



ORACLE

Journal of the Institute of Sheet Metal Engineering



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in steel coil
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The Oracle, mouthpiece of the Institute, speaks for and to the world of Sheet Metal Forming & Pressworking by way of featuring News, Views and Topics around the Industry

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From the President

Dear ISME member,

Hello and welcome to the autumn edition of Oracle. There really is something for everyone in this edition, from technical articles dealing with Roller Levelling and New Forming Technologies for Aluminium, to the report on the ISME Skills competition which was one of the best in recent years.

A warm welcome to our new Company member, Black Country Manufacturing Ltd. It's really heart-warming to see local SME's investing and being successful as a result, not least Millenium with their acquisition of JJ Engineering.

As always, my thanks to all of the Council team whose efforts make this publication possible.

Alan Shaw

ISME President





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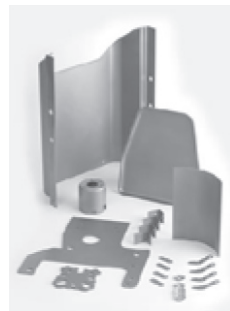
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ISME Honorary Secretary's Report

It is a great pleasure to be able to welcome new members to the Institute.

Mark Postans and Adesh Calleea both of Regent Engineering have joined as individual members.

Dave Gilbert has joined as an individual member and has already made a valuable contribution by acting as a judge at the Skills Competition. He brings a wealth of sheet metal experience with him.

Black Country Manufacturing Ltd of Tipton have joined as Company members.

Profiles of Dave and Black Country Manufacturing appear else where in Oracle.

We also welcome our new student members from the Skills Competition. Participants in the Skills Competition are awarded a period of free Student membership of ISME to recognise their interest in the industry. They receive copies of Oracle and at the end of the free period are invited to become full student members which will help them become full members later in their career and enjoy the benefits and prestige of being members of a nationally recognised Institute.

Bill Pinfold

ISME Honorary Secretary



Roller Levelling in Steel Coil Processing



A monograph has been published which gives a brief overview of the theory and practice of roller levelling and cutting of steel coil to produce cut plate and sheet that is truly flat, will remain flat in downstream processing and from which profiles can be cut that are also flat.

The information contained should identify for engineers and operators the key factors of machine condition that determine the output condition and quality, thus making derived maintenance schedules more effective. A number of equations for optimising the design and setting of levellers are contained in the document.

A summary of the monograph is published following and the Honorary Secretary has a library copy for anyone wanting more information.

Our thanks are due to the author, Stephen Henderson.

In roller levelling, coiled strip, is threaded through transversely set intermeshed parallel upper and lower work roll nests. In this process, triangles of work rolls bend the strip in alternating senses, initially with deep penetration, progressively reduced to lower strip curvature so that it emerges from the leveller flat, or with small acceptable curvature.

The shape of a plate can be explained by reference to fibres or small elements that constitute the integral plate. In a flat plate the fibre lengths are equal in orthogonal directions in each planar layer and balance about the centre plane of the plate. A plate develops shape when fibre length differences exist. A plate may be curved if there is a progressive through-thickness fibre length difference from one surface to the opposite surface. Longer edge fibres may manifest as wavy edge and long central fibres may show as centre buckle or bulging. Such conditions can result from non-parallel mill rolls when deformation of the stock differs across its width, producing longer fibres in some areas. Very small fibre length differences can result in manifest shape in a plate.

For easy of analysis steel can be regarded as an “elastic-perfectly plastic” material. When initially stressed steel deforms elastically i.e. the deformation recovers if the stress is removed. Above a certain stress level, its yield stress, a characteristic of the steel, it plastically deforms and the deformation that occurs beyond the yield stress cannot be recovered. When the stress is removed the elastic deformation or strain is recovered but the plastic strain remains.

In the roller levelling of coiled steel strip, the strip is plastically bent to equalise the fibre lengths across its width symmetrically about its centre plane and curvature progressively reduced so that without the effect of gravity the plate is flat. If the plastic deformation in roller levelling is sufficiently high the effects of fibre length differences resulting from upstream processes are removed. If substantially more than half of the through thickness of the coiled strip is plastically deformed in roller levelling by parallel work rolls the remnant effects of inherent shape in the central region will be outweighed by the plastically deformed layers. A simple equation can be used to calculate the necessary initial work roll penetration necessary to achieve or exceed the minimum desired fraction thickness of plastically deformed strip. The work roll gap at the exit of the leveller to achieve output flatness is then set by trial and error, but will be slightly less than the plate gauge.

Because steel is approximately elastic-perfectly plastic, beyond yield the increase in stress required to increase plasticity in the strip is small, but deeper work roll penetrations substantially increase work roll torques and duty on the drive train of the machine.

It is essential that the work roll surfaces are parallel when the roller leveller is loaded in process. Only in this condition will the fibre lengths across the full width of the strip be equalised and shape be avoided. This condition can be tested by “slit bow testing”, i.e. taking plate output from the leveller and cutting it into a number of longitudinal strips of equal width; if the work roll gap was parallel during levelling then these strips should all have the same curvature.

Achievement of work roll parallelism under load in process should be the principal aim of engineering maintenance and repair schedules of roller levellers.

Other processes in coil processing plants can cause poor shape in the exported product. Processes that allow bending of the strip or cut plate after roller levelling, such as accumulator pits, stackers, shot blasting, slitting and plate handling systems can cause permanent bending of the cut plate. Damage at plate cut edges may result from poorly set guillotines blades; for most steels the blade gap should be approximately 10% of the plate gauge.



Rachel Eade



(L to R) Ketih Chadwick (Radshape), Rachel Eade (Business Growth Service) & Steve Morley, Sertec, ISME Chairman

Outstanding contribution to manufacturing

Rachel Eade, manufacturing support specialist and TM Top 100 judge has picked up a prestigious accolade from the Institute of Sheet Metal Engineering (ISME).

Eade – automotive sector lead for the Business Growth Service – has assisted more than 2,500 companies in her career and has been awarded ISME’s Gold Medal for services to the sector.

Bosses praised the manufacturing expert for the her endeavors beyond the call of duty to support member firms the likes of Radshape and Sertec Group to overcome major challenges to grow and create jobs.

Eade’s role at Accelerate was mentioned, where she was an instrumental figure in the delivery of the MG Rover Taskforce that helped tens of companies survive the closure.

“This really came out of the blue, but is an award that means a lot to me,” explained Eade, who was awarded a MBE in 2014.

“There have been a lot of high profile people previously named as Gold Medal recipients so to follow in their footsteps is a great honour and underlines the importance of external advice, guidance and support can have on businesses.”

She added: “I’ve worked with a lot of firms who are involved in sheet metal and it’s probably fair to say it is a part of manufacturing that has had to evolve more than most over the last decade.

“The good news is that it has done just that and a good number of manufacturers are now in a period of sustained growth.”

It is estimated that in her 19-year career, Rachel has helped safeguard 11,000 jobs and created in excess of 5,500 new positions with expanding manufacturers.

In addition to the work she carried out with the MG Rover Taskforce, Eade has also been heavily involved in helping industry come to terms with the Peugeot closure, the effects of the Far East Tsunami and the development of the new Tooling Fund. Eade said: “There has certainly been a lot of ‘industry ups and downs’ during my career, but we are now in a position where the UK is back at the forefront of manufacturing.”

“My role at the Business Growth Service is to work with the automotive supply chain and this could be in providing coaching, mentoring, strategic business reviews, signposting to other external support opportunities, access to finance

or brokering relationships with tier 1s and car makers.

I've also helped firms leverage in funding from schemes such as AMSCI (Advanced Manufacturing Supply Chain Initiative) and the Regional Growth Fund (RGF)."

ISME Chairman Steve Morley commented:

"Rachel Eade has contributed immensely to our sector and I'm delighted that we have been able to mark this by awarding her our prestigious Gold Medal.

We look forward to the future and our members continuing to access specialist support that will help them overcome challenges and make the most of new opportunities."

AGM & Gold Medal Dinner 2015

The 70th Annual General Meeting was held on Thursday 7th May 2015 at the Fairlawns Hotel, Aldridge, Walsall.

The AGM formalities were opened by Chairman Steve Morley who welcomed members and guests.

There were no changes to the ISME Council.

Copies of the Annual Accounts for 2014 were handed out to members for discussion purposes.

It was mentioned that generous sponsorship had meant that the Skills Competition broke even in 2014.

Chairman Steve Morley presented his report on the past year;

Welcoming all members and guests to our 70th AGM here at Fairlawns, I'm pleased to say that we can combine this event with the award of our prestigious Gold Medal award.

2014 has been another busy year with a number of successful events arranged. The Skills Competition was hosted by the Morgan Motors, Malvern. Thanks are due to Morgan MD Steve Morris. 15 trainees entered with the winner being Ryan Acres of Babcock. We are grateful to our sponsors IMechE, Sertec Group, CBM, AP&T Group, Radshape, Bauromet and Bacock Marine for their support. A new test piece has been added for 2015.

Our Events Officer, Adrian Nicklin has also arranged visits during the past 12 months including the EPSRC at Loughborough University. A very successful "Meet the Experts

Day" was held at the Thinktank Museum, Birmingham. Sertec and Radshape provided stands for the event supported by several ISME members and friends. This is an important ISME initiative to involve young people in engineering.

The Institute's journal, Oracle has been regularly produced by our Development Officer, Ray Jelf, who has decided to stand down after seven years of producing a quality journal maintaining a high standard of articles whilst being largely self-financing through the support of our advertisers. We thank him for his efforts.

There has a further small decline in membership during the year but some new members have been gained.

With the meeting closing at 6-58pm ISME Members and Guests moved for pre-dinner drinks prior to the Gold Medal Dinner.

The Gold Medal Dinner was attended by 48 Members and guests held in honour of Rachel Eade MBE.

Unfortunately Rachel could not attend due to a shoulder injury, so the award was collected by her colleague Richard Lowe who gave an update on MAS activities and Rachel's involvement.

Companies in attendance were, Sertec, Regent Engineering, Hadleys, Impressions Technologies, Meggitt, Midland Power Press Services, Millennium Pressed Metal, Radshape, Surface Innovations, CBM & MAS.

CBM Health and Safety Meeting July 2015

At a well attended meeting of the CBM H&S Group which followed a tour of STADCO Telford an outline of the latest amendments to the Construction Design Management Regulations was given.

These regulations apply to any civil engineering construction works. This includes redecoration, cleaning with hi pressure water, site clearing and preparation, removal of demolished buildings, assembly of prefabricated buildings, installation of electrical systems and large maintenance jobs e.g. taking the crown off a large press.

All these jobs require a construction phase plan and in addition jobs requiring in excess of 500 man days have to be notified to the HSE.

An HSE Specialist Inspector gave a presentation on best practise in the use of Metal Cutting Fluids

for disease reduction. He emphasised the importance of regularly testing the sumps and that water based fluids provided a greater hazard due to the possible presence of bacteria.

An HSE inspector with special responsibility for working with the metals industry said that proactive inspection programmes were paying

articular attention to possible causes of ill health due to exposure to respiratory sensitisers and carcinogens. Extraction for weld fumes would receive particular attention.

The figures for fatalities for the period April 2014-March 2015 was 142. The highest industries were construction with 35 and agriculture with 33. This had continued the downward trend which has seen deaths at work half over the last 20 years.

In general discussion, companies policies on E Cigarettes were shared with the over whelming majority planning to treat them the same as normal cigarettes.



britishmetalforming.com



Yes Prime Minister!

On Wednesday 27th April Sertec were delighted to host the Prime Minister David Cameron, who delivered an election speech from the shop floor at the Company Head Office, Wincaster House.

With the Nation's broadcast and press media in attendance, he spoke passionately about the economy and how important continuity of Government was to maintaining the recovery. Only fifteen months earlier the Chancellor George Osborne had spoken from the same floor at Wincaster House, laying down the road to recovery for the country.

250 Sertec employees and a similar number of invited guests from the local community heard Group Managing Director Grant Adams talk of Sertec's growth in the 5 years since the Conservatives took office. A proud day indeed to be introducing the Prime Minister, who then congratulated Sertec on the success of the business and the number of jobs it had generated for local workers.

Mr Cameron later unveiled a plaque to name the new extension the 'Mosedale Logistics Hall' in honour of company founder Harry Mosedale and his family.



Meet your Council



Alan Shaw

ISME President Alan Shaw is Managing Director of Regent Engineering, a Darlaston based SME manufacturing pressed metal parts and welded assemblies. Alan joined the family business in the early 70's, having completed an Apprenticeship at Wilkins & Mitchell. Outside of work Alan enjoys music, reading and playing Tennis...very badly!

Steve Morley

Steve joined Sertec Birmingham in 1998 and became General Manager in 2000, helping the company achieve Ford World Excellence Silver and Gold Awards in 2003 and 2004 respectively. Appointed Sertec Birmingham Operations Director in 2007 he was later tasked with the wholesale restructuring and planning of the newly acquired the DPE Automotive factory in 2011 which became Sertec Tyseley Pressings. Steve is currently Sertec Birmingham Projects Director and our ISME Chairman.



Dr Alistair Foster

Currently working as Chief Technical Officer at Impression Technologies Ltd – a spin-out from Imperial College, set up to exploit the HFQ aluminium hot forming method developed at Imperial. Alistair has previously worked in manufacturing R&D and stress analysis roles within Defence, Nuclear Energy and Primary Metals Production industries.



Bill Pinfold C.Eng. MIMechE, MISME

A graduate of Birmingham University in Mechanical Engineering, Bill joined Tube Investments as a graduate trainee. In a 40 year career he held positions of Works Engineer, Works Manager, Manufacturing Director and Site Manager in the Simplex and Legrand Group of companies producing cable management products. Extensive experience was gained in press braking, multi stage press working, rolling machines and turret presses. Bill is ISME Hon Secretary.



Adrian Haller

Work life started as a Trainee Toolmaker and Adrian studied in Electro mechanical engineering, specialising in pneumatic and hydraulic control. He accrued great knowledge in production/engineering systems both practical and academic and then progressed into technical sales within Bruderer, where he has since progressed to Managing Director. He has witnessed exciting innovations and developments in the industry in his career to date. He has a passion for UK manufacturing and is a self-confessed petrol head, admiring anything which has wheels and an engine!





David Glennon

An Aeronautical Engineer by training, David changed direction early in his career and worked in supplying mechanical and hydraulic press equipment and systems to the automotive, transportation, aerospace and defence industries. A Member of Council since the late 1980's he has also been ISME Technical Officer, Events Coordinator (including the Skills Competition), and editor of The Oracle. Now semi-retired David is still involved with the industry through his association with Midland Power Press Services Ltd, but also devotes time to travel, gardening and a recent hobby of 'stone carving'.

Josie Stevenson

Josie trained as an Industrial Chemist but in 1980 she joined Midland Power Press Services, now the leading UK independent provider of service and support to the power press, metalworking and allied Industries. She is now Director and Company secretary. Josie actively participates in ISME, becoming a Council member then Chair of the institute. For the past fourteen years she has been our Honorary Treasurer. Josie serves as a Parish Councillor and enjoys time on their narrow boat, in their Campervan, as well as theatre and music.



John Davis

In the early 1950's John was an apprentice with Cincinnati Milling combined with his part-time-study for a degree. Working in both the UK and USA, he progressed to become Manager of Engineering responsible for UK machine design and development. John formed his own company in 1974, developing advanced monitoring controls. Whilst he accepted buyout in 2006, he still works on interesting selected projects.



Keith Chadwick

A time served sheet metal worker, Keith has been in the industry for over 40 years, 25 of which were at Rolls-Royce & Bentley in a variety of specific roles. He spent 2 years working in Wolfsburg , Germany with the VW sourcing teams when Rolls Royce split from Bentley in 1998. Keith is a strong advocate and supporter of Apprenticeship Programmes and operates one such scheme within Radshape Sheet Metal Ltd, where he has been Managing Director for the last 10 years.



Adrian Nicklin - Advisor to Council, Events Officer

Starting as a toolmaker and progressing to technical director at Wagon Automotive over a period of 36 years, Adrian gained vast experience in metal forming processes and project management for the automotive sector. Areas of expertise covered presswork, cold rolled section profiles and metal joining processes. Since leaving Wagon 10 years ago, Adrian has been self employed working as a specialist for the Confederation of British Metalforming (CBM), ISME & various other metals related companies and organisations.



Jobs saved as Millennium Assemblies acquires Birmingham's JJ Engineering



39 Birmingham manufacturing jobs have been saved in a deal that will create one of the largest independent metal pressings firms in the region.

Black Country-based Millennium Assemblies, which was founded last year to look for opportunities to work alongside Millennium Pressed Metal's established business, has purchased JJ Engineering from the administrators.

It is now planning to use the additional capacity to embark on a 2-year plan to significantly enhance joint sales revenue to £10m.

As part of the move JJ Engineering will be renamed Millennium Assemblies and will sit

alongside Millennium Pressed Metal to form the newly named 'Millennium Manufacturing Group'.

The acquisition, which was supported by Crowe Clark Whitehill and the Wilkes Partnership, was completed late on Friday afternoon.

Former Cab Automotive Managing Director John Faulkner will take the helm at the Garretts Green factory in co-ownership with Managing Director of Millennium Pressed Metal Anna Stevenson.

"JJ Engineering has a great workforce and a long history of supplying quality metal parts. The team shares our commitment to world class manufacturing, innovation and customer

service and we are very proud to have created a new platform for the future,” explained John.

“Sister company Millennium Pressed Metal had picked up a number of large contracts, so the ability to further increase our capacity with the purchase of the JJ Engineering plant was too good to turn down. There is also the added benefit of now being able to offer robotic welding, a well-equipped tool room and state-of-the-art metrology lab.

“It has an enviable client base of automotive, domestic goods and construction customers, not to mention a presence in oil and gas...all areas we are looking to gain a greater market share in.”

He went on to add: “39 jobs have been saved and we are now setting our sights on growth, this will definitely involve increasing the workforce even further.”

Millennium Manufacturing Group will employ 84 people across the two manufacturing sites and is set to turnover in excess of £7m in the next 12 months.

The two companies offer a single source solution for pressed metal components, machined parts, tube manipulation, wire forms and welded assemblies. This can be through long-term strategic supply, rapid turnaround and capacity relief for clients grappling with production bottlenecks.

“We now have more than 65 presses (from 25 to 350 tonnes) at our disposal,” explained Anna Stevenson.



“The acquisition comes on the back of the most successful twelve months in our 15 year history and just a few months after securing one of our biggest contracts – a £1.3m order to manufacture white goods pressings.”

She concluded: “We are just weeks away from launching the Millennium Manufacturing Group website and will also be attending the SMMT’s ‘Meet the Buyer’ event and many other national trade shows...all perfect platforms to reinforce the acquisition.”

New ISME members Welcomed

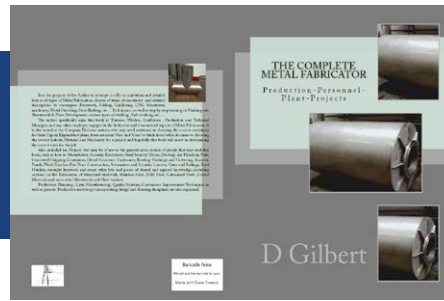
ISME Secretary Bill Pinfold and President Alan Shaw recently welcomed new members Mark Postans (left) and Adesh Calleea (right) and presented them with their ISME membership certificates.

Their membership was approved at the October ISME Council meeting. Both work for Regent Engineering alongside Alan (centre) and they are pictured on the shop floor of their Darlaston factory.



The Complete Metal Fabricator

A book by ISME Member Dave Gilbert



Over the last 30 years Dave has been involved in the manufacture of many different products using the many skills he has acquired over the last 30 years. In all this time he's documented and photographed much of the work and has even written training manuals for companies and trainers from Pressbrake Setting to Welding, and most recently a manual directed at Stainless Steel fabricators.

Four years ago he decided to give something back and put all his knowledge together with tips and advice from guest contributors to create a text book, filled with useful and real world information set out and explained in an easy read format, aimed at trainees, managers, trainers and company decision makers / machine buyers. There will be a 'Plant and Machinery' section featuring the pro's and con's for each and every machine, gauged from real life scenarios rather than brochures, search engines and machinery salesmen.

Dave endured several delays due to a joint release in N. America (and the fact that he kept adding to it!) and is now targetting a January 2016 release, becoming available direct from a yet to be confirmed website together with and already set agreement to purchase from Amazon UK in both Paperback and Kindle format. It will include a bonus 'Projects' section incorporating manufacturing drawings and all the detail needed make Welding extract benches, Louvres, Silencers, Converted containers, Log Burners, Steel Clad workshops, Air Handlers and fan boxes, Acoustic Punch Press Enclosures, etc...useful information and ideas for any business, whether large or small. There will also be an extensive reference section covering available steels, sizes and materials, Punch and shear tonnage calcs, etc..... The focus and main object of the book is to share knowledge; hopefully any profits will allow for an associated website complete with a community website to be set up to create an exchange of information.

After publication, Dave will be offering ISME members a free download of individual chapters in the book, (except the Projects section). At the time of this publication (December 2015) 'The Complete Fabricator' website will be live and taking reserved orders and replying to any queries, in the meantime should you have any questions or would like to submit contributions to the book for consideration then please contact Dave directly. Furthermore, ISME members could supply a page advertisement for inclusion free of charge! This would however, be required before December 7th 2015.

Enquiries to: davegilbertuk@gmail.com

Book Contents

- Chapter 1 - Working Safely
- Chapter 2 - Personnel, Production, Planning
- Chapter 3 - Materials
- Chapter 4 - CAD/CAM and Programming for C.N.C machinery
- Chapter 5 - Technical Drawing, Marking Out , Plate Development
- Chapter 6 - Sheet metal Work and Platewayork

- Chapter 7 - General Fabrication, Structural Steel and Pipework Fabrication
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- Chapter10 - Forming and Folding Machinery
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- Chapter 12 - Assembly Chapter 13 - Finishing
- Chapter 14 - Projects



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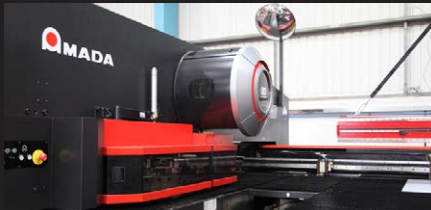
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New forming technologies aid ultra-lightweight aluminium pressings design

A new, UK-developed, enabling forming technology is being used to achieve class-leading light-weighting design suitable for aeroplanes, rail rolling stock and automobiles. The underlying forming process, known as solution Heat treatment, Forming and in-die Quenching: HFQ®, was originally developed at the University of Birmingham and Imperial College London and is now being commercialised by Impression Technologies Ltd (ITL).

Following a successful second round of funding in which £6.05 million was raised (£4 million by shareholders and a further £2.05million contributed by AMSCI in the form of grants and loans), ITL has now set its sights on becoming a world-leading knowledge base for light-weight hot forming technologies.

John Sellors, Chief Engineer at Impression Technologies, explains the background to HFQ technology: “In the HFQ forming process, an aluminium blank is heated, formed whilst hot, and subsequently quenched in the press tool. Optimum mechanical strength is then achieved by artificial ageing after forming.”

“HFQ gives OEMs and tier 1 suppliers the increased levels of elongation needed to enable extremely complex, deep drawn pressings to be manufactured from high-strength aluminium

grades in a single operation.”

The patented technology facilitates weight reduction through a decrease in panel thickness and/or the deletion of reinforcement panels or extrusions.

Now, building on the core HFQ forming technology, and in partnership with Tier-1 licensee PAB Coventry, ITL is promoting the use of HFQ-formed tailor-welded blanks (HFQ-TWB). HFQ-TWB offers the ability to form extremely strong panels of non-uniform thickness. Aluminium TWBs have been available for many years but typically suffer from low strength and reduced formability at the weld line. The high-temperature reached during HFQ forming effectively re-sets the weld strength thereby removing one of the major drawbacks of aluminium TWBs

The HFQ-TWB technology has been developed under the Ultra-light Car Body (UICaB) research project, which is run by Tier-1 supplier PAB Coventry and is part-funded by a grant provided by Innovate UK. A strong technical consortium including PAB, ITL, Imperial College, Innoval, and Lotus Engineering has meant significant progress has been made during the 2-year UICaB programme.

As part of the project, a door inner panel has been used to demonstrate the potential of the

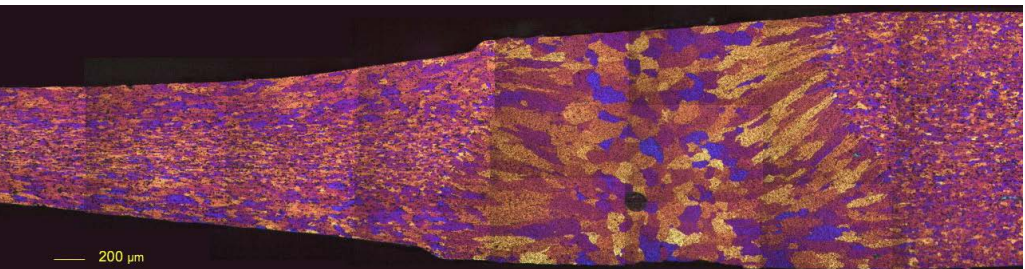


Figure X: Cross-section of formed component through the weld region, showing the grain structure of the weld and the parent sheet ((image courtesy of Innoval Technology)

technology. Using HFQ-TWB, the door inner baseline thickness was reduced from 2mm to 1.5mm. The part thickness was held at 2mm only in localised areas including the hinge, latch and beltline. The resulting panel was not only lighter than the baseline cold-formed design, but due to the use of high-strength AA6082, was sufficiently strong and stiff to allow deletion of reinforcement panels and associated press and assembly tooling. Forming of the multi-thickness tailor welded blank using the HFQ process increased the formability of the entire panel, including the weld zones, enabling the manufacture of complex features which would otherwise be infeasible if conventionally pressed formed.

The final strength of the HFQ-TWB door inner panel was almost 250% higher than the original 5xxx series baseline pressing. A mass saving of over 1.1Kg per HFQ-TWB door was achieved versus the conventionally pressed baseline, with both reduced part count and investment whilst improving structural performance.

Fig X is a metallographically polished and electrolytically etched section through the laser welded joint showing the grain structure of the weld. The sheet has a fine uniform grain structure compared to the weld that shows a typical central structure of coarser equiaxed grains and columnar grains towards the edge of the weld. There is a smooth transition from the weld to the sheet on both surfaces and no preferential deformation of the weld region. The gas porosity is low. Formability of the weld was significantly enhanced at elevated temperature using the HFQ process.



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- Complete press overhauls, clutch conversions, new electrics.
- Second hand presses, servo feeds, decoilers, straighteners.
- NEW presses & coil feed equipment.

Locomotives

- Railway Maintenance Support & specialist part manufacture, safety equipment, jigs & fixtures.
- Years of experience with full size & narrow gauge steam & diesel locomotives offering servicing, spares, overhauls & restoration work.
- New narrow gauge steam & diesel locomotives.
- Carriages, bogies, tenders.

Machining

- One offs & small batch to drawing or sample.
- Large capacity machine & fitting shop.
- Turning, milling, boring, slotting, drilling and welding.
- Fabrication work in steel & aluminium - MIG, TIG & ARC.
- BS EN ISO 9001:2000 Quality Management System



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Skills Competition

Thursday 11th June 2015



Held At Morgan Motor Company



With Thanks to Morgan Motor Company especially Steve Morris MD, Angela Hymas and the helpful & knowledgeable staff, the event was a great success at the Malvern Plant that promotes UK Engineering hand working skills to the highest level.

This year's event brought in 26 apprentice competitors from around the UK showing the need for the future to make all our metal commodities whether aerospace, ship building, automotive, catering or retail sectors.

With Competitors from, Babcock Marine Technology, Sertec, Cosford Aero Museum, Coleg Cambia, PAB, Regent Engineering, Midland Power Press Services we had a good

mix of test pieces to judge.

The Categories were;

- Wall vent year 1
- Ducting year 2
- Hinged Clasp (New category for toolmaking apprentices)
- Hinged Clasp Checking Fixtures (New category for toolmaking apprentices)
- Open class exhibits.

We must praise the skills of the Apprentices for their workmanship and quality. Dimensional accuracy of the test pieces this year were to a very high standard with marking very close in all categories. The Open Class entries as normal gave the Judges a challenge to identify skills and originality.

ISME also judge their written technical document that accompanies the component they have made. We believe that the written word is an essential part in the planning of how they go about producing their exhibit.

Like all events in today's environment we are indebted to our event sponsors;

- Morgan Motor Company
- Institution of Mechanical Engineers (ImechE)
- Sertec Group holdings
- Confederation of British Metalforming (CBM)
- AP&T Group
- Radshape
- Bauomat
- Babcock Marine

Without their support there would not be a competition.

This Year's Award Winners

While Judging took place the Contestants, Trainers & Guests enjoyed the very interesting Factory tour noting the skills of the Morgan Workforce in production.

As previously mentioned the ISME judges thought the quality standard was exceptionally high with the following awards given;

- Wall Vent Test Piece Winner(Frank Cooper Award) Shaun Rhodes Sertec / EEF
- Wall Vent Test Piece Written Winner, Andrew Neal Babcock
- Ducting Year 2 Test Piece Winner, Oliver Sluggett Babcock
- Ducting Written (Ted Rosmarin Award) Matthew Trainor- Cartwright Cosford Aero Museum
- Clasp Test Piece Make, Stephen Kelly & Matthew Martyn PAB
- John Davies Award Open Class winner, Oliver Sluggett Babcock
- ISME Originality Open Class Award, Ben Lang Babcock
- Open Class Written Award, Matthew Primmer Babcock
- ISME Trophy Overall Winner, Oliver Sluggett Babcock

We thank Steve Dowling Chair of Worcester Area IMechE for his help and for Peter Karlsson AP&T for making the long journey from Sweden to be with us on the day.

Thanks must go to the College and Company trainers for the time effort and support they give to the students and apprentices. Without their commitment there would not be a competition. This also applies to the support of the ISME judges who provide their time free of charge. We are currently planning to hold the 2016 event again in June which appears to be better for the College and training providers time table.

If you are interested in the next competition please contact;

Adrian Nicklin ISME Event Officer. Email; adriannicklin@btinternet.com, Mobile 07774 260126

PS; 2016 Judgement Day to be held at the RAF Museum, Cosford on Thurs 16th June.



PROFILE: Black Country Manufacturing Limited

Directors: Dave Gilbert, Tony Green, Andrew Gunn

Black Country Manufacturing Ltd (BCM) is a full service engineering company based in Tipton, in the heart of the Black Country (www.blackcountryman.co.uk). The business manufactures a range of material handling systems and equipment for its long-established sister company, Ban-Air Storage Systems (www.ban-air.com), along with a diverse range of production for other sub-contract customers and partners in the Midlands and beyond.

Just in the last year, BCM's sheet metal fabrications and assemblies have been shipped to all corners of the world, from Singapore to Stourbridge, from the middle of the Pacific to the Pensnett Trading Estate. The most recently completed project comprised 10 x 40ft containers of knock-down components for a major storage and distribution center in Qatar, all completed under very tight deadlines utilising the company's flexible manufacturing set-up.

Production Director Dave Gilbert explains: "BCM's tie in with Ban-Air has allowed us to expand very rapidly as a new manufacturing business, and this has been a great benefit to successfully enter the sub-contract market which is as we know very competitive. Having the brand new equipment such as the Amada laser, punch, press brakes along with the robotic welding cell is great in the flexibility it gives us, however what impresses me most is the skills and commitment of our small but growing team. We're always on the look out for new talent and skills, however that's no good without a strong sheet metal engineering background in the first place which we're fortunate to have."

The business is committed to a diverse business model, having invested over £1.6m during the last 12 months, supported throughout by Regional Growth Fund investment in equipment to create an additional 15 new full time manufacturing jobs in the Black Country. The combination of strong OEM contracts, as well as growing sub-contract reputation in sheet metal put the business in an enviable position for growth.

Being in the Black Country is very important to the company. "It's where the Industrial Revolution began after all", MD Andrew Gunn explains. "It's by no means a requirement to work here, however our team is very proud to be mostly Black Country born and bred. We're very conscious

of the strong industrial roots of our ancestors and landscapes, many only minutes away from our factory.”

“Whilst we have already committed significant investment in BCM’s factory, our business plan is very much one of investment in all three critical areas: People, Plant, and Processes. That’s why being part of an organisation like ISME, which promotes sheet metal engineering, is important to our company as it recognises the science and skills involved. Too many people seem to think that the solution to sheet metal challenges is just the right 3D design software. Well, it helps for sure, but it’s by no means the entire solution, just part of it. There is simply no substitute for the kind of practical skills that ISME champions each year in its competitions for instance.”

BCM is committed to practical apprenticeships as a method of developing the metal working and engineering skills necessary and currently has 3 apprentices at various stages in development. “As the industry knows only too well, the old fashioned skills and seasoned metal workers are increasingly hard to find and whilst we’re always looking to expand our team with experienced workers, we are also committed to apprenticeships as a means to safeguard these skills for our long-term business as well as generally for the next generation”, Dave Gilbert explains.

Black Country Manufacturing Ltd’s full capabilities include:

- Technical Drawing Service & Reverse Engineering (AutoCAD/Solidworks)
- Amada LCG3015 CO2 laser
- Amada EMK3612 Mk2 30 ton punching cell with 9 x 3t autoloader (3 x 1.5m working range without reposition)
- 3 x 7 Axis CNC Press brakes, (up to 170t x 4m)
- 4m x 8mm guillotine
- Manual MIG / TIG welding
- 8 Axis Robotic welding cell (4.5 x 1.5 x 1.5m working envelope)
- Riveting, clinching, bonding & full assembly services
- CNC routing (wood, plastics & aluminum)
- Edge-banding & finishing

The company is working with LRQA to achieve both ISO9001 Quality and ISO14001 Environmental Certifications during 2015, which reflects in part the importance the company places on processes. “Customer retention and satisfaction is our top priority, and total quality management is how we make it a reality”, Andrew Gunn explains. “It’s often said in the subcontract world that you’re only as good as your last order, which is why we strive always to make every order count.”

www.blackcountryman.co.uk



MACH SHOW 2016 – www.machexhibition.com

The Metalforming Machinery Makers Association (MMMM) is pleased to declare that their Metalworking Village at the MACH 2016 Exhibition, which takes place at the NEC near Birmingham from 11th to 16th April is now fully booked.

If you are looking for presses, sheet metal machinery, rollformers, coil lines and associated equipment, this show is a must attend event. We look forward to welcoming you to our Village In Hall 4 at the NEC.

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