson

"During the time that Charlotte has been part of the NMC Venue team, she has been a hardworking and very popular member of staff. Feedback from clients is always very positive as she provides a high level of excellent customer service. We are very proud of Charlotte's achievement and would encourage and support her to continue her studies further."

Marie Williams NMC Conferencing Supervisor

Unique metal forming apprenticeship ready to recruit – with degree and HNC options

The level 6 Tool Process Design Engineer Apprenticeship was specifically created for the metal forming sector in recognition of increasing skills shortages.

The Tool Process Design Engineer apprenticeship and end point assessment have been developed by the CBM and member organisations. It is the only Apprenticeship that recognises the unique and specialist skills for this senior technical role. Organisations of all sizes can access government funds towards the cost of the apprenticeship. The Apprentice may be an existing employee wishing to formalise their qualifications or for a new recruit. The apprenticeship can lead to Incorporated Engineer status with the Institute of Mechanical Engineers.

Employers can choose their preferred training provider including Universities as the apprenticeship has 3 optional routes.

Option 1 Level 6 Tool Process Design Engineer Apprenticeship. The learner undertakes practical and theoretical training on a block release basis. (typically, 88 days over 2 years). Then an assessor visits the workplace every 2 months to continue the training and assessment. Once the training is finished the apprentice must complete an independent end point assessment conducted by the CBM. The funding value assigned to this option usually covers the full cost of both the training delivery and end point assessment

Option 2 Level 6 Tool Process Design Engineer Apprenticeship with HNC units. As option 1 above but provides the additional opportunity for the Apprentice to complete a HNC in Mechanical Engineering. This option incurs an additional cost in order to complete the full Higher National Certificate.

Option 3 There is the possibility of a degree option for suitable candidates. This option requires collaboration between the university and training provider. Again, this option incurs an additional cost to complete the full Degree. The collaborating partners use the Degree's engineering curriculum to provide some of the under pinning knowledge required in the Apprenticeship standard.

These options allow greater flexibility during these difficult times and ensures this Apprenticeship meets the needs of your business and your workforce.

In response to CBM member feedback this level 6 Apprenticeship (degree level) programme was developed by the CBMs Trailblazer group in collaboration with the Institute of Apprenticeships and technical education. Previously no Tool Process design apprenticeship existed at this level and many employers were dissatisfied with generic qualifications.

In this new apprenticeship skills knowledge and behaviours are specific to our members needs and the employing organisation can choose which university/training provider they work with to achieve the standard. There is the opportunity for the apprentice to work on industry standard training equipment. This equipment was specified by the CBM on behalf of members and procured by the University of Wolverhampton and the Black Country Local Economic Partnership.

The CBM will be the independent end point assessment organisation. This will allow industry specialists, trained in assessment techniques, to become part of the assessment panel. The panel will ensure the apprentice has achieved the required level of knowledge skills and behaviours necessary to meet the needs of modern manufacturing.

We are asking members to become actively involved to ensure this standard adds real value to our sector by encouraging existing and new members of staff to become professionally qualified via this apprenticeship.

The first step is to undertake a demographic and skills analysis of the Tool Process Design capability in your organisation. Using the analysis consider whether to recruit new talent who can undertake this apprenticeship, or whether to up skill your existing workforce as a means of staff retention and to ensure business continuity.

For further information please contact Geraldine Bolton at the CBM.

Brooks Forgings supply Hinkley Point C with critical foundation system components

EDF energy, at Hinkley Point C, is building two new nuclear reactors, the first in a new generation of nuclear power stations that will provide low-carbon electricity for up to six million homes. The new reactors will make a significant contribution to the UK's initiative to reduce carbon emissions.

One of the main contractors for the project awarded Brooks Forgings with the contract to manufacture and supply a range of foundation bolting assemblies for critical groundworks, in preparation for the installation of various critical infrastructure systems on the Hinkley Point C project.

Believed to be amongst the first British manufactured fastening components supplied into the project, the bolting assemblies utilise the removable DIN 7992 hammerhead t-bolt design, of which Brooks Forgings are the only British manufacturer. Ranging from M24 up to M48 in varying lengths, the bolts locate into a fabricated tube assembly that is welded to BS EN 1090 execution class 2.

Nuclear safety is a priority and extensive quality certification, and documentation were required. This included but was not limited to positive material identification (PMI), ultrasonic testing (UT), magnetic particle inspection (MPI), and full mechanicals including tensile, charpy impact tests. This was backed up by an on-site audit that required all documentation and finished components to be made available for inspection.

A total of 5 quality reports were compiled, one for each size/type of foundation bolt assembly. Totalling over 200 pages each, a physical copy was supplied along with fully searchable and bookmarked PDF files to assist in locating critical information swiftly if required.

The advantages of dealing with one manufacturer are evident throughout this project. By having in-house forging, machining, and fabrication capability that is approved to EN15048 and EN1090 execution class 3 we have complete control of production and can ensure all components meet the strict quality, testing, and traceability requirements specified.

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FORGING | MACHINING | FABRICATION

- A total of 14 boxes of components were shipped directly to the Hinkley Point C Project.

- Fabricated tube assemblies to EN1090 EXC 2.

- DIN 7992 Hammerhead T Bolts hot forged in the UK.

- DIN 7992 Hammerhead T Bolts finished machined.

- Plate profiling and machining along with micro-percussion marking for traceability.

- Independent magnetic particle inspection.

- Quality document packs for each type of foundation system were supplied, each over 200 pages long.

- Packed in FSC and ISPM15 compliant wooden packing crates, lined with VCI bags.

- Packed in FSC and ISPM15 compliant wooden packing crates, lined with VCI bags.

TR launches HUMMEL cable glands to enhance their plastics & rubber hardware range

TR Fastenings announces further product expansion with the launch of a new premium range of HUMMEL cable glands, an important addition to its growing plastic & rubber hardware portfolio. This latest move confirms TR's commitment to increase their product offering to existing and new customers nationally and globally.

HUMMEL cable glands are made of the highest quality plastic, brass and stainless steel and hold all the relevant approvals for international use. This range spans across numerous industry sectors with specific products to suit their needs.

Designed with safety in mind

Cable glands perform a number of essential roles in cable management. Designed to attach and seal the end of an electric cable, cable glands provide earthing, grounding, insulation and strain relief when connected to plugs, terminals, enclosures or electrical equipment.

They are often used outdoors or in harsh and hazardous environments where they need to contain electrical sparks or repel external contaminants such as dirt, dust, water and moisture. In addition, they prevent cables twisting, tearing and pulling to ensure continual performance and a secure connection.

Adherence to strict specification

HUMMEL's range offers a wide choice of high specification plastic and metal materials and mounting thread types. All products adhere to the strictest national and international specifications, for full information on all please visit the TR website.

Highest IP Rating

With the international Ingress Protection (IP) rating system in place, the IP rates the glands depending on their design and efficiency for different applications. The HSK-K plastic range and HSK-M metal range meet the toughest requirements of industrial indoor and outdoor environments and provide the highest levels of IP ratings – IP68 and IP69K, compared to other competitors' product.

This is mainly due to advanced seal design. The higher rated IP69K enables products to be used in conditions where equipment must be carefully sanitised such as in medical and food processing applications.

Dr. Bertram Melzig-Thiel, Vice President Product Line Cable Glands at HUMMEL, commented;

"We are pleased to be able to expand our cooperation and we are sure that we will enrich TR Fastenings' high-quality product range with our premium cable glands."

Andrew Fletcher, Director of Plastics and Rubber (Commercial and Technical) at TR commented;

"TR is proud to offer this latest innovative range to customers, and working with a world-class manufacturer in the connector field such as HUMMEL, strengthens our commitment to growing this range.

"This isn't a one solution fits all scenario as we've seen the cable glands market change considerably over the years, with continuous product developments to meet industry demands. We do more than just deliver products, we provide solutions and we're well poised to react quickly to this evolving market whilst remaining competitive."

For more information on the HUMMEL Cable gland products visit: https://www.trfastenings.com/products/Catalogue/Cable-Glands

Erosion protection – a leading question?

Radius Aerospace - Bramah have recently completed a 2 year, Innovate UK funded project to develop a lifetime metallic erosion protection system for the offshore wind turbine industry.

The blades of offshore wind turbines have to cope with a demanding environment, where high tip speeds combined with rainfall can lead to significant damage on the leading edge of the turbine blade. This rain erosion damage causes aerodynamic losses reducing the performance of the turbine over time. This loss, combined with maintenance and repair activity is a huge source of additional cost for each offshore turbine over its lifetime. It is a significant issue for both turbine manufacturers and owner / operators as they look to improve a blade's operational life to match the 25 year active service life of the turbine.

Radius Aerospace – Bramah, located in Sheffield have a proud heritage of manufacturing erosion protection for use in some of the most demanding environments on earth, from turboprop aircraft to helicopters. Utilising an electro-chemical process known as Electroforming, parts can be grown through the deposition of nickel or a nickel-cobalt alloy onto a mandrel. Once the desired thickness is reached, the parts can be removed from the mandrel leaving a stand-alone part. This erosion shield can then be bonded to a blade using an adhesive. Nickel cobalt is well suited to erosion protection as it has a high hardness value when compared to other materials like titanium or steel.

Radius have recently completed a project titled LEFT, or Leading Edge For Turbines. The project was undertaken in collaboration with the Offshore Renewable Energy (ORE) Catapult, the UK's leading technology and research centre for offshore renewable energy and Performance Engineered Solutions (PES), a specialist design consultancy delivering innovative and advanced solutions in rapid prototyping, research and development and reverse engineering.

The goal of the LEFT project was to transfer the technology from aerospace applications to the renewable sector. Erosion testing was performed by ORE Catapult using their rain erosion test rig, simulating different tip speeds and rainfall levels. For a wind turbine tip speed of 77m/s and 1000mm annual rainfall, the estimated lifespan of a nickel cobalt shield against rain erosion would be almost 400 years.

Due to the Research and Development nature of the project, the consortium applied for and received a £700,000 grant from Innovate UK to support the project. In addition, with the aerospace sector heavily impacted by the COVID-19 pandemic, the LEFT project provides a significant opportunity for Radius to diversify their product offerings into new markets.

PES engineers used their experience in adhesive technologies to develop a solution for bonding the erosion shield to the blade. Over 20 potential adhesives were identified and were put through a series of industry standard tests by the ORE Catapult to identify the most suitable option.

PES also investigated how future wind turbine blade design could be optimised by integrating the design of nickel cobalt leading edges into the overall design and functionality of the blades.

Manufacturing scale up activities were completed to identify how production rates could be increased to meet the high volumes that would be required. Lightning testing was also carried out to assess the impact of a lightning strike on a blade.

The trend within the renewable sector is a move towards larger blades with faster tip speeds which generate higher levels of power, however this comes with the downside of increased erosion.

The UK currently has the largest installed capacity of offshore wind in the world, with around 10GW in operation off its coast. The recent announcement from the UK Government to build back greener by making the UK the world leader in clean wind energy means the need for a lifetime leading edge protection system is needed more than ever. The LEFT project delivers this solution, and the challenge now is to find an OEM willing to be an early adopter of this game changing technology.

For further information about the project, or any erosion protection applications, please contact Chris Taylor at Radius Aerospace, cctaylor@radiusaerospace.com or sales@radiusaerospace.com

AP&T's patented solution for partial press hardening of structural car body parts - TemperBox® - is now globally available to both OEMs and suppliers in the automotive industry.

"GEDIA Automotive, the company that holds an exclusive manufacturing license for the European market, and AP&T agreed to grant OEMs and other suppliers access to the technological advantages of the TemperBox®," says Dr. Christian Koroschetz, Chief Sales Officer at AP&T.

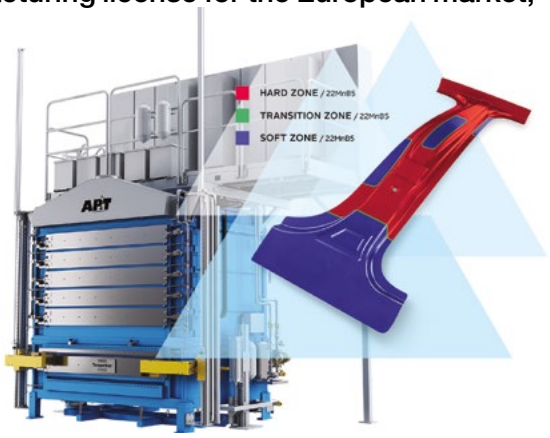
The technology allows a combination of hard and soft zones in a single finished part, paving the way for innovative body designs and cost-efficient, cycle-time-neutral production.

Hard and soft zones in the same part

Individually defined areas of press hardened components can be fully hardened to maximize strength while other areas remain soft and maintain the desired ductility and/or facilitate post processing, such as joining or mechanical cutting. This means designers and manufacturing engineers can work more freely without having to consider costly reinforcements, cycle-time-intensive hardening processes or other tailored solutions.

Easy to integrate

TemperBox® can be integrated in new and existing press hardening lines.



• TemperBox® from AP&T: Now industrialized and globally accessible to automotive OEMs and suppliers.

aptgroup.com gedia.com

Globally active producer of metal components, fischer Group, has chosen AP&T's solution for hot forming of high-strength aluminum parts.

The award-winning technology enables extremely rational and cost-effective production of complexly designed components of various aluminum alloys (6000 and 7000).

By replacing conventional sheet metal with high-strength aluminum, component weight can be reduced by up to 40 percent, without forsaking strength. This also lays the foundation for increasing use of this type of material in cars, jets and other applications for reducing energy consumption and increasing safety.

"We have chosen AP&T as a partner for this innovation due to their long experience with the technology itself and their outstanding expertise in automation and press building. In addition, we are very pleased with the modular system which allows us to adapt line output to increases in required capacity. Finally, the servohydraulic press is a step forward in achieving energy efficient production to optimize the CO2 footprint of forming technologies," says Hans-Peter Fischer, CEO of fischer Group.

A complete, fully automatic high-strength aluminum hot forming production line from AP&T is planned to become commercially operational at fischer group's facility in southern Germany's Achern this summer.

The equipment includes AP&T's servohydraulic press, which enables high-precision forming control throughout the press cycle. The servohydraulic press is also considerably more energy efficient than conventional hydraulic presses.

"To start with, the line will be used for small and medium-sized manufacturing volumes, but thanks to the flexibility of our modular system of standard components, it will be possible to expand the line and scale up production at pace with demand," says Christian Koroschetz, Chief Sales Officer at AP&T.

*AP&T's solution for hot forming of high-strength aluminum has won a number of prestigious awards, including the Altair Enlighten Award and the SIQ Quality Innovation Award.

Facts – included in the production line

- Destacker
- Marking station
- High performance convection multi-layer furnace for high performance heating
- Furnace feeder
- Water cooled forming and quenching tools
- Servohydraulic press with integrated lubrication system for tools
- Transfer automation for load and unload of press
- Aging furnaces

Read more about AP&T's solution for hot forming of high-strength aluminum
https://www.aptgroup.com/solutions/automotive/forming-high-strength-aluminum

Read more about AP&T's servohydraulic press
https://www.aptgroup.com/solutions/lines-products/hydraulic-presses/apt-servohydraulic%C2%AE-press

Read more about fischer Group's products of hot-formed high-strength aluminum
https://www.fischer-group.com/en/products/aluminum-hot-forming

High speed press investment delivers major reshoring contract for HV Wooding

Investment in a refurbished high-speed press is helping a Kent-based sub-contract manufacturing specialist deliver a significant aerospace contract that has been reshored from Spain.

HV Wooding, which offers laser cutting, wire erosion, busbars, motor laminations and presswork to customers all over the world, has invested over £120,000 into new tooling and the installation of a Bruderer BTSA 25H to produce more than 28 million precision parts every year.

The contract will utilise the press' repeatable quality and 1500 strokes per minute capability, with the industry-leading RAM Guidance System ensuring unparalleled stability and longer tool life.

Components will be used in a number of tamper-proof products for the airline sector and should account for 60% of the machine's capacity, leaving the other 40% for new opportunities in electrification and green energy.

"This is the second Bruderer we've installed, after inheriting our first when an electrical client outsourced its press shop," explained Paul Allen, Sales Director at HV Wooding.

"There are few machines in the world that can offer the speed and accuracy in such high volumes and this is going to make a major difference to our ability to meet the requirement of our aerospace customer."

He continued: "The material we are using is really thin gauge and tolerances are tight and that's why we decided on the BSTA 25H. The Ram Guidance System eliminates the possibility of movement, prolonging the tool life and giving us consistent quality, something the customer wasn't getting overseas.

"It was a real partnership approach, with Bruderer experts working with us to identify the right machine and then planning the timeline so that we could manage the install without disrupting production. This meant running the initial parts off at its Luton factory whilst we were putting the machine in place."

HV Wooding, which exports 30% of its £10m turnover overseas, has also invested in a Unidor Multi-Sensor in die tool protection system and a Unidor Press Force Monitor.

Both additions to the machine are designed to ensure the tool safety at both low and high speeds and provides protection against overload and potential damage to the tool.

Simon Stewart, Technical Manager at HV Wooding, went on to add: "We have been really impressed with the performance of the BSTA 25H and are already looking at ways where we can standardise the set-up process to move other projects on to it.

"There is also the potential to target new opportunities, with the 1500 strokes per minute speed giving us plenty of capacity to take on high volume electrical, lamination and motor orders."

Bruderer UK has remained operational throughout the Covid-19 pandemic and, despite the difficulties, has posted an impressive last twelve months with increasing demand for new and refurbished presses and its Zani range of stamping presses.

A lot of this has been driven by clients supplying into the medical and automotive sector, who all require precision parts in high volumes.

Scott Baker, Southern Technical Manager for Bruderer UK, concluded: "This is a perfect example of our partnership approach, working with the production team at HV Wooding to identify a solution that fulfils both immediate and future manufacturing needs.

"The BSTA 25H is a fantastic high-speed press and capable of easily meeting the 28 million pars per annum demanded by the aerospace contract. Importantly, it has also opened up new opportunities for the client to go after a potential pipeline of orders that they previously wouldn't have been able to compete for."

For further information, please visit www.bruderer.co.uk or follow Bruderer UK on LinkedIn. More details on HV Wooding can be found here www.hvwooding.co.uk.

BRUDERER

HV Wooding

National manufacturer KMF has invested heavily in EV machinery to support the government's drive towards zero emissions vehicles

KMF Group, based in the Midlands, is now calling on EV charge point manufacturers to step up to the government's challenge.

Keith Nicholl, Commercial Director at KMF Group comments:

"On the back of the prime minister's announcement that he's bringing forward the ban on the sale of new petrol and diesel fuelled cars to 2030, researchers have said the rate in which electrical charging points are being installed needs to be five times faster.

"There are also warnings that there are many "charging blackspots" across the UK and private contractors are going to have to be appointed to bring the installation of these charging points in the country up to speed.

"We welcomed this increased demand following the announcement in November and invested heavily in EV machinery for metal fabrication to support the nine-year target towards a full roll out of zero emissions vehicles.

"We have prepared ourselves to manage the output of sheet metal needed to support the creation of 35,000 planned EV charging points."

KMF Group uses the latest machinery for metal fabrication to deliver all the components producers in the renewable energy sector need to manufacture and assemble sheet metal fabricated and metal engineered products.

To help renewable engineering customers meet the demand, KMF is offering virtual tours and demonstrations of the machinery. This virtual access will help manufacturers of EV charging points to work out the exact specification in partnership with KMF so the products can be delivered cost effectively and on time to meet the impending deadline.

To find out more about the KMF Group visit: https://www.kmf.co.uk/ev-power-fabrication.html

KMF

More productive, hard as steel!

Longer mission time and efficient troubleshooting on start-up burners thanks to optimised burner control monitoring.

The latest production technologies are the focus for the steel giant ArcelorMittal, the world's leading steel manufacturer. Aim: to make their own production processes safer and more efficient. That's why burner monitoring of the furnaces was optimised in their downpipe cold rolling mill in the Belgian city of Ghent. The focus: efficient, safe automation, including more efficient diagnostics. When converting the plant, ArcelorMittal opted for the all-round service package from the automation expert Pilz: their automation system PSS 4000 is used but that's not all - Pilz also assumed responsibility for implementing the conversion.

The cold rolling mill at ArcelorMittal in Ghent is used to refine steel coils (strip steel rolls) in accordance with customers' requirements. The production process for downpipes in the cold rolling mill is divided into five steps in total: pickling, cold rolling, annealing, tempering and then finishing.

• **Fig. 1 -** © Pilz Belgium cvba. The steel coils are processed and heat-treated in the furnace in order to retain the necessary metallurgical properties.

Production conditions as hard as steel

Before pickling there is a hot rolling process, during which an oxide layer forms on the steel plates. This must then be removed in the cold rolling mill during pickling before the steel plates can be further processed. In the next step, cold rolling, the pickled, hot-rolled plate is cooled and then reduced to its required thickness through pressure and tension forces.

To enable the steel strip to be cold formed it must first undergo heat treatment. This process is carried out in two bell annealing areas – i.e. in annealing furnaces for steel coils, where the steel strip remains for a while in a closed furnace – and in a continuous annealing and refinement plant, which the steel coil passes through relatively quickly, in contrast to the closed annealing chamber. The steel coils that leave the bell annealing area are then tempered (special heat treatment for steel), improving the mechanical surface properties of the steel plate. In the final step the strip steel rolls are packaged and are then ready for shipping to the customer.

Yves De Sloover is an engineer at the cold rolling mill at ArcelorMittal: "Our department is responsible for maintaining the processes in this area. On the continuous annealing plant, we also look after the PLC controller and the burner setting. Our aim is to keep production running continuously. That includes constant optimisation of the furnace."

One challenge was the frequent shutting down of the start-up burners, which ignite the main burners. So, this stage of the process was one area of focus with regard to optimisation: De Sloover explains: "At the start of the process the furnace is heated up to 1200°C with an open flame. In total there are 50 main burners, which are fed by 30 start-up burners. When the temperature of the furnace drops below 760 C after a standstill, these main burners are always used to restart the furnace". That's also prescribed in the standard. It's mandatory in accordance with DIN EN 746, the engineer adds.

Fault diagnostics were the challenge...

In the past, the start-up burners were controlled via a module, while flame monitoring occurred via UV cells at ignition. If one UV cell was defective, the whole plant would stop and would need to be restarted. Each restart would take at least 40 minutes because unburned gases containing nitrogen had to be expelled first. The defective UV cell also had to be replaced each time. That was a real game of hide and seek because you never knew which UV lamp had failed. As a result, the downtimes were considerable. Troubleshooting was also inefficient: although the burner control module forwarded information about the gas and air supply and UV detectors to the PLC, the opportunities for analysis were limited and time-consuming. "And we couldn't make any changes on the controller because it only acted as a black box, so it was only responsible for recording the data from the PLC signals", De Sloover explains.

…the automation system PSS 4000 was the solution

So, downtimes had to be drastically reduced. "First we switched to ionisation instead of UV detectors. The second step was to replace the 'old' burner control module," said Ives De Sloover. The 'replacement' was the Pilz automation system for automation and safety, the PSS 4000. The Belgian steel manufacturer already had positive memories of the German automation solution supplier from an earlier collaboration: "We had already installed a Pilz safety solution on another plant and were completely satisfied with the quality of the components, the service and also the support. We were already familiar with the automation system and thanks to its scalability it represents a forward-looking solution", says the engineer, reflecting back.

Advantages to one-stop competence

Pilz directed the whole procedure for converting the cold rolling mill. The blast furnace is divided into 5 zones, each with 10 burners. Zone 3 was the first to be converted. The first step was to document the specifications of the module that had been used previously. Pilz then transferred these design specifications to the automation system's PSSuniversal PLC controller. The aim was a longer mission time and speedy, therefore adequate diagnostic options.

So efficient visualisation to display the status of the burner was installed alongside the PSSuniversal PLC in a new, designated control cabinet.

As the burners run through various steps and sequences in accordance with the standard and must meet certain conditions in doing so, the visualisation was designed to guarantee the operators' ability to read this status on the display at a glance. "Also, the flame is displayed graphically on all 10 burners and the sensor data from the burner controller is shown on the display, so it's now possible to react much more quickly when a value is too low at any point", says a delighted De Sloover.

Finally, in zones 4 and 5, an additional control cabinet with two PSSuniversal PLC was installed for both zones. Their status can also be read on the display in zone 3.

Flexible software blocks for burners are at the heart of the solution

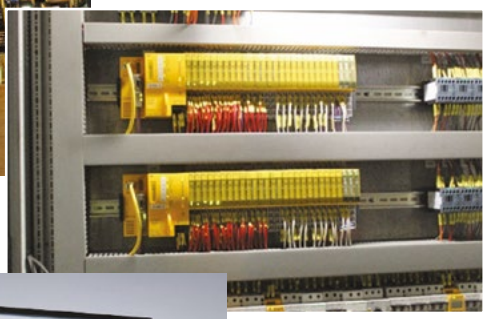
The PAS4000 software from the automation system PSS 4000 can be used to configure function blocks, which focus on specific application scenarios, in this case, the burner application. With the burner management software package, it is possible to implement programs to control various burner types simply and flexibly and to perform safety functions such as safety gate contacts, E-STOPs and light curtains. The use of ready-made, certified function blocks for burner management not only simplifies installation but validation too. What's more, numerous other function blocks are available in the software for the automation system. Ives De Sloover describes the benefits of the system and its software package in a nutshell: "A huge advantage of the automation system is that it allows applications to be implemented to meet customers' specific needs.

Since the furnace was converted it has run virtually non-stop. For the engineers at ArcelorMittal this means: "a good night's sleep". That's because: "More than once we were here during the night, searching for a defective UV sensor. That's all in the past", says a relieved De Sloover. And he continues: "Today the plant runs without any major disruptions. Should there be a malfunction, we immediately know where to find the fault."

For further information, email 'marketing@pilz.co.uk' or call Pilz on +44 1536 460766.

- *Left:* The plant converted by Pilz is part of the downpipe cold rolling mill at ArcelorMittal in Ghent, including an impressive furnace. *© Pilz Belgium cvba*

- *Below:* In the control cabinet, the automation system PSS 4000 from Pilz ensures that the furnace in the cold rolling plant can now fulfil its task more productively. *© Pilz Belgium cvba*



- *Left:* The software platform PAS4000 of the automation system PSS 4000 comprises several editors and a wide range of software blocks, including for burner management, such as the one used at ArcelorMittal in Ghent. *© Pilz GmbH &Co. KG*

Sheet Metal sector membership survey

The board of member representatives are continually seeking to ensure that CBM member services remain relevant and valued added for all of our membership. In order to gain a broader perspective, we decided to reach out in February to senior leaders across a wide range of companies in our sheet metal sector, to gain feedback on their membership experience. We asked these members how the service offering weighs up to current business challenges, and to let us know of any areas where CBM could be of greater support.

A total of 46 different organisations were contacted to participate in this survey and well over half of these engaged with us to provide some feedback. Given the Covid restrictions, much of this was gathered through web-meetings, although a few members were ready to welcome socially distanced site visits.

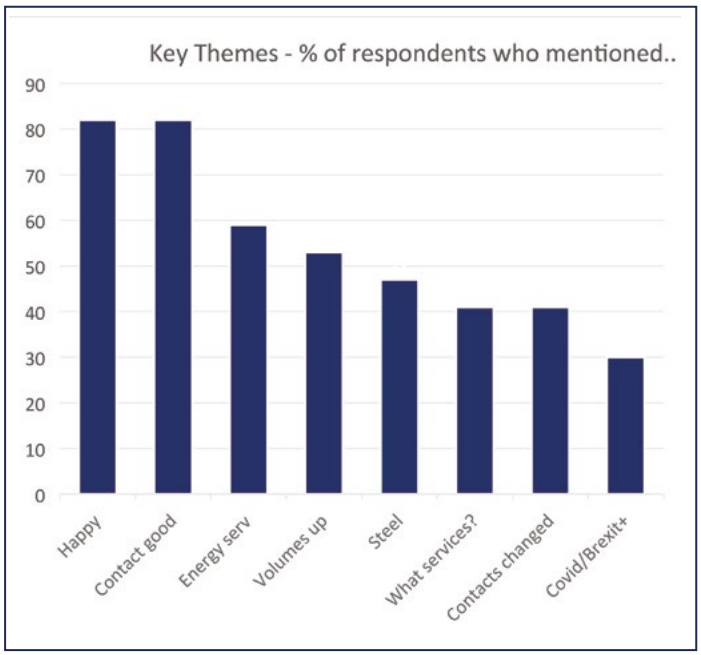
A standard set of questions were used in all interviews, as listed in Figure 1 below, with a subjective indication of what proportion of the responses were favourable, unfavourable or neutral:

• **Figure 1 –** Questions asked

Firstly we wanted to understand why our members initially became and continue to remain as members of the CBM. Most were able to articulate a clear rationale for membership which in many cases was substantiated by net bottom line savings, although a considerable minority believed that membership was a matter of corporate social responsibility, given CBMs position are the most relevant trade association to them as a metal forming business. For these, tangible benefits were seen as less important.

Whilst around half of members were aware of the CBM services that their organisation made use of, most were not aware of the full range on offer. Once these were outlined, members were largely positive about the relevance of these to the commercial challenges they are facing. On the subject of additional initiatives and ongoing contact, again the majority were positive about increasing their level of engagement and participation with the CBM community.

Members were also encouraged to speak more explicitly about any particular issues or services they felt were currently relevant. Figure 2 below shows the key themes that emerged from these conversations.



• **Figure 2 –** Key themes

We are very glad to hear that the vast majority (82%) reported that they were happy overall with the membership experience and that they appreciated the personal approach to gain feedback. Most members found the energy services to be the single most important tangible benefit of membership, whereby CBM works to ensure that companies maximise their climate cost levy (CCL) environmental rebates, whilst several larger organisations also make use of CBM support for ESOS and SECR reporting.

Over half of the members who responded were able to report that their company sales revenues had returned to or exceeded pre-Covid levels, whilst the major business issue that emerged was steel availability and pricing. CBM have been actively lobbying the Department of Business (BEIS) on this issue to ensure that the cabinet are aware of the severe impact that this is currently having on our members. Brexit related customs issues were generally seen by members as having been less impactful than expected, although a few reported major disruption in January.

It was encouraging to hear that many members appreciated both the Covid and Brexit support that CBM were able to offer over the past year, with several senior leaders calling out the weekly BEIS calls as a much valued network which they have called upon for assistance throughout the pandemic.

As highlighted above, a key learning from the survey was that a significant number of members had a low awareness of the range of services that CBM offer (41%) and this seemed to broadly correspond to those companies whose primary contact with the CBM had changed recently (41%). To address this going forwards we will seek to increase member visits and the frequency of one-to-one contact as the post-Covid economy reopens. Furthermore,

we are compiling a reference document that outlines the full range of services and support that CBM provides to members and will aim to have ready for distribution within the second quarter of 2021.

We were particularly keen to hear feedback from members on areas where CBM could provide more support. In this regard, the recent focus on political lobbying was recognised as one that should continue to be a top priority. Other areas that were highlighted by several members were:

1. **Supply chain sourcing.** Here two areas were identified. Firstly, several members valued the previous buying consortium and believed resurrecting this could help, particularly with the current issues surrounding raw material sourcing. Secondly, a referral service for new supplier opportunities or onshoring projects. This led to one case where we linked up a member with three others as potential suppliers for a new product launch.
2. **Tax rebates and grants.** Somewhat encouragingly, many members are looking at making investments in capital equipment and process development in the near-term and thus are keen at exploring any opportunities for funding support. To this end, we have taken action and arranged a series of webinars to better inform membership on the new super deduction tax and R&D tax credit opportunities.
3. **Member engagement & networking.** There is an ongoing desire to network with peers and thus as it becomes safe to do so we will be starting to recommence 'members days' which have been very successful and well attended in the past. In response to feedback from our members in the North of England, an early priority will be making these more accessible to membership in the north.

- Steve Croft

Thank you to all of those who gave their time to participate in this survey. For those members who were unable to take part we would still like to hear from you. Please email Steve Croft at the address below if you would like to arrange a meeting and participate.

Steve.croft@thecbm.co.uk

Streamlined Energy and Carbon Reporting (SECR)

Mandatory reporting requirements for eligible companies – don't miss the deadline, contact CBM today for help and support in this.

Climate change agreement approved eligibility is for companies in the metalforming sector, and saves over £4m per year, that these companies would otherwise be paying in climate change levy; a tax on all gas and electricity bills. In order to receive this rebate one option is to be in a climate change agreement with the CBM.

The CBM is offering a SECR service to all its members that fall under SECR umbrella. The expected members rate will be £2,500.00 per year which is far cheaper than the main external consultants. The items included within the service are:

- Data collection
- Assistance in putting systems in place to collect the relevant data e.g. transport.
- Setting a base year and calculating the relevant Co2 figures
- At least 2 meetings to discuss and finalise the energy efficiency narrative that forms part of the report
- Compiling a SECR report that can be added to the company's annual Report.

CBM have for over 25 years now, had an approved Climate Change Levy rebate agreement. So If you are a metalforming company who is not already getting these rebates, please contact us now so as not to miss out. We have a specialist energy engineer who can guide you through this process with ease, we keep a full auditable evidence file for you and support you at all levels. The majority of the CBM manufacturing members are eligible and receiving these rebates.

CCL Rate Changes

Over the last 4 years the Climate Change Levy has increased significantly. The levy on electricity has risen by over 30% and more than doubled on gas. To compensate for this the government have increased the maximum percentage rebate. To prevent overpayment of your CCL you must complete a new PP10 form for HMRC and a new PP11 form for your energy supplier. Remember a new energy supplier will not automatically give you your CCL rebates

Please contact louise.campbell@thecbm.co.uk for more information or to find out if you have eligible qualifying processes.

Sheet metalforming tools

Advanced surface coatings & treatments for protecting tools against wear in service.

This is a six part series of technical features on tool and die wear protection in which I will cover as an introduction to the stages of manufacturing and treating tools to provide optimal performance during high volume production of sheet metal parts. The scope is to provide insight into how the design and heat & surface treatment of tooling should a key consideration of the production process, and not be a 'black box' to try it and see approach. This strategy at the design stage is of paramount importance in selecting not only the correct tool, but the heart treatment and metallurgical and surface characteristics of the tool finish, texture and surface coating which compliments the metal forming lubrication to be used. Modern approach to these tooling challenges are now being aided by the use of CAD and simulation software via a digital interface of forming parameters which can now predict 'best' economic performance tooling to achieve long press runs to meet JIT part supply requirements. Moreover, the high cost of raw materials (both work stock and tool steels) is now a prime focus of press shop managers to ensure each process is budgeted to provide maximum economic returns. Recently many other factors are presenting additional cost via percentage waste due to out of tolerance parts caused by premature wear of tooling and lost lubricant waste and energy. Tooling efficiency has never been more important to metal press forming economics, and the tool surface and durability via protective anti-wear coating and lubrication make this all possible.

The next sections will provide some brief overview of the scope of each set of parameters to be considered, and I would recommend further reading to enable a more detailed understanding via ref to specific sections. I have also included a short case study of how one of the latest metal forming processes (HFQ) of heat treatable aluminium alloys sheet parts for automotive and aerospace is made possible by the unique tooling system supported by surface wear protecting technologies.

Tool & die design for coatings and treatments

Tool design decisions: Of course, coatings are not necessarily a cure for every tooling problem. Many good decisions need to be made about the tooling before the optimal coating can be chosen. Major decisions that will impact a coating's ability to perform are material, heat-treating procedures, and surface preparation. Only after these questions have been properly addressed should a coating be chosen. However, selection of the most appropriate coating can be decided at the design stage of the tool when knowledge of tool steel grade, heat treatment and forming process parameters can be prescribed in advance of tooling manufacture. This methodology can be the most successful in achieving the best 'systems' approach for optimal tooling production runs. Moreover, tooling economics for high volume production can be more favourable with less risk of premature tool surface failure. Surface coating performance is also enhanced when the optimum tooling design and tool steel grade is selected as being crucial at the onset of tooling design.

Tool coatings decisions: Tribology is concerned with the behaviour of the tool/sheet interface. It includes friction, lubrication and wear topics of the sheet/tool interface. Tribological aspects can have a major influence on the forming characteristics of a part under high volume press forming conditions; For example the following parameters are critical to the sheet forming process, and should be carefully prescribed in the choice of coating via these parameter categories.

- Friction conditions
- Galling and wear
- Lubrication
- Tool and work stock sheet surface roughness

The choice of tool coating must take into account the interaction of these parameters, and help mitigate/ reduce the synergic effects which can reduce forming forces and surface wear. Excessive surface wear manifesting itself in premature tool failure with the subsequent non-conformance to part quality standards. To provide a practical example of tool coating selection when deciding a coating type for light alloy sheet forming (e.g. aluminium alloy) vs low carbon steel Dos & Don'ts:

Do…

- Use tool coatings optimised for forming aluminium
- Consider the use of dry-film lubricant
- Use optimised surface roughness texture (in most cases parallel to direction of metal flow). e.g. EDT pre/post tool coating
- Take into account that aluminium generally shows a lower surface friction than steel
- Take into account all sheet-lubricant-tool coating-tool processing parameters when analysing frictional behaviour of the surface/tool interface.

Don't…

- Use the same tooling, tool coatings and process lubricants used for steel panels regardless. These are very likely to be unsuitable to achieve the optimum friction conditions and can cause corrosion of work stock material in the case unsuitable lubrication. Dedicated tooling material and/or geometry are usually required.

One final ref. to how surface friction can fully influence formability:

Friction under sheet metal forming is mainly determined by the tool coating and lubricant regime. In case all the normal load on the tool surface is carried by the lubricant film (i.e. full film lubrication), then friction is relatively low (EHL= elasto-hydrodynamic lubrication). However, in case the entire load is carried via Metal-to-tool metal coating contact to sheet (i.e. Boundary lubrication conditions, BL), then friction can be higher. However, tool coatings with a very low surface friction < 0.1 to 0.4μ with a hardness in the range of 1200-5000 Hv 0.05kg) with a thickness of 1-10μm ensure mixed boundary lubrication characteristics very similar to lower EHL conditions.

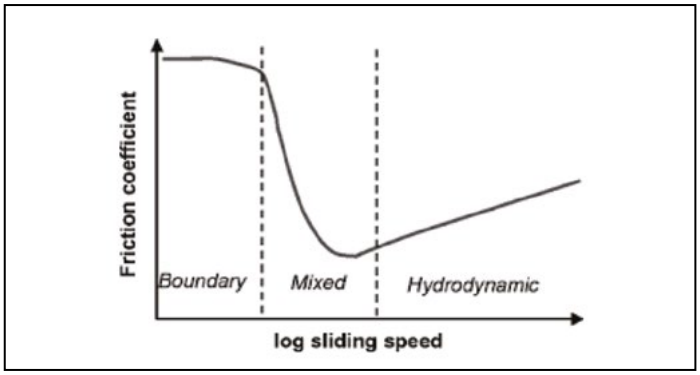


Figure 1: Illustration of a 'Stribeck Curve' of how friction coefficient changes during the 3-stages of contact between work stock sheet and tool surface under tool lubrication and coated surface conditions.. NB the Log speed refers to sheet alloy moving across coated tool with lubrication…the characteristics of this curve can vary considerably depending of tool geometry and forming press speed…. NB This is an illustration only and does not relate to a specific example…

To manage the friction conditions also help mitigate surface wear which can be categorised as a mix of

- Abrasive wear
- Adhesive wear
- Three-body abrasive wear
- Fatigue/ corrosion fatigue wear.

Tool and die steel selection & heat treatment

Vacuum heat treating, performed in units such as the one shown here, is recommended for all tools regardless of the coating process. The oxidation and decarburisation caused by non-vacuum-heat-treating processes will inhibit coating adhesion. However, salt bath and fluidised bed H/T can be used with extreme care and suitable masking of holes to prevent salt contamination which would adversely affect subsequent tool coating and treatments. Moreover, vacuum H/T is the much preferred heat treatment type for environmental reasons as well as technical.

Figure 1 shows a typical vacuum furnace with latest CNC control program for a whole range of tool steel grades used for metal forming tools. It should be noted, however, that only furnaces with a quench rate circa 10 bar pressure in nitrogen or argon high purity gas is suitable to achieve the metallurgical properties needed for press forming tools and dies.

Figure 2: Shows a typical vacuum furnace with integral pressure quench for hardening & tempering small and large section press tools. There may also be a cryogenic and separate tempering facility for large tools used for automotive and aerospace body panel tools…

Tool steel material types and grades:

Material. The full benefits of surface coatings can be realized only if the coatings are supported by a material with a microstructure that provides a good foundation. Therefore, tool material selection is the first step in the successful design of a forming tool.

In addition to tungsten carbides and conventional tool steels, powder steels are available with many different combinations of properties that are suitable for various applications. Powdered metals have a unique microstructural characteristic: small metal carbide particles that are uniformly distributed in the steel matrix. These steels have a finer grain size and are tougher than most conventional steels. Tool steels such as cold work grades based on the generic standard grades AISI or SAE and ISO; A-2 or D-2 series are categorised as cold work steels with their equivalent powder metallurgical grades. These steels can retain their properties and support tool coatings up to a working temperature of between 180- 400 degC. For specialist sheet forming such as Isothermal processing, the grade steel should be capable of retaining its properties up to 650 degC. So a hot work series should be chosen such as H-10 to H-23… Selection of the most optimal grade of tool material should depend on 5- main factors:

1. Characteristics of available tool steel grades and/ or tungsten carbide/ceramic grades.
2. The specific sheet forming application
3. The history of failure in similar applications
4. Tool material cost
5. Environmental impact and recycling criteria

Tool coatings & treatment types for sheet metal forming:

There are an increasing number of tool coatings & treatments now readily available globally for sheet metal forming. The list seems to increase each year as tool coating development via coating suppliers and university groups focus on improving performance, reducing environmental impact and design multi-layer nanostructured super hard films. In addition to these coatings a range of plasma thermochemical case casehardening treatments such as plasma Nitriding, PACVD and Laser Deposition Cladding used for obtaining thicker durable multi-composite layers based on Tungsten carbide family for forming high strength Ni/Cr alloy sheet.

PVD coatings used for sheet metal forming are now a common technology because of their high hardness and minimal film thickness. Titanium nitride (TiN), titanium carbonitride (TiCN), chromium nitride (CrN), and aluminium titanium nitride (AlTiN) work well for many applications. PVD forms a mechanical bond between the tool and coating and is suitable for tools that are closely tolerance, which are common in the stamping industry. The PVD family has now advanced to cater for more specific sheet materials and tool steel now being used

The minimum coating thickness for metal stamping and forming applications should be no less than 4 to 5 micrometres. The coating parameters can be adjusted to create an average coating thickness in the range of 0.0002 to 0.0003 inch (0.006 to 0.007mm) . These results must be verified before the coated die or punch can be passed as being fit for purpose. Thinner coating specifications down to 2µm might be required for very close to tolerance tools…

Figure 3: Selection of tool coating for tight tolerance
These deep draw extrusion punches are used to form AA battery casings. Because tight tolerances are specified, the TiCN PVD coating is a suitable choice for this application.

Continued on page 20..

Continued from page 19..

Coating list used for stamping/deep drawing/blank & pierce/ HFQ/ Hydroforming and Isothermal processes.

Surface finishing of tools Pre & Post Coating… as an illustration aluminium beverage can tooling.

Surface Preparation. Surface preparation is critical in any tooling application, and especially in stamping applications. Any marks on the surface of a stamping tool will work as a nucleation site for adhesive wear. The workpiece material will flow into the microscopic imperfections on the tool surface and stay there. During further strokes, more material will build up on these areas, causing galling.

Figure 4: The TiN PVD coating on this soda tab punch helps to prevent material pickup and premature tool wear. This shows a typical application of the used of tools for forming of aluminium, easy-open food and beverage cans. The use of metal based food containers is now a preferred route instead of polymer based to reduce environmental impact. This illustration shows one of the coated tooling elements used to deliver high volume production…Aluminium grade 1050-H24, canning light weight recyclable specification

Tool steel: cold work grade D-series powder metallurgical, with a PVD top layer PVD nitride family with optimised food approved composition.

Galling is a common problem in metal forming and stamping operations. It results in increased roughness on the part and premature tool wear. Therefore, improving the finish of the working surfaces is a very important part of the tool preparation.

The recommended surface finish is 8 micro inches or more; a high polish, if possible, often is best. After polishing, the tool must be inspected for surface quality. If machining or grinding marks are still visible, then the die needs to be repolished. Stoning before polishing will produce a uniform surface. It is extremely important that the last polishing steps be performed in the direction of the metal flow.

1. IonBond IHI Group, Consett, County Durham, Tel. 01207 500 823. Email: infouk@ionbond.com
2. European Aluminium Association (EAA). The Aluminium Manual, 2015
3. Hauzer Techno Coatings, BV. IHI Group, The Netherlands
4. International Deep Drawing Research Group, 38th Annual Conference- Online Surface Engineering. Influence of varying material properties on deep drawing process. K Krachenfels et al, Inst manufacturing Technology, Alexandra University, GmbH.
5. New Trends in Thin Coatings for Sheet Metal Forming Tools. C. Escher et al. Dorrenberg Edelstal GmbH, Germany.
6. Lase ltd, Laser Cladding for Tooling, Neath, Port Talbot, UK
7. Advanced PVD Coatings for Protection of Dies and Tools. National HIPIMS Technology Centre, Sheffield Hallam University, UK. P.Eh Hovsepian and AP Ehiasarian.
8. Voestalpine, Uddeholm Cold Work Tool Steel Family Grades for Sheet Metal Forming. United Kingdom, Taylors Lane. B69 2BN. Tel 0121 552 5511. www.uddeholm.co.uk

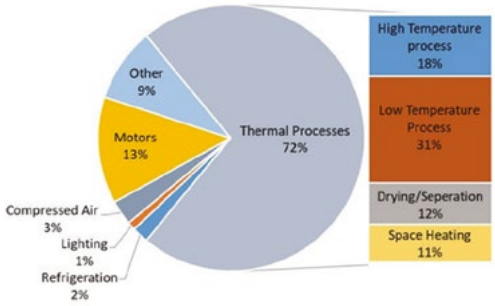
Part 2 b of this article to be continued in spring addition of Oracle 2021.

Is waste heat recovery the game changer that high energy intensive industries need to meet decarbonisation targets?

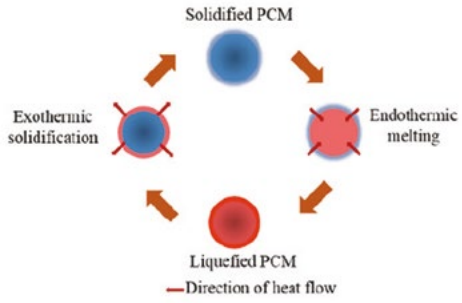
As we approach COP26, we can expect the Government to elaborate on their aggressive roadmap to reduce greenhouse gasses, and to provide an insight into the contribution they expect to be made by industry.

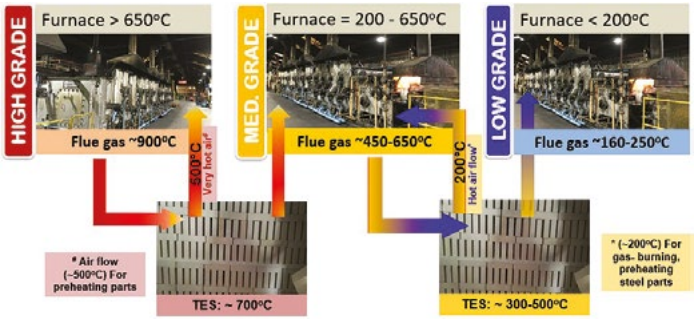
After nearly 15 years of climate change agreements (CCA) and associated energy efficiency improvements, it is clear that high energy intensive industries (EII's) will need to find innovative solutions to make the step change necessary to meet Government carbon reduction targets of 70% by 2030. This step change will also come at significant cost to SME's who may have to make major changes to their conventional processing plant. Therefore, selecting the optimum route forward at the right time will be a critical decision, and SME's will need considerable help and support.

The industrial sector consumes a third of overall energy worldwide and it is estimated that over 50 % ultimately is lost as waste heat. **Globally about 50% of heat is used in the industrial sector (The Royal Society Briefing 3 on Climate Change: Science and Solutions, 2021).** As per a UK estimate (BEIS, 2017), the industrial sector accounts for 17 % of the overall energy consumed, generating 32 % heat-related CO_2 emissions. Industrial thermal processes account for 72 % of the UK industrial demand, and almost one fifth of it (40 TWh/yr) is considered as high-grade heat, with a potential for Waste Heat Recovery (WHR).



The Forging industry consumes large volumes of energy throughout the forging and subsequent heat-treatment processes. High grade heat is required and in many cases this is provided by burning natural gas, contributing to CO_2 emissions.





Improving energy efficiency has been a high priority for the past two decades with increasing energy costs and CCA tariffs imposed. The result of this has been reduced year on year energy costs/tonne and improved operational efficiency.

Despite this, there will still be a clear directive from COP26 that all industries must migrate towards net zero carbon, and therefore a strategic step change for high EII's will be required.

To address this, the Confederation of British Metalforming teamed up with the Birmingham Centre for Energy Storage (BCES) at the University of Birmingham to investigate the feasibility of capturing waste process heat using c-PCM's, (composite phase change materials), either for redirecting within the production process or for storage and transfer to other areas of the business. With large volumes of heat from furnaces, cooling parts and cooling dies there is a large potential to tap into, and waste heat can be captured several times over during a typical production process. Harvesting and storing heat to re-use it can offer the potential for huge (greater than 50%) energy savings and could be the game changer that traditional high EII's strategically need to support net zero carbon.

There is already a formulation tested for the 700 °C (high grade heat) c-PCM, based on binary carbonate salts with MgO as the structural materials, and although no current formulations have been tested for the 400 °C-200 °C c-PCM, screening and lab tests have indicated that a modified carbonate salt/ binary nitrate salt-based c-PCM is able to meet the needs for medium heat capture.

PCM's work similarly to an electrical battery, by storing latent heat as the constituent parts transform from one phase to another (mostly solid-liquid) and then release this heat when the phase change is reversed (liquid- solid).

Two feasibility studies were conducted, one in an efficient heat treatment facility with large self-recuperating gas fired conveyor furnaces and another in a traditional ferrous alloy forging facility. The flue gas temperature of the H/T facility was below 300 °C but would still provide medium grade heat for capture and storage.

The forge furnace surveyed had no waste heat recovery and with a set temperature of 1340 °C and similar flue gas temperature, the scope for high grade heat capture is vast. Compared to the theoretical thermal energy required this furnace was less than 10% efficient with over 14,000 Kwh/day lost in waste heat. As well as being captured, there was also scope to divert this heat to an adjacent furnace – either to preheat billets (and also provide a productivity improvement from subsequently reduced soak times) or to provide 'free heat' for forging. Captured waste heat could be used to heat die ovens and eliminate gas consumption for pre-heating die blocks, and if hot forgings from the press are moved to cooling stations, then there is also a potential to capture medium grade heat. There could therefore be potential to capture waste heat at several stages during the forging process, and this would represent a significant step change for the industry.

• *Left:* Furnace 9R viewed from the front

• *Left:* Close up showing flue vent from furnace roof.

• *Below:* Controllers.

In conclusion, WHR and thermal energy storage (TES) with c-PCM's could be an effective solution to provide significant value through stabilising the thermal processing, especially during throughput instability, by facilitating heat exchange process and thermal inertia, accelerating furnace start-up phases, reducing energy consumption, and increasing productivity.

Further work is required, (Front End Engineering Design, FEED project), to cover the full technical requirements and conduct cost benefit analysis. It will ascertain where and how much heat will be recovered, heat capacities required, equipment costs, what quantified benefits can we expect from efficient use of recovered heat. Further funding will be required along with an Industrial partner and this is now being sought.

Ultimately, as this technology evolves and becomes economically viable, the capture and storage of waste heat could potentially lead to local exporting or trading to industrial neighbours should a suitable macro-economic trading platform be created.

The CBM would like to thank the GBSLEP for funding support, Kelvin Thermotech, BCES and ERDF-ATETA programme (University of Birmingham) (funded by ERDF) for their technical support. For further information please contact enquiries@thecbm.co.uk or Derek.bond@thecbm.co.uk

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Dispelling the black art - training in the cold forming industry

A recognised expert in both cold forging technologies, the development and training of its operational personnel, Derek Barnes is keen to dispel the perception that operating and managing its machinery is the mythical 'black art' it is often claimed to be.

Let's face it, our industry has been shrouded in the myth that getting cold forming machines to run and produce parts is a black art. Many managers and companies have fallen into the trap of believing this - even perpetuating it, either by not having an effective training programme or by using Setter on Setter training, which can be hit-and-miss and often passes on bad habits.

My belief is that the machines we use are high precision and many of the parts that we produce have tight tolerances. Achieving this time and again demands that the equipment is set with precision and repeatability.

To do this, Machine Setters and Engineers need to adopt a different approach, in order to meet the demanding requirements of many cold formed part consumers. It's not about getting the part running at all costs; it is about how can we set-up efficiently each time we make a particular part. Most modern cold forming machines incorporate, at least a degree of, automation and the ability to save the machine settings. This comes at a premium price, but the same is achievable on machines that are not servo motor controlled.

Before we go too far, let me be clear that Cold Forming machinery can be very complex, particularly multi-station transfer headers. Setting them so that they run well is not easy; it really does take skill to do it successfully. It is also fair to say that it isn't for everyone - it takes a certain mentality to do it well. I have often stated that it is easier to set a machine so that it does not run consistently then to set it so it runs without stopping.

We have a major challenge in the industry, about which everyone is aware. The workforce is getting older and young people are simply not banging on our doors to let them in. How do we change this?

Organisation, Training and Environment are the three elements that need to be satisfied to create a sustainable, efficient manufacturing plant and to attract the next generation into our wonderful industry.

Organisation

All areas and supporting functions that feed into the manufacturing plant need to be assessed and investigated to make improvements that will assist with the smooth running of the facility. If all aspects don't run in synchronisation, then the final output will be compromised and although a good standard of performance can be achieved, the real potential of the manufacturing cell cannot be realised.

Much of the focus falls upon the machines and the people setting and running them - rather than on the bigger picture and the whole of the support functions. This can definitely show positive results. However, to really unleash the power of the system as one unit, work must be put into all areas. Standardisation plays a huge role in unlocking the potential and although it sounds a simple concept, it contains a lot of complexities that must be addressed.

Training

Training and development of Machine Setters is obviously a key part of the scenario and too many companies fail to invest enough time and attention here. Correct training involves a standardised approach to setting-up the machines, removing unnecessary waste and improving efficiencies. That is not only in output but also in problem-solving machine running issues and reducing scrap.

It is essential to develop a documented training programme that includes and utilises machine training manuals, setting measurements and dedicated drawings. The manufacturing pack is the starting point for setting-up a machine and should contain all the necessary information that the Setter needs to complete the job in the most efficient way.

The training should be carried out by a dedicated Trainer, to ensure a consistent approach and develop best practice. Ensuring that all Operators are setting the machines in the same way is a particularly important factor in reducing both changeover times and troubleshooting machine issues, particularly if you are rotating Setters or operating shifts.

The Trainer must themselves be an experienced Setter. He or she must also have the patience and ability to train and to understand people's individual learning needs. Learning how to train is a skill in itself and a new Trainer will develop their own style through experience, to get the best out of each individual. For new Trainers it is important to have a Mentor to guide them through the process and act as a sounding board.

At all stages of the training process the progress of the trainee must be recorded and feedback given to them. Once they are assessed as being competent, they should be signed off as ready to start running production. But the training shouldn't stop there.

The ongoing development of Machine Setters' skills and knowledge comes after a period of initial training followed by production time to gather experience. This provides time for their understanding to grow sufficiently that they will be able to offer useful constructive feedback. This has two effects: One to demonstrate the level they have achieved and identify what additional training/information they need to continue their development. Two, to allow the Trainer/Engineer to develop their own training skills and methods, in order to continually improve the standard of training.

Environment

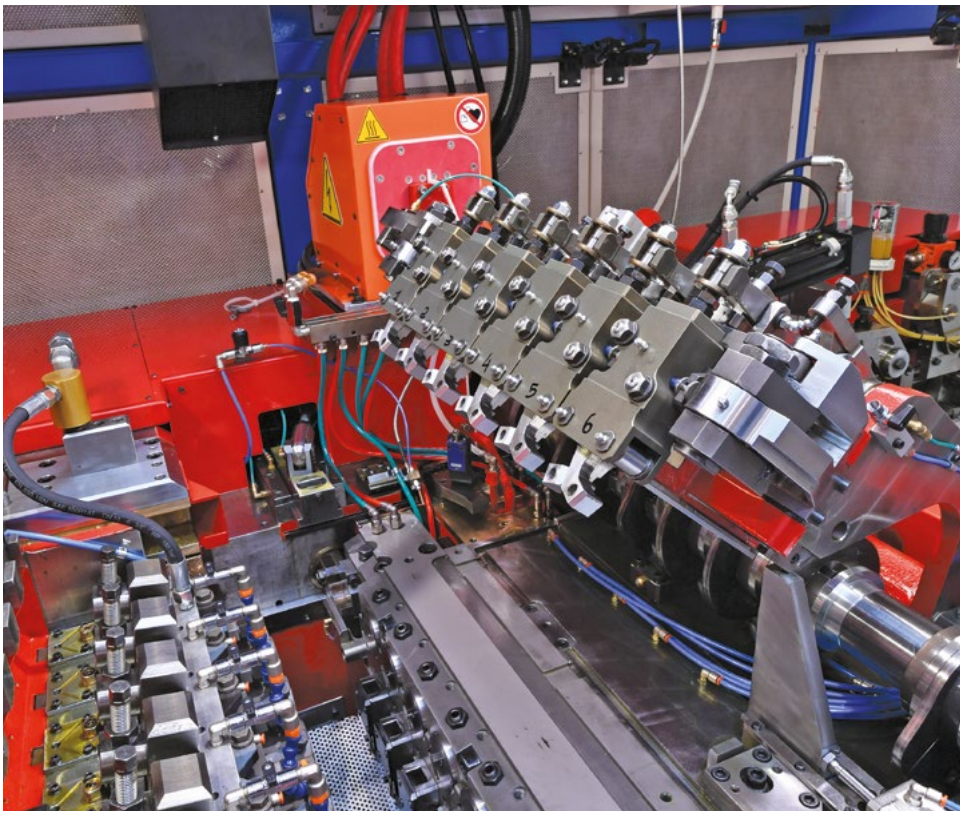
The factory environment is important to encourage the correct behaviours in people. A clean well-ordered facility adds to the efficiency of the manufacturing cell. Being able to conveniently locate the necessary tools to do the job and reduce wasted movement is sometimes an unappreciated aspect. 5S and Lean Manufacturing methodologies must be employed in a successful manufacturing environment. A clean working environment is deserved by shop floor staff, adding to their job satisfaction and motivation and Managers as well as shop floor personnel should play their part in achieving this.

The environment also plays a big part in helping to attract new customers. The first impression gained by visiting customers or prospective customers is extremely important. A clean well-ordered factory shouts out "Quality Product".

The ability to see things differently to the preconceived normal is the ability to drive forward a manufacturing area and really achieve great performance.

The way to attract new people into the industry, train those people to be effective and at the same time create a team that is motivated by great performance and job satisfaction, is to embrace the above philosophy.

If you are interested in dispelling the black art and implementing a sustainable training culture in your company then please contact me for further discussions.



About Derek:

Derek Barnes is an independent consultant who is truly passionate about cold forming and dedicated to driving improvements in both processes and education in the fastener and other sectors reliant on the technology. His expertise stems from a successful career with a global fastener manufacturer, building and managing cold forging departments in the UK and North America, and educating operational personnel through the development and implementation of training programs. Derek now also supports the UK fastener manufacturing industry as the fastener sector specialist for the Confederation of British Metalforming.

derek.barnes@coldforgingsolutions.com

HSE inspection programme - are you ready?

The Health and Safety Executive's (HSE) current Manufacturing Sector Plan includes an inspection programme which will run from May to September this year, targeting fabricated metal businesses across GB to ensure duty holders understand the risks posed by welding fumes and metalworking fluids, plan their work and have adequate control measures in place to protect workers' health.

Letters were issued in February to companies across the UK with an accompanying form asking recipients to advise if they undertake welding for more than one hour per week, and if so, do they have adequate controls in place? The form also asks if they use metalworking fluids (MWFs) and if the answer is yes, is the company adequately controlling exposure to MWFs?

Employers have a legal responsibility under COSHH (Control of Substances Hazardous to Health) Regulations 2002 to protect employees from exposure to any substance considered hazardous to health. A hierarchy of controls should be used to identify the most effective control measure for each circumstance, but the HSE generally recommends using Local Exhaust Ventilation (LEV) on all CNC machine tools as the most effective way of controlling contaminated air at source.

A wide-ranging communications campaign from the HSE about the forthcoming inspection programme which included alerting SMEs via SHEP, a collaboration between industry and the HSE, has been rolled out to give companies an opportunity to assess their current controls in the run up to the inspections. SHEP hosted a webinar on this subject in March and the volume of attendees was incredible, as Lydia Barber, SHEP Secretary and Director of Group Marketing at Filtermist, confirms, "Almost 1000 people attended the metalworking fluids and welding fume webinar on 9th March to hear speakers from the HSE and the UKLA. This demonstrates both how important this subject is, and how much people value access to accurate information.

"The results of the January-March 2020 HSE metal fabricating sites inspection programme showed that only 38% of the premises visited that used MWFs had LEV systems fitted to the CNC machines.

"There is no excuse for exposing people to hazardous airborne particles, but our team still visits companies that could be doing more to protect their staff. Filtermist has been working in this field for more than 50 years now, and any initiatives that aim to reduce contaminants in workplace air are welcome as far as we're concerned."

Filtermist Systems offers a wide range of products and services designed to ensure the air in fabricated metal premises is clean and safe to breathe, and compliant with COSHH regulations. These include:

- LEV oil mist filters including centrifugal, static filter media and electrostatic technologies - https://www.youtube.com/watch?v=hnWpHFrqSy4
- Welding fume extraction
- Monitoring devices including the Bluetooth enabled F Monitor 2 & 2+
- Routine and Reactive Maintenance
- LEV Testing
- Air Monitoring and Air Sampling

Contact Filtermist's team by calling 01952 290500 or by emailing sales@filtermist.com to discuss how they can help you prepare for a possible visit from the HSE. Alternatively, please visit www.filtermist.co.uk for more details of the products and services offered by Filtermist.

Choosing an infrared pyrometer for metals

7 important things you need to know.

1. The material you want to measure and its surface finish.

Knowing which material you wish to measure is extremely important to be able to take a reliable temperature measurement. This will have a direct impact on the sensor chosen and the emissivity setting you use. Remember that metallic parts are potentially tricky to measure but with careful sensor selection these issues can be overcome.

2. The size of the object that you are measuring.

When using an infrared pyrometer, the size of the object being measured needs to be known so the correct sensor can be selected. The measuring spot for the sensor needs to be smaller than the part being measured and needs to be positioned completely on the part. There are a variety of optical resolutions available including spot sizes down to less than 1mm in some cases.

The use of a ratio pyrometer will allow you to measure an object that is smaller than the measuring spot.

3. Ambient temperature.

Is the sensor you have chosen suitable for the operating environment it will be working in? If not, it is possible to cool or heat the sensor to ensure it meets the operating parameters. Often this is achieved by fitting air or water cooling.

Thermal shock is another phenomenon that can cause issues with infrared temperature measurement and needs to be avoided. This is a potential problem for smaller sensing heads and the addition of thermal mass, usually a larger housing, can overcome the issue.

4. Dust, dirt, and humidity.

Is there a high possibility of debris or moisture settling on the lens of your sensor? Infrared temperature sensors work on their ability to be able to “see” the object you wish to measure. If there is dirt, debris, or condensation on the lens of the sensor the ability of the sensor to measure properly is diminished resulting in inaccurate measurements. It is possible to fit air purge collars to our sensors in order to prevent this.

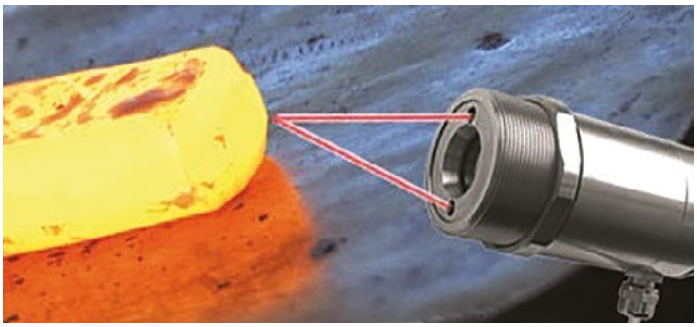
In some metals applications there is a potential for smoke, steam and dust to be present in the environment and again this can prevent an accurate measurement from being taken. This is perfect for a ratio pyrometer.

5. How will you aim the sensor?

For many applications it is easy to aim the sensor as the parts are large enough that it is almost impossible to miss. However, when considering smaller parts and when measuring through gaps in machinery aiming is extremely important.

Laser aiming is the simplest method and is commonly used. Some systems have dual laser aiming, showing you exactly where the sensor is aiming and also the size of the measuring spot.

Alternatively, through the lens video aiming systems are now available. This gives an extremely precise method of aiming the sensor even on red hot metals where lasers are sometimes not visible.



6. Are you measuring through a window?

It is quite normal in extreme environments to view through a protective window when using an infrared pyrometer. Protective windows protect the lens of the sensor from permanent damage and act as a sacrificial consumable in the most arduous of applications.

You must ensure that the window transmits infrared energy in the part of the spectrum you need for your sensor. For example, if your sensor is sensitive to 1.6µm infrared energy, then your window should transmit this wavelength.

7. Speed of response.

By their very nature infrared temperature sensors are massively quicker than contact probes such as thermocouples or RTDs. However, in some applications speed of response is extremely important. There are products available that have response times as fast as 1 millisecond and even as low as 90µs.

If you would like help making your product selection, why not talk to one of our engineers.

T: 01628 778688
E: sales@processparameters.co.uk

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Pushing ESG up the agenda

When it comes to the investability of your business, your approach to ESG criteria can have a significant influence. So, what is ESG exactly, why is it important, and what action should your organisation be taking?

What is ESG?

Environmental Social Governance criteria set out a core way for responsible businesses to operate. The more familiar term, Corporate Social Responsibility (or CSR) had previously been used in a similar vein – as a way for corporations to showcase their positive contribution to the community and demonstrate a socially responsible approach to business.

However, ESG goes that little bit further…

Environmental – this refers to how you operate in terms of energy, water, climate change, water pollutions, waste, and recycling.

Social – covers things such as employment standards, community engagement, education, ethics, learning and development.

Governance – how a business is run, e.g. Does the company pay its taxes? What investments does the business make? Is there representation on the board in terms of ethnic and gender diversity?

Why is ESG important?

ESG isn't just about businesses being nice and doing the right thing – there is a solid business case as well. Studies show that businesses with high ESG values will experience better retention rates and more positive brand recognition.

ESG and investability

Your organisation's approach to Environmental Social Governance can also directly affect how you are viewed by investors. ESG is used widely in the US and the Far East to help investors make decisions about which businesses are going to have long term sustainable benefit from an investment perspective. This can only be a good thing – showing that financiers are taking environmental and social factors into account when making investment decisions. Investors are not just looking at the financials, but are actively looking for companies providing a purpose, a community benefit – these are the companies that the big investment houses believe will be around for the long haul.

How do I track ESG?

More and more organisations have chosen to use the United Nation's Sustainable Development Goals (SDGs) to develop their own framework for their sustainability agenda. The 17 goals act as a blueprint on how to achieve a more sustainable future and are used by the UK government to track our performance, feeding back to the UN. We can help you work out how you can embed the SDGs in your business, helping you find measurable ways to improve your organisation's environmental impact.

For advice on developing your organisation's approach to ESG, contact wayne.brown@inspiredenergy.co.uk

Inspired Energy Plc awarded green economy mark

CBM Member Inspired Energy PLC is delighted to announce it has been awarded the London Stock Exchange's ("LSE") Green Economy Mark in recognition of its environmental and strategic advice, service and support to customers.

The Green Economy Mark allows greater visibility for investors interested in Green Economy activities and recognises those companies that are contributing to a greener and more sustainable economy.

Commenting on the award, Mark Dickinson, CEO of Inspired, said: *"We are delighted to have been awarded the LSE Green Economy Mark in recognition of the high proportion of green revenue the Group generates in relation to our services to customers. ESG is at the heart of everything we do and as an ESG solutions provider it is important that we continue to lead by example in regard to best practice and reporting in order to remain at the forefront of energy and sustainability solutions in a Net Zero Carbon future."*

Manufacturer & Supplier Membership Directory 2021

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www.amcukfasteners.co.uk

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www.henrob.com

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www.cirteq.com

Clevedon Fasteners Ltd
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West Midlands based UK manufacturers of fasteners and customer specific. Specialists cold forgings. ISO9001 and ISO14001 approved, Covid Secure.

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West Midlands WS10 7SE
t: 0121 556 5700
www.complexcoldforming.com

Cooper & Turner Ltd
Yorkshire S9 1RS
t: 01142 560 057
www.cooperandturner.co.uk

Griff Chains Ltd
West Midlands DY2 0ED
t: 01384 569 415
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