ORACLE

Journal of the Institute of Sheet Metal Engineering

New Chairman for ISME

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MMMA members delighted with Mach 2018

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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

MAGNETIC MOULD CLAMPING

Hilma M-TECS magnetic clamping products for moulds are capable of withstanding maximum temperatures of 80°C, 120°C or 240°C. Systems can be either factory fitted by the machine manufacturer, or retrofitted to existing machines within a few hours.

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From the President

Dear Reader,

I hope all members have been able to enjoy the wonderful weather we have had during the summer, great for holidays and relaxing, not so good at times for work.

As you will know, Steve Morley, our Chairman stood down at the AGM after eight years truly valuable service, and we wish him well in his new role as President of the Confederation of British Metalforming. We also look forward to working with our new Chairman, Barry Smith, Managing Director of HT Brigham as we continue develop and build our “ISME brand”.

On wider matters, it might be timely for us all to drop a note or email to our respective constituency Members of Parliament urging them to concentrate their minds on delivering a Brexit, which is favourable to business. As I write this, it seems that a “no deal” outcome is a distinct possibility, with potentially catastrophic consequences for the integrated supply chains upon which many of us depend. We live in hope that common sense and pragmatism will triumph over pointless dogma and naked personal ambition.

Warm Regards,

Alan Shaw - President

From the Secretary

Steve Morley

Steve Morley our immediate Past ISME Chairman has been elected the new President of Britain's leading trade association for the metalforming industry, the CBM. He aims to ensure its members get real value from their membership and turn its National Metalforming Centre (NMC) in the Black Country into an education and skills powerhouse.

The West Bromwich-based Confederation of British Metalforming (CBM) and has also established a reputation as an excellent location for conferences and other events, which they are keen to promote.

However, Steve - who has spent 4 years as a Director of the CBM before taking the role of President and underpins the position after 22 years in senior roles with auto engineering giant Sertec - believes the association can take on an even more important role, by helping to narrow the skills gap which has bedevilled the region's economy for decades.

The public sector has done some great work on trying to tackle the skills gap, but it's also been inconsistent. Abolishing the Manufacturing Advisory Service was an unfortunate result of cut backs that left a huge gap in support for SME's, one which is yet to be filled. SMEs need support on where they can go to for investment in skills and innovation".

Having spent time working on automotive projects in Europe and China, and witnessed first-hand the huge impact which private sector-led skills initiatives could make. "Working on projects overseas I've seen countries with struggling economies developing and growing as a result of direct government support which underpins foreign investment from companies relocating to those regions, which puts us at a disadvantage".

CBM aim to be at the forefront of initiatives to support their members, which Steve says will be pivotal to their success in delivering value for money,

"There are lots of good things happening in the West Midlands with regard to manufacturing, but there is still much more to be done, and we have to take a lead where we can. We have already held an open day to promote the work we are doing, which included a presentation on the Apprenticeship Levy, support for SMEs and the Elite Centre for Manufacturing Skills (ECMS), which the CBM are supporting. All of which were received very well by those who attended and these will now be held every quarter, with the next one planned for January."

Keith Chadwick

ISME Council Member and Managing Director of Radshape Keith Chadwick, has announced his retirement. He will continue to be available to give guidance to the company when required for another 6 months.

Keith has always been a strong supporter of the ISME Skills Competition and has entered many of his apprentices over the years. He says that he will now fully donate his time to his wife, family, walking the dogs, decorating and playing golf…in that order! He will be succeeded as MD at Radshape by Richard Allen

Balaji Ilangovan

Congratulations to ISME Member Balaji Ilangovan who has been appointed as Technical Lead (Automation) at Advanced Manufacturing Research Centre (AMRC), North West. He will be closely working with SMEs in the North West to help them advance in the use of cutting-edge technology.

New ISME Web Site

At the April ISME Council meeting it was decided that the ISME website needed modernisation and eleven10creative was commissioned to do the work. Creative Director Steve Watson worked closely with Bill Pinfold and Adrian Nicklin, supported by many ISME members with the supply of photographs. This resulted in an exciting new site being launched at the end of September.

It can be viewed at www.isme.org.uk

We also have an ISME Twitter feed @ISMEng_uk where you can get all the latest ISME news.

Welcome to New ISME Student Members

Entrants to the ISME Skills Competition are given student membership of the Institute for a period where they receive the ISME Oracle to keep them in touch with our activities to hopefully encourage them to join us as their careers develop.

This year we welcome: -

- Nico Marsell, Thabiso Dube, Cameron Wallace and Daniel Craig of PAB.
- Benjamin Harrison, Aidan Woodall, Robert Chapman and Stephen Livick of Babcock.
- Joshua Hemming, Peter Dear, Rhys Bowman, Macauley Jones, Hadden Deeming, Paige Sheridan, William Moore, Robin Campbell and Ryan Bevan of Sertec.
- Chris Burcell, Charlie Reaper, Joseph Wilkes, Will Canning, Morgan Tabb and Harvey Stone of Warwickshire College.

Report on ISME 73rd AGM held on Thursday 19th May 2018

The meeting was kindly hosted by Company Member Regent Engineering and was attended by 13 members.

The Hon. Treasurer, Josie Stevenson reported a surplus for 2017 of £6,200 with reserves increasing to £26,397. The Chairman, Steve Morley gave his report on a successful year and announced that after eight enjoyable years that he would not be seeking re-election. The meeting passed a vote of thanks for his outstanding contribution to the Institution.

The following officers were elected.

- Chairman Barry Smith
- Hon. Treasurer Josie Stevenson
- Hon. Secretary Bill Pinfold
- Mike Burton was elected to Council

Our New Chairman

We are delighted to announce the appointment of Barry Smith as the new Chairman of the Institute.

Barry's career in engineering began back in the 1970s as apprentice, working in a number of departments including design manufacturing costing and purchasing.

After finishing his apprenticeship, Barry moved into contract tool making, where he worked for over 10 years. In 1980 he had an opportunity to take control of a contract tool room by the name of Vicbar Engineering and during his time there, Barry developed his skills even further and fine-tuned his tooling designs.

From contract tool making he moved companies and became Engineering Manager at HT Brigham. 10 years later, Barry became Managing Director of the company.

Commenting on his appointment to the Chair, Barry said; "I look at ISME and recognise how important it is in the manufacturing world and it is my objective to raise its profile, so that it becomes the society that all true engineers desire to belong to."

Tweet ISME!

The Institute now has it's own Twitter Account "@ISMEng_uk"

We plan to send information about Institute events and news of members, both individual and corporate.

Please follow us if you can to help increase our profile in the eyes of potential younger members.

If you have news, which may be of interest to other members, please send it to me.

Thank you, Bill Pinfold (Hon Sec)

Russell Hartill, Tony Carter, Ivan Littlewood and Charles Higgins (L-R)

Management deal for Worcester Presses, as it celebrates record year of sales

A Black Country manufacturing specialist has been bought by its management team, as part of ambitious plans to build on a record year of sales.

Worcester Presses, which provides a range of mechanical and hydraulic presses and coil processing equipment for clients all over the UK, has seen turnover jump by £700,000 to £3.2million, off the back of strong demand from the automotive, aerospace and construction sectors.

In order to build on the recent expansion, the owner, Charles Higgins, has sold his majority stake in the business to current Directors Russell Hartill, Tony Carter and Ivan Littlewood.

The trio, who all have extensive experience in the machinery industry, have already signalled their intentions by investing in a new CNC lathe and the recruitment of administrative and machining apprentices.

"Worcester Presses has over 69 years of history and a proud reputation for the quality of the machines we supply and the high levels of customer service we provide," explained Russel Hartill, who has taken over as Managing Director.

"This is a fantastic business to develop and a lot of the track record and platform we have in place for future growth has come from the hard work, knowledge and contacts that Charles has brought to the business over the last forty years."

He went on to add: "He'll continue in a sales and consultancy role and we are looking forward to leveraging his expertise as we look to build on a 20% rise in sales in 2018.

"A lot of this growth has been down to our ability to deliver turnkey packages, with more customers looking for their hydraulic and mechanical presses to be tailored to their exact specification - often looking to integrate coil processing as part of the installation."

The mechanical Chin Fong range of presses is still the core element of the Worcester Presses' business, closely followed by its growing range of Tomac Coil Handling equipment, Yeh Chiun hydraulic presses and press transfer equipment.

Employing 14 people at its 12,000 sq ft factory in Dudley, the company has seen a 35% increase in sales for its range of hydraulic presses, offering both C Frame and straight side presses to customers involved in the metal forming and stamping industry.

The firm has also signed an agreement with a press transfer system specialist to shortly enable it to supply complete automation/robotic packages in the UK.

For further information, please visit
www.worcesterpresses.co.uk
or contact
01384 392266.

ISME Sheet Metal Skills Competition

ISME would like to thank the Museum and catering staff for the excellent hospitality & fish & chips lunch

The Apprentices and Trainers were very impressed with the Museum site, exhibits layout and facilities.

This year's event bought in 27 apprentice competitors from 4 companies. This shows the need for young talent to make or maintain our sheet metal commodities whether in aerospace, ship building, automotive, construction, catering or retail hardware.

With Competitors from, Babcock Marine Technology, Sertec, PAB Coventry and Warwickshire College we had a good mix of test pieces to judge.

The Categories were;

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

We continue to 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; however we could really have done with more exhibits.

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;

- Bruderer
- Institution of Mechanical Engineers (ImechE)
- Sertec Group holdings
- Confederation of British Metalforming (CBM)
- AP&T Group
- Radshape
- Bauromat
- Babcock Marine
- Midland Power Press Services

Without their support there would not be a competition.

This Years Award Winners

While Judging took place the Contestants &Trainers & enjoyed visiting the Black Country Living Museum. As previously mentioned the ISME judges thought the quality standard was exceptionally high but were disappointed with the low numbers of Open Class exhibits.

The following awards given;

- Wall Vent Test Piece Winner(Frank Cooper Award) Paige Sheridan Sertec
- Wall Vent Test Piece Written Winner, Aidan Woodall Babcock
- Ducting Test Piece Winner, Stephen Livick Babcock
- Ducting Written Winner (Ted Rosmarin Award) Stephen Livick Babcock
- Clasp Test Piece Make Winner Peter Dear Sertec
- Clasp Test Piece Written Winner Rhys Bowman Sertec
- John Davies Award Open Class winner, Stephen Livick Babcock
- Open Class Written Award Winner, Lewis Brownlow Babcock
- Open Class Originality , Aidan Woodall Babcock
- ISME Trophy Overall Winner, Stephen Livick Babcock

Thanks must go to the Company trainers, colleges and training schools 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.

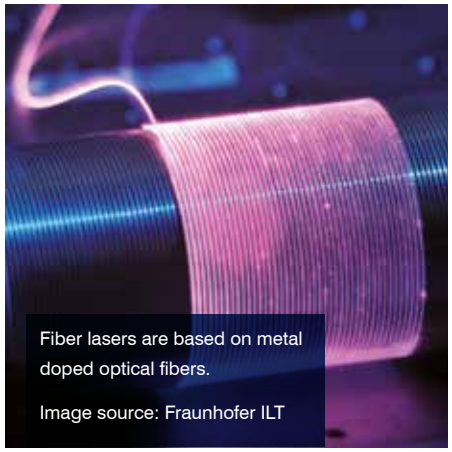
The 2019 event will be held on Thursday 13th June at Morgan Motors, Malvern. If you are interested in the next competition please contact; Adrian Nicklin ISME Event Officer adriannicklin@btinternet.com, Mobile 07774 260126

Fiber laser processing enables fast, high-quality, precision engineering of lightweight bodies, batteries and power electronics. Image source: Trumpf

Fibre lasers: unique tools for automotive & aerospace manufacturing

Automotive and aerospace manufacturers are increasingly turning to fiber lasers to resolve their manufacturing challenges. Fiber lasers are very stable and reliable instruments, which offer the best beam quality for material processing applications where precision is important. Compared to traditional manufacturing processes such as resistance spot welding or conventional laser welding (gas and solid-state), fiber lasers offer improved energy efficiency, smaller machine footprint, lower maintenance requirements, improved machine lifetime and faster cycle times for high-volume production. Consequently, process speed is maximized; material costs and operation costs are minimized.

The superior precision provided by fiber lasers is particularly useful for manufacturers switching to electric and lightweight vehicle designs. Significant weight reduction is achieved by minimizing the size of flanges via fiber laser welding, while the safe engineering of batteries is enabled by wobble-beam fiber welding. Key players developing fiber lasers for automotive manufacturing include Trumpf (Germany) and the fiber laser market leader IPG Photonics (USA). While laser processing is less common in the aerospace industry, activities such as the Innovate UK OLIVER project that explores game-changing technologies for aerospace aim to improve this with support from IPG Photonics. 94.6% of the $1.409 billion revenue IPG Photonics reported for 2017 originated from material processing. End-users of IPG Photonics fiber lasers include Volkswagen, BMW, Ford and Boeing.



Fiber lasers are based on metal doped optical fibers.

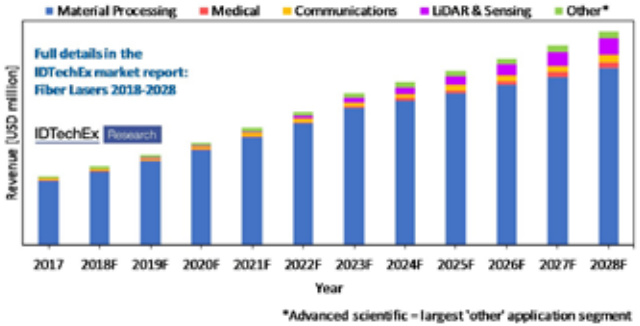
Image source: Fraunhofer ILT

Inside a fiber laser, rare-earth metal elements doped into an optical fiber function as the gain medium and determine the infra-red output wavelength. Fiber lasers can easily achieve average output power in the range of 1 W to >10 kW, or function as ultrafast pulsed energy sources. Many fiber-based machines utilize back reflection protection protocols for optimized processing of reflective metals.

Technical advances and price reduction in fiber laser systems have also led to their utilization in 3D printers for metal deposition, which are primarily targeted at the aerospace industry. Products available range from metal printers using powder bed fusion processes to those employing wire-fed deposition. The latter enables dual functionality in additive manufacturing and laser brazing. Examples of cost-effective, fiber-based 3D printers include those offered by Xact Metal (USA), which spun out from Penn State University & established itself as a new player in the 3D printer market in 2017. Xact's selective laser melting machines can print several metals including aluminium, titanium, stainless steel & superalloys. The key innovation is the patented gantry system with lightweight mirrors that move the laser beam in X-Y motion. The absence of complex optics present in conventional metal printers reduces system cost.

3D printing of metals enabled via selective laser melting with a fiber laser system. Image source: Xact Metal.

An unbiased analysis of these technologies and markets is available in a report titled Fiber Lasers 2018-2028: Technologies, Opportunities, Markets & Forecasts, which was recently published by technology consulting company IDTechEx. The report provides an independent assessment of fiber laser innovations that will have a major impact on the automotive and aerospace industries within the next decade. It also contains company profiles and product overviews of 22 fiber laser suppliers, which includes all major fiber laser suppliers based in Europe, USA and Asia. IDTechEx forecast the global fiber laser market to reach a size of $8.9 billion in 2028.



Preview of the global fiber laser market forecast based on original research by IDTechEx.

Source: IDTechEx

To find out more about the IDTechEx report "Fiber Lasers 2018-2028: Technologies, Opportunities, Markets & Forecasts", visit www.IDTechEx.com/fiber

ISME Gold Medal Award Dinner Dance

ISME worked with the MMMA to relaunch its popular black-tie Dinner and Dance, known fondly as the Metal Bashers Ball. The event was held in May at the Copthorne Hotel, Dudley.

Manufacturers and suppliers thought it was high time to celebrate the success of the Industry. The evening was a huge success, everyone involved in bringing this together needs to be congratulated. What a fantastic evening. We had over 150 guests attend representing 23 companies who heard a very interesting, informative and inspiring after dinner speech by Pete Waterman OBE.

The evening also incorporated the presentation of the ISME Gold Medal sponsored by Sertec, for exceptional contribution to the Sheet Metal Industry.

This year's medal was deservedly awarded to Ray Jelf, a long-time member of ISME and the MMMA, a very popular choice.

Dancing continued to midnight to Clive Sinclair and networking around the bar area later in the evening was a great place to meet new contacts and chat to fellow members.

Following the success of this year's Ball, ISME and MMMA are pleased to announce that the Metal Bashers Ball will be held at the Copthorne Hotel, Merry Hill, Dudley on Friday 17th May 2019.

The after dinner speaker will be Carl Chinn MBE, Birmingham Historian on the Peaky Blinders followed by dancing to the Soultown Collection.

Tickets are £60.

For further details and bookings contact
Adrian Nicklin
adriannicklin@btinternet.com
or Bill Neal
billneal@mmma.org.uk

ISME Gold Medal winner 2018 – Ray Jelf

ISME is delighted to have awarded this year's Gold Medal (sponsored by Sertec) to longstanding Institute member Ray Jelf.

Schooled at Central Grammar School in Birmingham and after a brief period in Commercial Art, Ray joined the British Oxygen Company in 1950 as a trainee Draughtsman. 1952 to 1954 saw National Service in the Royal Electrical and Mechanical Engineers before returning to BOC.

Ray was soon to hear of vacancies at Hordern Mason and Edwards (HME) and following a successful interview he spent 17 years of gainful employment with this advanced engineering firm.

In 1971 a change in direction lead to the position of Sales Manager at Clarks Press where he gained specific knowledge of coil feeding and associated ancillaries.

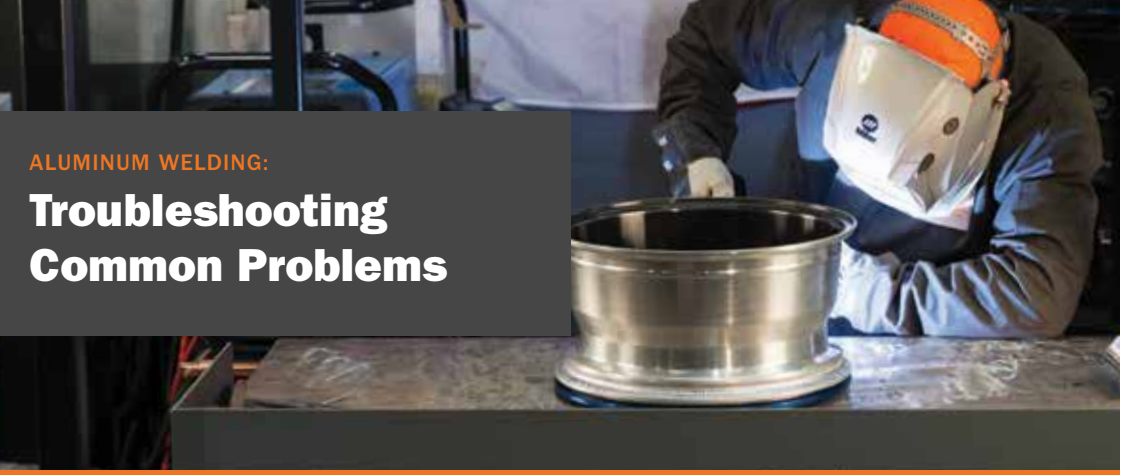
Ray left Clarks in 1973 to start Indicum Ltd, a Sales Company holding some 16 franchises from the USA and Europe specialising in the supply of Presses together with a wide range of complimentary equipment. Indicum became respected as the leading sales agency in the UK. 45 years later, he's still doing it.

Ray attended his first ISME meeting at Gosta Green Technical College, now the University of Aston. His employer Hordern Mason & Edwards had a strong interest in the Institute and encouraged many to attend the various lectures and presentations held at the time.

After going 'on the road' in 1965 to the South East, Ray joined ISME's South London Branch. In 1972 he moved to Chipping Norton and joined the Coventry Branch which a few years later was absorbed into the Midlands Branch. In his time with ISME and in particular as a Council member, Ray carried out many roles including Chairman and President, but he is particularly proud of three - his instigation of the house magazine 'The Oracle', his involvement as ISME Chairman with ICOSPA and the Annual ISME Dinner Dances which, under pressure he agreed to run for one year…he eventually retired after organising his 25th!

Many members will have fond memories of the 'Metal Bashers' Balls at the Chateau Impney in Droitwich. These events did much to foster good relationships in the sheet metal industry. In parallel with his ISME work Ray has been a very active member of the MMMA, also holding the position of Company Secretary for some time.

Through his Indicum Sales business and the work he put into both ISME and MMMA, Ray has become one of the most well known and highly respected gentlemen in the business and there is no doubt that he has been instrumental in introducing new developments to sheet metal engineering and created lasting relationships throughout our industry.



ALUMINUM WELDING:

Troubleshooting Common Problems

Aluminum offers numerous benefits, including high strength-to-weight ratio, corrosion resistance, and high thermal and electrical conductivity — making it one of the most specified materials in the welding industry today.

However, welding aluminum presents some unique challenges, including its oxide layer; different chemistries between alloys; the need to use a less rigid filler metal; and the need for very clean base metal. In addition, a low melting point makes aluminum especially prone to burn-through on thinner sections and may cause lack of fusion on thicker parts. Weld defects such as cracking, weld discoloration/smut and porosity are also concerns.

To minimize downtime and enhance productivity, consider some common issues when MIG welding aluminum and tips to troubleshoot them quickly.

Cracking: An overview

Cracking is one of the most critical issues that can occur in aluminum weldments. Even small cracks can prevent welds from meeting code requirements and can eventually lead to weld failure. The right filler metal and an appropriate welding procedure are important to success.

There are two types of cracking — hot cracking and stress cracking. Hot cracking is the more common of the two and is mainly a function of chemistry, while stress cracking is the result of mechanical stresses. Both can occur when using gas metal arc welding (GMAW) or gas tungsten arc welding (GTAW) processes on aluminum.

Hot cracking

There are three factors that can significantly influence the probability for hot cracking in aluminum welding:

1. How susceptible the aluminum base material is to cracking — some alloys, like 6xxx series, are more prone to the problem.
2. The filler metal used during the welding process.
3. The joint design — some joint designs restrict the addition of filler metal.

To prevent hot cracking, choose a filler metal that provides a weld metal chemistry with lower crack sensitivity. Each aluminum filler metal features an American Welding Society (AWS) classification that corresponds to the Aluminum Association registration number, and together the two identify the alloy chemistry. Always reference a reputable filler metal selection guide to make the best choice, since not all aluminum filler metals are suitable for every aluminum base material. These guides provide recommendations for specific weld characteristics, namely: cracking, strength, ductility, corrosion resistance, elevated temperature service, color match after anodizing, PWHT and toughness.

If cracking is a concern, select the filler metal that has the highest rating in the cracking category. Weld joint design is another important consideration that affects the chemistry of the weld and can help prevent hot cracking. A weld joint with an appropriate bevel results in adequate base metal dilution. This means a beveled edge can increase the amount of filler metal in the weld, producing a chemistry that is less likely to crack. With some aluminum base alloys, such as the 6xxx series, this is a very important factor that can strongly influence the probability for hot cracking.

Stress cracking

While not as common as hot cracking, stress cracking can still affect the integrity of an aluminum weld. This type of filler metal lowers shrinkage stresses, particularly in crack-sensitive areas like the beginning and end of the weld (or craters). Choosing a filler metal containing silicon, when appropriate, can lower shrinkage stresses to help prevent this problem. Also, use an automated crater fill function or other approved methods of crater filling to minimize the opportunity for cracking in the crater.

Increasing travel speeds can help reduce the opportunity for stress cracking in aluminum by narrowing the heat affected zone (HAZ) and reducing how much the base metal melts.

Preheating may further help reduce residual stress levels of the base material during and after welding, which in turn will lower the probability of stress cracking. Avoid welding aluminum that is very cold, and avoid overheating during the preheating operation (150 degrees Fahrenheit is safe for all aluminum alloys). Overheating some base alloys, such as the 6xxx series, can lower the base material tensile strength to unacceptable levels.

Porosity

While not as critical of an issue as cracking, porosity is perhaps the most common complaint when MIG welding aluminum. Porosity refers to the cavity-like discontinuities in the weld that are formed by gas entrapment during solidification.

Porosity primarily results from the absorption of hydrogen during melting and the expulsion of hydrogen during solidification of the weld pool. The sources of hydrogen that create porosity are:

1. Hydrocarbons in the form of paint, oil, grease and other lubricants and contaminants.
2. Hydrated aluminum oxide — aluminum oxide that has absorbed moisture can release hydrogen when subjected to heat during the welding operation.
3. Moisture, which can come from the atmosphere (humidity) or from other sources such as compressed air, small leaks in water-cooled GTAW torches, contaminated shielding gas or pre-cleaning operations.

The first step in solving this issue is to identify the source of hydrogen that is responsible for producing the porosity.

Purchase low dew point shielding gases (argon or argon/helium mixtures) to reduce porosity, and follow the shielding gas flow rates and purge cycles recommended for the welding procedure and welding position being used.

Thoroughly clean base metals with a solvent and clean cloth or paper towel followed by stainless steel wire brushing prior to assembling the weld joint. Typical shop rags are not clean enough for use on aluminum, as they contain residual hydrocarbons and can contribute to porosity.

Be sure the base metal and filler metal are not wet with condensation. Bring any aluminum in from a cooler location (such as outside, for example) and allow it to sit in the welding area for 24 hours before welding. Store unpackaged filler metals in a heated cabinet or room also to prevent them from cycling through dew points, which prevents creating hydrated oxide on their surface.

Purchase high quality filler metals from reputable manufacturers. These filler metals typically have been diamond shaved to eliminate harmful oxides, manufactured with procedures to produce low residual hydrogen containing compounds and weld tested to stringent AWS standards.

Discoloration and smut

Introducing oxygen into the shielding gas envelope via air, moisture and contaminants can increase the burning (oxidation) of the filler metal, which produces discoloration and smut. The use of certain filler metals can also contribute to this problem. While weld discoloration and smut look bad, they are easy issues to fix.

4xxx series filler metals (American Welding Society or AWS 4043 or 4943, for example) produces less weld discoloration and smut than 5xxx series filler metals. That's because the magnesium in 5xxx series alloys vaporizes in the arc and condenses as a black soot next to the weld bead. Most 4xxx series alloys have little or no magnesium, which reduces this problem.

Also, minimize the air in the shielding gas by decreasing the gun angle, increasing the gas cup size, holding the gas cup closer to the base metal, cleaning spatter build-up from the gas cup and shielding the arc from drafts to avoid the problem. Use a push angle when welding, to put the arc cleaning action in front of the weld. This angle continually cleans off the weld and reduces smut.

Burnthrough

Using a Pulsed GMAW welding process is a great defense against burnthrough on aluminum that is 1/8 inch or thinner. Power sources with this capability operate by switching between a high peak current and low background current. In the peak current phase, a droplet from the aluminum wire pinches off and propels toward the weld joint, while during the low background current phase, the arc remains stable without metal transfer. The combination of these high peak and low background currents reduces heat input to prevent burnthrough and offers the added benefit of creating little to no spatter.

Lack of penetration

When welding thicker sections of aluminum, it's important to have enough amperage to adequately penetrate the weld joint. A good general rule of thumb: It takes approximately 250 amps to weld 1/4-inch thick aluminum and about 350 amps to weld 1/2-inch thick aluminum. In some instances, adding helium to the shielding gas mixture may be desired for its ability to provide a hotter, more penetrating arc on thicker sections. For the GMAW process, a mixture of 75 percent helium balanced with 25 percent argon is a good option. To increase penetration, use a mixture of 25 percent helium and 75 percent argon when using the GTAW process on thicker sections of aluminum.

HOBART FILLER METALS

MMMA Metalworking Village at MACH 2018

What a busy Exhibition!

That's the verdict from the MMMA members exhibiting within the MMMA Metalworking Village at MACH 2018.

The Post MACH 2018 exhibition feedback is now in, overall a great triumph for the organisors 'MTA' and especially pleasing, a fantastic result for the MMMA members attending the exhibition, some for the first time.

With the New location, New Halls, the overall feeling was of Bright, eye catching, quality built stands. Where exhibitors had made some substantial investments in bringing their product and or service to the notice of visitors. With excellent footfall, some 5% up on MACH 2016, the quality of visitor to the exhibition was exceptional, across all industries involved in UK Manufacturing.

We asked our members for their thoughts on the exhibition and the feedback has been excellent. Read on!

Decade Monitoring systems

MACH 18 was a great platform to release our new 170 load monitor. It helped us secure a large order with Brittan's largest car manufacture.

Paul Tandy, Operations Director

Oerlikon Balzers

MACH 2018 was seen as a success by all who manned the Oerlikon Balzers stand. We gained over 50 new contacts from right across the manufacturing industry spectrum (Metal Forming, Cutting Tools, Plastic Forming and Components).

Our stand was visited by many of our existing customers as well as the new previously unknown potentials. We are currently following up the leads from the exhibition and hope to convert them into significant orders over the next 12 months.

Based upon the recorded contacts we had it's fair to say Monday and Friday were quieter days for visitor numbers, with the middle three days giving us over 85% of our contacts.

Alan Alders International Sales & Marketing Engineer

Worlifts

Worlifts were very pleased with our week at MACH 2018 exhibiting in the MMMA metalworking village.

We have followed up over 100+ leads from the show, opening one new initial account to which we have already supplied a couple of small orders.

Wednesday and Thursday were our busiest days, but even with the show finishing at 4pm on Friday, at 3.50pm we still had a number of interested customers on our stand.

Overall, a very worthwhile exhibition for us and we are looking forward to the next MACH exhibition

Paul Smith Sales Director

Group Rhodes

Group Rhodes CEO Mark Ridgway said: "We had a very busy and successful show at MACH. It was also a great opportunity to discuss with customers about our new agreement with metalworking partner Dr Hochstrate Maschinenbau. We expect this partnership will open up new market sectors for us to explore new avenues of business."

During the exhibition, our CEO Mark Ridgway was presented with a certificate of Membership of the MMMA (Metalforming Machinery Makers' Association) by the Chairman Adrian Haller of Bruderer. Group Rhodes is now the longest serving member of the MMMA having joined almost 70 years ago in April 1949!

Mark Ridgeway CEO Group Rhodes

AP&T

From our point of view the exhibition was great to publicise AP&T's latest technologies, we gained new contacts in Aerospace and Automotive sectors. We also received two RFQ's for new projects. As always it is a long week with some slow days but that is to be expected. All in all a worthwhile event.

Christian Wright, Sales and Service Manager UK

Nidec Press & Automation

Nidec Press & Automation welcomed many existing customers along with several potentially new customers during the successful MACH 2018 Exhibition.

Numerous enquiries were received during the exhibition, ranging from single presses and automation machinery to fully integrated systems.

Through its group companies of Minster, Arisa, Kyori and Vamco, Nidec Press & Automation offers a complete range of products, including presses from 15 to 5000 tons in mechanical and servo drive options. The group also offers a wide variety of coil handling and production automation solutions backed up by a globally-responsive customer service organization.

Nidec Press & Automation is looking forward to working with all of our recent MACH 2018 visitors and exhibiting at MACH 2020 to continue to deliver engineered solutions to the industry

Chris Sharrett, Director

Roemheld UK Ltd

Overall, Mach 2018 was a success for Roemheld Uk with enquiries & visitors on both stands up on 2016. The MMMA Village was busy with several new customers viewing our products for the first time & generated some good interest & potential.

Terry O'Neill MD

Nidec Press & Automation at a Glance

MINSTER, OHIO USA -- Combining nearly 350 years of manufacturing experience, Nidec Press & Automation is the global leader for producing high quality machinery, integrated systems and services to the material forming industry.

From high speed presses running at 2400 strokes per minute to 5000-ton servo presses, NPA has a profit-increasing solution. Automation offerings range from technologically advanced high speed feeds to custom engineered turnkey systems.

In addition, Nidec Press & Automation partners with industry-leaders in the pressroom products market to create a unique single source for integrated manufacturing solutions.

NPA brands include Minster Presses and related automation equipment. Minster specializes in mid-range tonnage and high performance presses with an unprecedented reputation for quality, durability and technology.

Arisa manufactures some of the world's largest servo and mechanical presses, and specializes in customized solutions with built-to-order transfer and material handling systems integrated with unique controls and software.

Additional OEM solutions from Nidec Press & Automation include high speed servo feeding systems from Vamco and high speed presses from Kyori -- a leader in the electronic stamping industry for more than 30 years.

All NPA brands share numerous global manufacturing facilities, allowing for responsive delivery times, shared manufacturing expertise, and reduced costs.

In addition, NPA operates global Service Centers located in Minster, U.S.A.; Peiting, Germany; Ningbo, China; and Querétaro, Mexico. Service Centers feature common stocked repair parts, remanufacturing facilities, technical support staff and regionally-dispatched field service personnel.

For additional information about Nidec Press & Automation, visit the company online at www.nidecpa.com.

Health and Safety Statistics 2018

The latest annual statistics for work-related health and safety issues in Great Britain were published online on 31st October.

The report includes the following key annual figures (2017/18):

- 1.4 million working people suffering from work-related ill health
- 2,595 mesothelioma deaths due to past asbestos exposures (2016)
- 144 workers killed at work
- 555,000 injuries occurred at work according to the Labour Force Survey
- 71,062 injuries to employees reported under RIDDOR
- 30.7 million working days lost due to work-related ill health and workplace injury
- £15.0 billion estimated cost of injuries and ill health from current working conditions (2016/17)"

These statistics are for ALL UK work places.

A full set of tables are accessible on the HSE website: www.hse.gov.uk/Statistics/index.htm.

ISME visit to JLR Engine Manufacturing Centre

On Wednesday 7th November, ISME members spent the morning on a hosted tour of the awe inspiring Jaguar Land Rover Engine Manufacturing Centre.

Following a warm JLR welcome, the journey started in the Machining Hall where engine blocks, cylinder heads and crankshafts were precision drilled, ground and polished by over 175 different machines.

A fascinating insight followed into not only the engine manufacture, but also the collection and recycling of aluminium and steel. Additionally, members were shown how the company harnesses renewable energy to power the site itself.

Moving on to the Assembly Hall, the group witnessed the birth of the Ingenium engine, where high speed robotics and craftsmen combined to assemble components, bearings, pistons and fuel pumps.

In full production, the line has the capability to produce a radiant four cylinder, 2.0 litre, low emission engine very 38.8 seconds!

ISME would like to thank JLR for a wonderful insight into the state of the art production of engines for an outstanding range of vehicles.

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