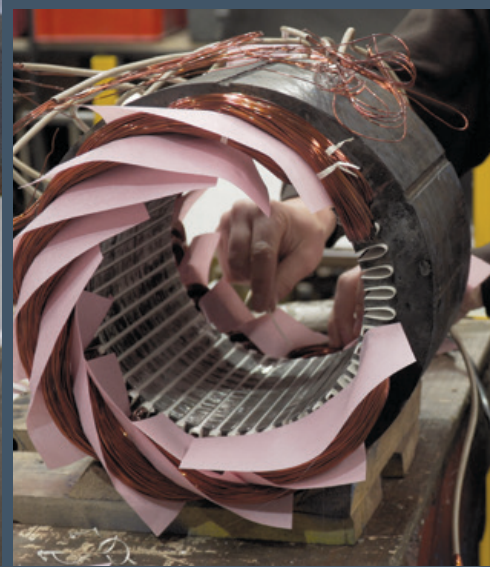


AEMT

Volume 19 Issue 2 www.theaemt.com

Journal

ASSOCIATION OF ELECTRICAL AND MECHANICAL TRADES



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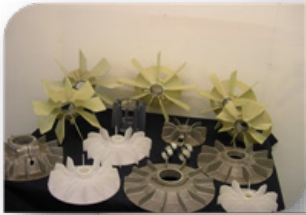


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President's Welcome

So here we are! After months of preparation, I was proud to accept the chains of office to become the association's next honorary President at the recent AGM in Nottingham. As I begin my time in office, it seems right to firstly thank Gary Downes for his diligent work as President and I am grateful for him continuing on Council as Immediate Past President.

I want to acknowledge the strong position the Association finds itself in. Global membership continues to rise. Participation in our Ex training courses is still hugely popular, educating and certifying our colleagues across the world. In particular, the association is in a solid financial position, thanks in no small part to the stewardship of Thomas and his team at the secretariat. This position allows us to reflect on the journey we wish to travel as an association, with many options open to us.

We were fortunate to meet at the impressive facility of Avonmore in Cork for our recent Council meeting. We discussed the role of the AEMT in the coming years and how we could invest our reserves on behalf of our members. It is clear to me that we all need the AEMT to be a thought leader for our industry and to be able to deliver this in a practical and value-added way for our members.

In order that we might all play a part in the future journey, we need your views, suggestions and even participation in the planning process. I want to appeal to the membership to get involved. This may be by way of attendance to regional meetings, AGM, conference or the wonderful awards night we are hosting again this year. One of the great aspects of our association is the opportunity for networking, meeting colleagues and sharing views and experiences. Please consider how we might start to increase this participation. At the time of writing, we are in discussion with a number of

potential new members for the Council. This is where we define the strategic direction of the association and therefore new perspectives are always welcome. For my part, I acknowledge that my background as an employee of one of the world's largest motor manufacturers may seem slightly at odds with the role of a repairer's association. However, for a membership who provide service, repair and support to industry, we need to embrace a holistic approach. We always need to be aware of the real needs of our members' customers. To do that we have to understand what drives them: production uptime, equipment availability, operational and capital cost, and whole life costs. Only in understanding these drivers is the association able to provide the support that our members need.

I believe that a comprehensive understanding of the solutions available is essential for formulating members' service offering, and for the association to be the thought leader for the industry. This must include solutions such as high-quality repairs to meet current standards and energy efficiency demands; high quality products that add value to the customer, and a digital service that supports real time condition-based maintenance. We should help members understand the vast range of cloud-based digital tools and how these integrate with their service offering to add real value to customers.

In summary, we have a strong and healthy membership with a global reach. Members have an ever more demanding



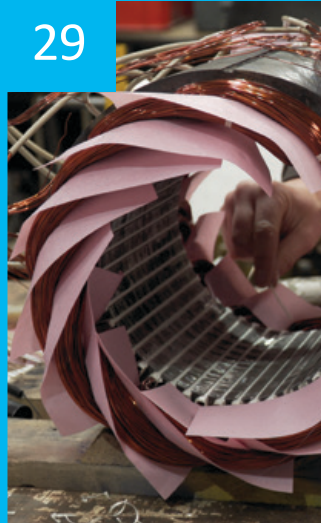
customer base and a range of new products and services available like never before. I really hope that with your help, I can lead the association through these changing times to be the leading voice of our industry.

Dave Hawley
AEMT Honorary President

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Rotary
Engineering

Front cover photos:

Deritend employee finishes an electric motor in the spray booth.

Quartzelec handling Tata Steel's rotor.

A motor being rewound at Elevated Engineering Services.

ADVERTISING

For advertising please contact Sam Agnew and for editorial please contact Thomas Marks:

Sam: sam@aemt.co.uk

Thomas: thomas@aemt.co.uk

AEMT Ltd,
St Saviours House,
St Saviours Place,
York, North Yorkshire
YO1 7PJ, UK

Tel: +44 (0) 1904 674899

Fax: +44 (0) 1904 674896

Email: admin@aemt.co.uk

Web: www.theaemt.com

EDITOR'S COMMENT

Welcome to this year's second edition of the Journal! In this issue we look back at the AGM where we welcomed a new president into office and looked back at a great year for the association. Have a read of David Hawley's welcome on page two of the journal for an insight to where he wants to take the association during his time.

In our member's news section, ABB wins an MCI Award for their diverse training courses aimed at tackling crucial issues such as energy reduction and leakage prevention. After many years of promise, Sulzer finally get started on their new Birmingham Service Centre, which promises a world class, state-of-the-

art repair and maintenance facility. Rotamec highlight their flexible machining service for engineered products, with in house CNC machines. Quartzelec receives a commendation from Tata Steel works for a vital 70-tonne motor upgrade. A year after launching their mobile resin and varnish condition-testing lab , AEV look at how successful the service has become.

Karl Metcalfe, AEMT Technical Support, investigates some methods plant managers should employ in order to improve the performance and reliability of electric motors.

I pay a visit to Deritend's new southern region centre of excellence for a tour and a look at how the company is celebrating its 'coming of age' 121 years after being founded.

Steve Ashman of EMIR visits one of their valued customers, Elevated Engineering Services and looks at how this unique company has positioned itself in the lift and elevator market. EMIR is celebrating 25 years, and to investigate the success of the company I interviewed the company's MD, Gary Downes to discover how he created a piece of software that has blossomed into one of the industries most used systems, and also talk to him about his time as president of the association, as he steps down to hand over the chains of office to his successor.

Finally, don't forget the deadline is looming to get your nominations in for the AEMT Awards this year. Please ensure you visit www.aemtawards.com and enter your nominations before September 5th. Good luck, and I look forward to celebrating with all finalists and winners on November 21st!

Thomas Marks,
Editor.



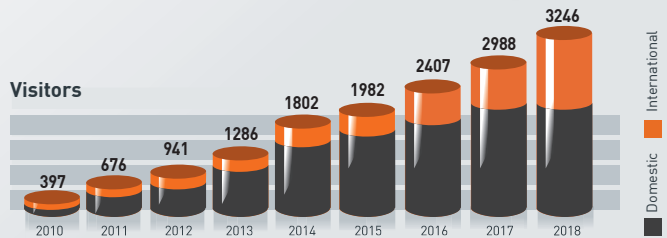
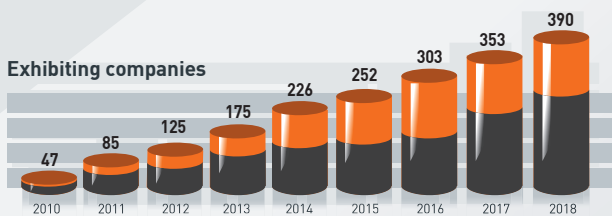


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Topics 2019

- T1 E-mobility**
- T2 Advanced powertrains for electric vehicles**
- T3 Electric motor industries**
- T4 Transformers**
- T5 Electric motors for pumps and compressors**
- T6 Special electrical machines and actuators**
- T7 Testing on high efficiency electric motors**
- T8 Electric motors for household appliances**
- T9 Materials**
- T10 Technologies and systems**
- T11 Software**

+ Visitor breakdown*

Head of Production	10%
Production staff	10%
Product and quality management	4%
Head of R&D	7%
R&D staff	8%
Other engineering	2%
Research and University	7%
Owner/Co-owner	18%
President/CEO/Vice president	6%
Other top management	3%
Head of Purchasing and sourcing	12%
Purchasing and sourcing staff	6%
Other staff	7%

*Source: Information obtained by the Coiltech Marketing Team on the base of personal phone interviews, encounters, and other research

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ABB wins national award for diverse training course portfolio

Award recognises contribution training has made to tackling crucial issues such as energy reduction and leakage prevention.

ABB has won “Contribution to Skills and Training” at the annual Motion Control Industry (MCI) awards, held in Birmingham in May. The prize recognises ABB’s commitment to helping industries to tackle their biggest challenges – from cutting energy consumption and CO2 emissions to reducing the millions of litres of clean drinking water lost through leakage.

ABB offers more than 30 courses, several of which are CPD (continuous

professional development) accredited. Targeting end users, contractors, consultants, machine builders and OEMs, the courses aim to improve engineering expertise, tackle technical challenges and improve operational knowledge of applying variable speed drives and motors.

ABB’s courses have upskilled thousands of engineers, managers and apprentices from a diverse range of industries. Trainees can choose between eLearning,

sessions at a site of their choice, or courses at ABB’s bespoke training school in Coalville, Leicestershire. Courses are also delivered by the ABB authorised value provider network – a group of independent companies authorised by ABB and located throughout the UK and Ireland. ■



Sulzer's brand new, purpose-built service center will offer customers increased repair capacity as well as reduced project repair times

Construction Starts On Sulzer's New Birmingham Service Center

After more than 100 years at the famous Camp Hill site, Sulzer has started the process to move its facilities and create a new center of excellence for its customers. Sulzer's brand new service center will be located at the prestigious Birmingham Business Park, where the company will base its UK head office as well as state-of-the-art repair and maintenance facilities.

Sulzer are working with Canmoor Developments Limited to deliver this important project, which will provide Sulzer's customers with best-in-class service for electromechanical repairs as well as new high voltage testing facilities.

The 7'618 sq. m (82'000 sq. feet) purpose-built service center has been designed using 3D mapping technology that positions both the existing and new equipment in the most efficient layout. By optimizing the floor plan, material flow will be improved and project repair times for customers will be minimized.

The building phase is scheduled to be complete in early May 2020, after which there will be a carefully planned relocation of all the equipment, such as the copper rolling mill and coil manufacturing machinery, winding machines and the high voltage test bed. In addition to the existing equipment, Sulzer is also taking the opportunity to invest in a new high-speed balancing chamber, which will be located below-ground, and will be one of the most advanced facilities in Europe.

For the employees, the move will bring a brand new working environment along



Left to right: Phil Tranter (Partner / Project Manager, Cushman & Wakefield), Mel Hallas (Birmingham Service Center Manager, Sulzer), Warren Bell (Project Manager, Sulzer), Vicky Harding (Ledgers Manager, Sulzer), Chris Powles (Head of Electro Mechanical Services – EMEA, Sulzer), Prince Madzinga (Graduate Engineer, Sulzer), Chris Gould (Financial Controller, Sulzer), Mick Bentley (Project Manager, A&H Construction) and Mike Hatton (Senior Contracts Manager, A&H Construction).

with better facilities and parking. Chris Adams, Coil Shop Operations Manager, comments: "The new service center will offer a host of improvements both for us and our customers. It is an exciting time for us and we are looking forward to moving in."

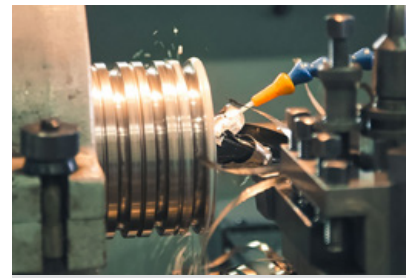
Existing customers, who have visited the Camp Hill site, will appreciate the scale of the move; the amount of specialist rewinding equipment and machine tools alone will pose a considerable challenge. In addition, Sulzer is investing in modern IT infrastructure as well as new ovens and paint booths to provide high-quality finishes to repaired components. Sulzer has developed a detailed plan for the relocation of each department that

ensures customers will experience no downturn in service. Operations will be able to work between the old and new sites with the phased move taking place over two months. This will provide a seamless move and ensure that every customer has a smooth transition with Sulzer to the new site.

Chris Powles, Head of Electro Mechanical Services – EMEA, comments: "The aim is to create a new center of excellence that will operate on lean manufacturing principles and deliver an enhanced customer experience. This enables us to keep moving forward with technological advancements and invest in the future, for the benefit of our customers." ■



With its expert engineers, varied machining capability and 24/7 approach, Rotamec can provide machined components quickly.



The CNC and manual machines operated by Rotamec are available to refurbish or manufacture new components in any quantity from single pieces to batch runs of thousands.

Rotamec Offers Flexible Machining Service For Engineered Products

Rotamec, is now offering a machining capacity to its customers. The CNC and manual machines are available to refurbish or manufacture new components in any quantity from single pieces to batch runs of thousands. The machining service has been tailored to provide fast turnaround for operators of motors, gearboxes, pumps and other engineered equipment.

Managing Director, Simon Brooks, explains: "Our machining services include CNC punching, forming, milling and turning; with welding, cutting, plating, painting, mechanical and electrical assembly also available. This allows us to offer refurbishment or reverse engineering of parts as is required.

"Our team of passionate engineers ensures high quality machined products every time. We continually invest in our

engineering team as we believe it helps to deliver the best possible service to our customers."

A wide-ranging machine capability and capacity is all important in meeting varied customer requirements, which is why Rotamec operates a wide range of CNC and manual mills and lathes. A 24/7, 365 days a year service also delivers high responsiveness for unplanned maintenance work.

CAD drawings can be directly uploaded to machine complex shapes with high accuracy, with all drawings filed for easy access if a repeat order is required. Access to manual machines ensures that larger or obsolete components can be rejuvenated with fast set up times. This allows Rotamec to deliver either singular or batch machined components on similarly reduced lead times.

Welding is carried out to code via fully qualified procedures, promoting reliability and suitability for application. Furthermore, non-destructive testing is available in-house to prove component performance in the real world. Detailed inspections are carried out on every component to ensure quality.

An area of expertise for Rotamec is the refurbishment of large conveyor rollers, spanning from complete replacement to repairing singular journals. Techniques such as metal spraying can bring back shaft journals to original diameters, further optimised through precise machining to stringent tolerances. Mechanical seal journals can also be repaired, while bearing housings can be replaced fully.

To secure uptime for engineered equipment, speed of response and flexibility of service is all important. With its expert engineers, varied machining capability and 24/7 approach, Rotamec can provide machined components quickly - maximising reliability and profitability. ■



Quartzelec receives commendation for vital 70-tonne motor upgrade at Tata Steel works.

When Tata Steel in Port Talbot needed to instigate a main drive motor upgrade in a tight four-day window, it turned to Quartzelec, to deliver the project on time and within budget.

The upgrade involved the removal and replacement of an F6 main drive / field frame motor located in the Hot Mill motor room. The replacement core was rewound and designed to increase power efficiency by 20%.

Originally planned to take 4.5 days over 9 shifts, Tata required the replacement to be in place within just 8 shifts. Tata turned to Quartzelec as a trusted partner to complete the project, because of the extremely ambitious and time critical nature of the project.

“We pulled out all the stops on this one. To deliver the upgrade on time called upon our engineers from across the UK coming together with the on-site staff at Port Talbot,” stated Simon O’Leary, Key Account Manager at Quartzelec who headed up the project. “To Tata’s amazement, we actually completed all

work within seven shifts. It was a fantastic achievement and gave Tata the time to complete commissioning of the machine ahead of schedule.”

After the initial installation, the hefty components, required adjustment and dowelling, with each adjustment being both complex and time consuming. Although Quartzelec has delivered similar installations at the site previously, this was the first time a new field frame had been installed in the Hot Mill for over 30 years. It required teams of engineers to work around the clock throughout the project.

“We knew that Quartzelec had all the necessary technical capability to complete the full scope of the project. Even when we upped the ante in terms of delivery timescales,” explained Kevin Chappell, Tata Steel’s Engineering Manager at the Port Talbot facilities in South Wales. “They

have an immense product knowledge due to their extensive library of historic data. Their ‘can-do’ attitude and meticulous preplanning were all vital elements for the successful delivery of this project. For any unforeseen problems, Quartzelec had additional support on-hand and were able to address and solve almost any electrical problem, meaning everything went faultlessly! For their attention to detail, careful and safe working practise, Quartzelec are worthy recipients of this commendation.”

Over recent years Quartzelec has worked closely with the in-house Tata Steel facilities team at Port Talbot. They have delivered several vital upgrades to improve the efficiency, safety and output capacity of the site. They have all the necessary heavy lifting equipment readily available on-site and easy access to an array of key ancillary materials. ■



AEV's mobile varnish lab is in fast lane to success

Launching a world's-first in customer service, a mobile resin and varnish condition-testing laboratory, has paid off for AEMT member AEV Ltd, which manufactures specialist insulating and encapsulating resins and varnishes, for the worlds electrical industries.

With its first year of operation completed, the mobile lab service is showing every sign of success. Joe Turnick, the Technical Support Engineer who runs the operation, says: "I have visited over 170 companies, most of them twice or more. The core of what I do is on-site testing of customers' stocks of resins and varnishes for viscosity, solids and other key parameters. I also collect samples for comprehensive testing in our main laboratory at Birkenhead and advise on related matters such as storage conditions and new product developments."

Resins and varnishes are precision-formulated, but can thicken or become contaminated over time, particularly if they are stored in less than ideal conditions. Degraded compounds may fail to fully penetrate the components to which they are applied, which for the users could result in an end-product that looks fine, but which may not meet its technical specification.

"By taking the lab to the customers, we make their busy lives easier, which allows them to concentrate on their own key operations," says Joe, who has already driven the 'lab in a van' 25,000 miles through 46 of the 48 counties in England and Wales.

"Because mobile testing was a completely new idea, we did not know how the market would respond, so we used a flexible roll-out strategy that we allowed to evolve over the first few months."

The level of requests for a second visit was higher than predicted, so AEV divided the country into north and south with an initial concentration on the south. It has now moved to the next phase, developing optimised routes through the north of England and is beginning to think about Scotland too.

Joe's boss, and originator of the mobile lab idea, AEV Sales Manager Chris Birks, has even grander plans. AEV has just acquired a similar resin manufacturer,

Korax, in Hungary, so Chris and Joe have taken time out to see the manufacturing plant and visit customers in Hungary and Poland. Chris reports:

"The Hungarian clients we met all thought that Korax joining the AEV group was a very positive move and when we told them about the mobile laboratory, they really liked the idea. We promised the first few we would roll the idea out as soon as possible. Then, when nearly everyone said they wanted a visit, we knew we just had to arrange a properly organised tour."

Chris has also been monitoring how the UK market has reacted to the van. He says that once people saw what could be done, they embraced it and even began asking for extra services.

"Twelve months ago it was such a novel idea that we could not possibly know what people would think, so introducing it was a leap in the dark. Setting up the first few appointments was a bit of a struggle – I think people were worried it would be a waste of time. But in almost every case the visit turned out positively, with the clients quickly appreciating the service we were offering. Even more exciting was the fact that many saw further potential and suggested ideas for expanding our capabilities."

He goes on to explain that the personal contact Joe establishes with the customers is proving valuable. In many cases they start asking for advice with their storage arrangements, process management and other related subjects. Looking to the future Chris says: "Joe's role has developed, going beyond testing to offering consultancy and key account management, particularly with our OEM customers. We already have customers in the North and Scotland looking forward to their first visit. We are also planning strategies to service our new clients in Hungary and Poland, then expanding into other countries.

"A year ago I was worried in case we did not find enough work to keep Joe and his amazing van properly busy. Now, I am wondering how we are going to keep up with demand over the next twelve months!" ■



Thomas Marks, Secretary of the AEMT welcomes David Hawley of ABB as Honorary President at the AGM.

Minutes from the association's 74th AGM

Animated conversation, a change over of presidency and a look back at a great year for the AEMT. The association's AGM was held at the Nottingham Belfry and tried a slightly different format this year.

It was great to see so many new and old faces in the same room – to encourage networking, we hosted a speed networking session, enabled by the talented facilitator Shaun Sutton of Central Group. Over the space of a minute the group were tasked to find out three interesting facts about each other that were not work related! A little harder than you think. Did you know one of our members once dated a rock star?

The AGM went without a hitch, Gary Downes passed over the chains of office to our new President, David Hawley of ABB. We welcomed a new member to the council, while saying goodbye to two others. To hear more about David's plans for the association during his presidency, refer to his welcome on page 3.

The President's Report:

On standing down to become Past President, Gary mentioned what a pleasure the last two years have been, in particular working with the secretariat to launch the inaugural Awards, and to re-launch the Conference, both of which have been a big success. True to his heart, he also resurrected the Golf Day, which has become one of the AEMT's most attended events, second only to the conference and awards.

The AEMT secretariat team also grew to include a dedicated Events manager, Sam Agnew, to help run the increase in events. Our newest recruit, Karl Metcalfe, joined the association at the end of Gary's presidency to provide the members with Technical support.

Gary went on to endorse his support for the upcoming President David Hawley, who has an enormous amount of experience in the industry. He will no doubt prove to be an excellent President. Gary looks forward to supporting him and the council in his new role as Past President.

Gary finished off by thanking two retiring council members who have reached the end of their terms; Dennis Rawle of Exalto UK, and Tom Grant of GES Group in Northern Ireland. He also welcomed Howard Lynn from Rapid Solutions in Azerbaijan onto the council, who will bring his international business experience to the council.

The Secretary's Report

2018 turned out to be an excellent year, with turnover rising by 18.5% to hit the £½ million mark. Sessions on the association's website theaemt.com also rose significantly by 28% to reach 119,000 sessions over the year from 196 different countries. With over 2,300 sessions a month, it is worth considering the importance of membership profiles on the website, and the potential business it can bring.

The Ex courses continue to be of importance, the association trained 97 companies in total throughout 2018. In order to support the courses a new website, www.ex-repair.com has been created to promote the events, best practice, and provide course information. Additionally an Ex Forum has been initiated where answers to some of the most common questions and answers the secretariat often receives are posted.

The association gained 9 members in 2018, but it is worth noting that net numbers have not grown substantially for many years now, and a review of the value the association provides it's members could help to grow this number. In total the association has approximately 300 members over 500 locations.

Sam Agnew, who joined the secretariat in 2017 produced her first full year of events and on top of the usual regional meetings in the UK, also initiated international meetings in Malaysia and Thailand. Sam has offered substantial support in the office and is continually thinking of innovative ways to involve all members at future events.

Discussions on the new repair standard After many years chairing the committee which produced the international standard (IEC 60034-23:2019), the association is now able to have a standard to align the quality of our work to.

The secretariat is currently working on various projects to help members make the most of this standard, including training, inspections and promotion to end-users. Importantly, it will also be up to members to inform their customers about the standard, and why they



Presenting to members at the AGM: (L-R) Dr. Martin Killeen (Lead Lecturer), Shaun Sutton (Treasurer), Dave Hawley (President), Gary Downes (Past President), and Thomas Marks (Secretary).

choose to work to it. An informative flyer is being developed to arm you with this knowledge, and copies of the standard are also available via the secretariat at 25% off the marketed price from BSI. A question was raised by Richard Hale of Deritend; why do we need an AEMT inspection when there are others out there?

As the industry's trade association we need to give greater meaning to membership and the AEMT logo. Having accredited service centres allows the end-user to discern the standard of service to be expected when contracting work. With no differentiation between the standards of service within the industry, the AEMT mark of quality is lost.

A significant area of the repair standard focuses on the sustainability of repair over replace. Influenced by the recent moves by the government to become carbon neutral by 2050, the discussion evolved onto the important service members are providing industry.

By following the standard, machines that ought to be replaced are replaced with higher efficient models. When the machine is already more efficient, or specific in nature, a repair-to-standard, ensures the efficiency of the machine is either maintained, or in some cases increased. The added advantage of repairs means the energy required to

extract the raw materials and process them into new manufactured machines is greatly reduced, lowering the carbon emissions caused by consumption.

Many service centres are now able to recommend ways to improve on the efficiency of whole drive systems, not just the motors. Looking at some of the entries for the AEMT awards demonstrates how carbon emissions are being reduced by our members.

One idea from Shaun Sutton of Central Group is to record the carbon emissions saved by AEMT members. By pooling together the collective savings made by members, this data can be used in public relations to give acknowledgement to the work our industry does.

The association should also consider using this data to lobby for greater support of AEMT service centres, engineering, and improving the efficiency of all industry.

The conversation also focused on how service centres can better serve their customers through selling 'up-time' as a service, rather than selling a one-off motor or a repair. The introduction of digitisation will make it much easier for service centres to monitor drive systems and maintain output. How can the association help it's members change their business models towards this? This could be a discussion for the 2019 Conference. ■

Is your machinery repaired to standard?

IEC BS or EN 60034-23:2019

The new international standard to ensure the efficiency of rotating electrical machinery is maintained after being repaired, overhauled, or reclaimed.



- ✓ A more **sustainable future** can be achieved if service centres follow the best practices outlined in this standard.
- ✓ **Carbon emissions can be reduced** when rotating electrical machinery is put back into service, rather than scrapped and replaced.
- ✓ The **cost-savings** of a good repair over a poor repair can save disruptions in production down the line.

5 Questions to ask your AEMT Service Centre:

Should I repair or replace the equipment?

Your service centre should present you with the facts so you can make an informed decision on whether the equipment should be repaired, or replaced with a more efficient machine.

Is the efficiency maintained after service?

Your service centre should be able to maintain the efficiency of the machine or improve it after servicing.

What is the end-of-life recycling practice?

To ensure a sustainable future, you should confirm if your service centre splits the equipment into its component parts for recycling, and not sell it onto the second-hand market.

Do you follow best-practice guidelines?

Service centres should use the best practices outlined in the international 60034-23 standard to ensure efficiency is maintained.

What quality system do you have in place?

Your service centre should have a suitable quality system in place, such as ISO 9001 to ensure your project is managed properly.





AEMT Members at the Morgan Motors Factory Tour in 2018.

New Members in 2019

A large warm welcome to our newest Members. To find out more about the companies, please visit their profile pages on www.theaemt.com.

Full Members

S.R.E. Services Ltd

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Tel: 01622 206249

Website: www.sreservicesltd.co.uk

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Global Energy Solutions

SDN Business Center, 5th Floor, 10Q Alasgar Gayibov Street, Baku, AZ1029 Azerbaijan
Tel: 00994 12 3100819

Website: <http://www.glensol.az/>

PTT Exploration & Production Public Co Ltd

555/1 Energy Complex A 6th Floor & 19-36 Floor, Vibhavadi Rangsit Road Chatuchak Bangkok 10900 Thailand.
Tel: 0066 2537-4000

Website: <http://www.pttep.com>

Sprintex Engineering Services Ltd

Mowlem Area Off Kangundo Road Nairobi 00200 Kenya

Tel: 00254 733 247584

Website: www.sprintexengineering.com

Associate Members

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Svarvargatan 26, 811 36 Sandviken, Sweden

Tel: +46 70-776 89 27

Website: www.svenskalindningsmaterial.se

Easy Motor

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Tel: +33 (0)3 22 19 38 43

Website: www.easy-motor.com

Rossi Gear Motors Ltd

F4-F6 Littleheath Industrial Estate Old

Church Road, Coventry CV6 7ND, United Kingdom

Tel: 02476 644646

Website: www.rossi.com/uk

Yilmaz UK Ltd

Oakwell Court, Unit 4, Oakwell Way, Birstall, Batley WF17 9LU

Tel: +44(0)1924 284 320

Website: www.yilmazuk.co.uk

simPRO Software

James Hall, Parsons Green, St Ives, PE27 4AA

Tel: +44 (0)845 004 3978

Website: www.simpro.co.uk

Schunk Carbon Technology Ltd

Richardshaw Drive, Grangefield Ind. Est. Pudsey, LS28 6QR

Tel: 0113 2363496

Website: www.schunk-carbontechnology.com

Improving performance and reliability in electric motors



Karl Metcalfe
(Technical Support)

Preventative maintenance has long been understood to deliver a range of benefits to industrial processes and their operators; minimising downtime and extending service life, reducing operational costs and improving productivity.

Karl Metcalfe, Technical Support at AEMT, looks at expanding this principle and investigating energy savings at the same time.

With standard electric motors available off the shelf from several different outlets, many on a 24/7 basis, the question is why keep spare motors on site? It's a view many in the industry share when the motor is running without problems. However, what some in the industry fail to recall is the problems that arise from a breakdown: loss of production, down time, the sourcing of a replacement, as well as the removal and fitting of the replacement once it has arrived. What we all know is that the breakdown will always occur

when you are trying to meet a deadline or running at full capacity. You can never accurately predict a shutdown due to a motor failure.

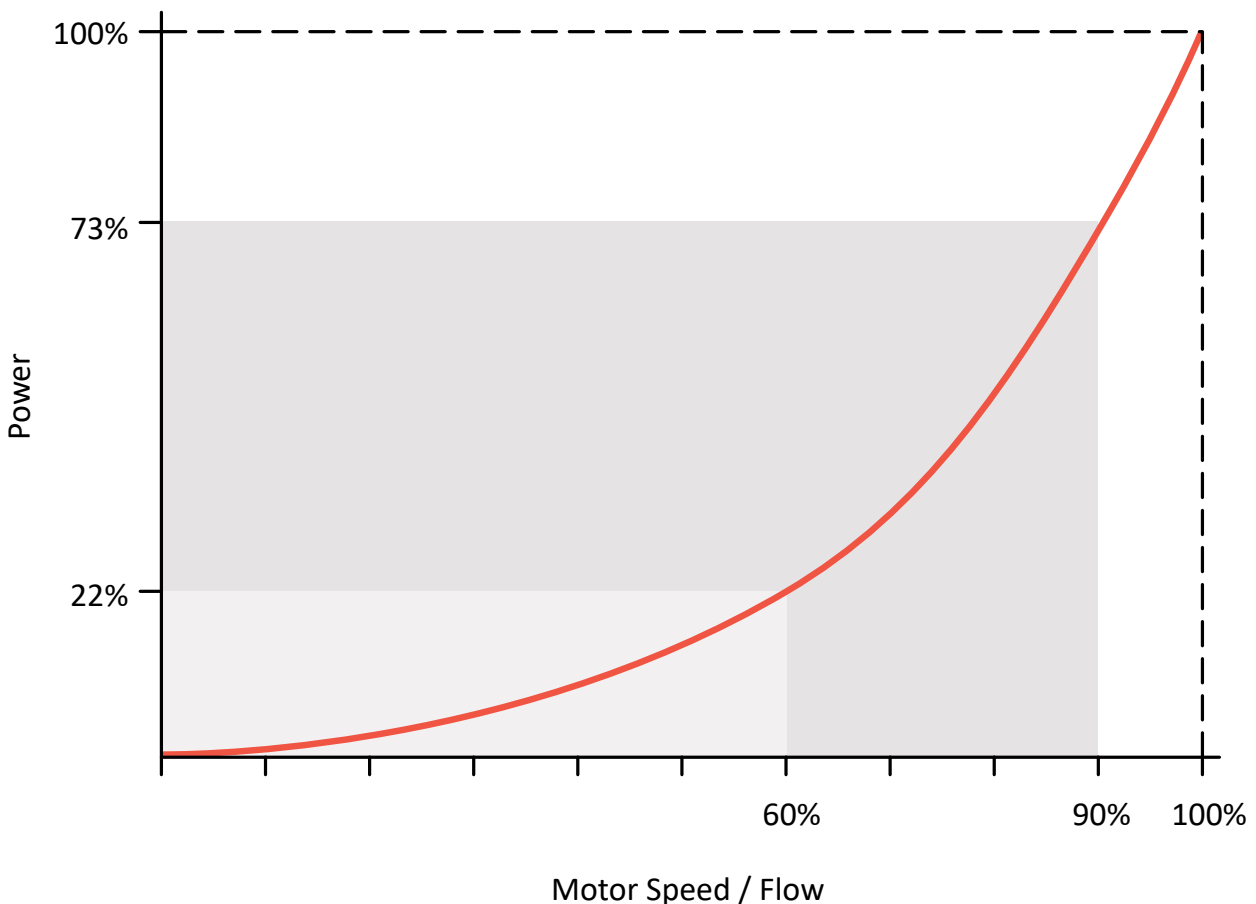
Operators may say: "If we had a motor on the shelf, we would only save a few hours". This is true. However, they are missing the point: the way a spare motor should be used is not as a reaction to a breakdown but to prevent it.

A spare motor should be part of a rotational maintenance system (a 12 month rotation for example), a planned shutdown when production is low or when equipment is offline, at a time of the manufacturer's choosing. This motor

should then be sent away to be checked, serviced and back in the stores ready for the next planned rotation.

The practice of rotational maintenance was used for many years in industry, new motors were not as readily available as they are today, but now we have other issues to consider, such as the environment. Rather than continuing to buy new motors and throwing the old ones away, why not service what we have and reuse them.

This process can be kicked off with a site survey that can help to identify motors you could possibly be without for a few days and the motors that are

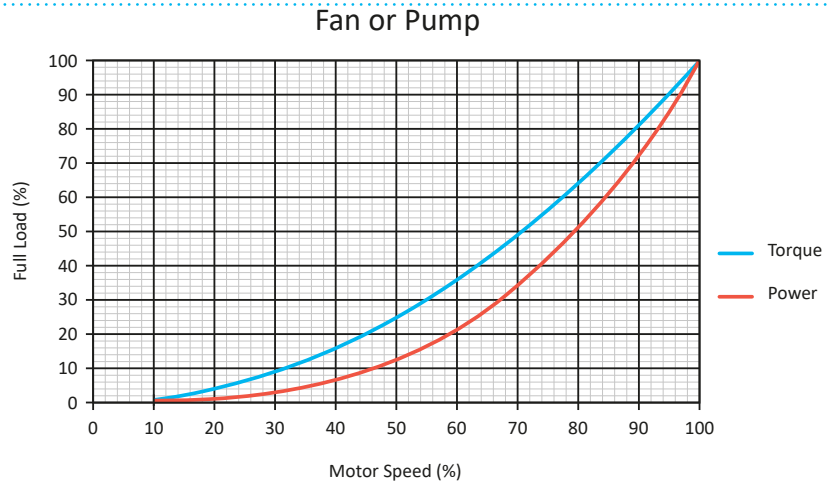


critical to your production. The majority of AEMT members offer this service as well as providing an overhaul of your spare motors, backed by advice on improving efficiency and reducing energy consumption.

Everyone would like to save on energy costs, but where do you begin? Pumps and fans are a great place to start with the use of inverters or variable speed drives. For applications where motors are not running at full power, the introduction of electronic speed control can offer significant savings. This is especially true for applications involving centrifugal fans or pumps.

Reducing the speed by 10% reduces the power consumed down to approximately 73% immediately, saving energy and money. This is made possible because of the relationship between the speed and power of a fan or pump, which is called the Cube Law:

- Flow is proportional to speed (10% slower = 90% flow).
- Torque is proportional to speed squared.



- Power is proportional to speed cubed.
- Therefore: 0.9 x 0.9 x 0.9 equals approx. 73% of the power.

So in real terms, a 22 kW extraction fan running at full load at around 90% efficiency for 8 hours per day during 3 shifts Mon-Fri (4,160 hours each year) at 10p per kWh costs £8,231.00 each year to run. If we slowed the fan to 90% speed, we would save 27% or £2,222.00 pounds every year. This saving is around the price of a 22 kW variable speed drive so your

investment pays back in around a year.

The two graphs show the Cube Law.

Understanding these principles and applying them to real life applications can deliver quantifiable savings for process operators. AEMT members have the practical industry expertise to offer advice and effective solutions that can improve performance and reliability while reducing operating costs. ■



Take the crisis out of an Emergency

AEMT members are highly skilled Electrical and Mechanical engineers often prepared to work round the clock to collect, repair and return faulty equipment, and keep downtime to a minimum. Most supply, service, and rewind electric motors, and look at the most economical and energy efficient solution.

The majority also repair pumps with some operating in confined spaces to remove and refit centrifugal and submersible pumps. Many also service gear boxes. AEMT members work to prevent problems and are probably the largest network nationally and internationally of companies able to carry out thermography, vibration analysis, and laser alignment. Their mechanical ability to rebuild and refurbish items is legendary. Many AEMT companies are trained to repair and work in Hazardous Areas, and most offer the quality expected with ISO9001.

So when you require help quickly at 1 am in the morning, or 5 pm on a Sunday afternoon, help is at hand! Whether you are in the UK or in Miri in Borneo, just look up the AEMT Website for a list of companies that are able to help you.

Remember: www.theaemt.com



Image credit: Quartzelec



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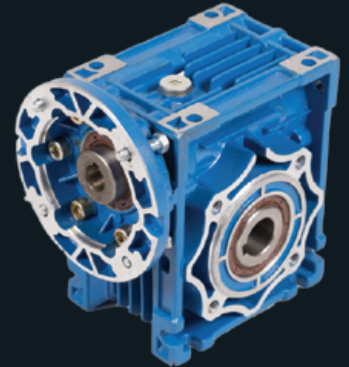
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A view across the Southern region centre of excellence.

Deritend crystallises path towards nationwide Centres of Excellence.

Celebrating their coming of age, MD of Deritend, Richard Hale, and Regional Director, Mike Smith met with the Secretary of the AEMT, Thomas Marks, to discuss the culmination of many years hard work. Their plan for establishing a nationwide network of ‘Centres of Excellence’, crystallises in their new southern facility in Luton.



Thomas Marks
(AEMT Secretary)

2019 marks a “coming of age” for Deritend, as they celebrate 121 years of operation. Why 121 years? Well perhaps a quick (simplified!) history will help answer this question:

It was at the turn of the last century, in the midst of the second industrial revolution when electricity, petroleum and steel had already started transforming the industrial landscape;

overtaking the benefits steam, coal power and iron had brought beforehand. The year is 1898 and Mr. Henry Shoolbred is brought to a town called Luton to apply his electrical engineering skills to a lavish garden party for a local brewer. The town relied on older technology, but had a thriving manufacturing market, and it was at this point that Mr. Shoolbred saw the potential for electrical work in the city

and set up several companies to support the revolution.

When Shoolbred Electrical Company was established in the 1930s as a limited company he had already improved many of the local factories with electric lighting and machinery, including the automobile manufacturer Vauxhall.

Some years after Shoolbred’s death,



Mr. Henry Shoolbred, who formed the original electrical company in Luton, where Deritend can trace it's lineage back to.

his companies merged with a company called Midland Electric Installations (MEI). Meanwhile, a stamping plant called Deritend established itself in a historic area of Birmingham, which later came to the fore in 1958 when it acquired the MEI Group, formed out of Shoolbred's former companies – and now we see where the name Deritend comes from!

At the turn of the millennium, Richard Hale, then general manager of the Midlands branch in Wolverhampton, put together a team for the management buyout of Deritend Electro-Mechanical Services. Under this new leadership Deritend went back to being an independent engineering company, directed by keen engineers, who understood the industry.

The proof is in the pudding; since the buyout the group has grown, acquiring complimentary companies on the way and streamlining their services to work more efficiently. Collectively the company now has over 150 staff with over 3,000 years of experience built up between them. I asked Richard what he feels is behind the success, "We are a people business and our engineers and staff are some of the best in the business. I was once told another key to success is three-fold; to know the people within our customer's business, to understand their business and processes, and to have the technical expertise to support their business needs. This mantra has put us in good stead!"

Moving into the southern region's Centre of Excellence

"Today, there is a feeling the company has reached a coming of age," Richard exclaims. The carefully curated range of services acquired over the years, is now being consolidated under one brand, and crystallised into three centres of excellence servicing the North, the South and the Midlands.

So far, over a one and a half million pounds has been invested in the southern service centre, where I was lucky enough to meet Richard and Mike for a tour:

The impressive 20,000 square foot facility has been fitted with two 20 tonne cranes, 10 metre high doors, and a 1MW, 800 Amp test bed. The Luton site is located only 4 miles from the old works and sits right on the brand new 11a junction of the M1 motorway. The open plan space has allowed them the freedom to choose the best layout to operate from. To streamline production, several bays were purpose built to



Richard Hale and Mike Smith pose outside the southern region's centre of excellence.

include, decontamination, cleaning, painting, curing and burn-out ovens. Easy access to stock went along the front wall, close to the exit. Running from right to left the facility is divided up as follows: mechanical machining shop, unloading area, job cages, rewinding, and finally testing situated close to a second exit door.

From the steam cleaning bay, wastewater filters through a pipe, which connects to a series of water butts designed to separate oils and greases from the water. "It's a surprisingly simple, but effective design we found on YouTube!" explains Mike. The filtered oils are then returned to a trusted handler so that they can be re-purposed in the

economy, satisfying their ISO 14001 environmental accreditation. The new home comes after 60 years situated at their old facility. Deritend is well known for the longevity of staff staying with the company, with recent recognition being given to 4 members of staff reaching 50 years of service. Moving was an emotional farewell to a well-known home for the company.

“Involving the staff at this stage was important.... In order to get all 50 staff invested in the change, we wanted to get them involved from conception.”

“Involving the staff at this stage was important” explains Mike. “In order to get all 50 staff invested in the change, we wanted to get them involved from conception. We organised a site visit before construction started so they could see the space for themselves. At which point they were asked for their input, via a ballot box, on how they would like to see the facility laid out.”



Before and after a propeller refurb.



Moving into the facility was no easy task either. Going from the habitual routine in a well-known home, to a new facility can trouble the keenest worker! “We’re a service company, and so keeping our services running as normal while we moved required some strategic planning,” explains Mike. “Firstly, we focused on getting the cranes, ovens, cleaning, painting, shot-blasting bays, and offices installed. Once the infrastructure was in place, we continued working between both sites for 3 months while we moved parts across area by area.”

“There’s no doubt it caused some disruption,” Richard admits, “but we managed our customers expectations, who understood the move meant a better service in the long run.”

Many of the routine jobs come from water utilities. With very similar parts, and several jobs in at once, a method was required to keep the jobs separate. Part of their quality control has seen the installation of ‘job cages’ to ensure parts from disassembled machines are enclosed together, reducing the risk of separation and contamination.

It is now the turn of the Midlands to see investment. Having recently acquired the whole two acre industrial estate in West Bromwich, and planning approval for a further 10,000 square foot extension, Deritend intend to promote all its service offerings from their midlands world class service centre.

“Our investment however is not just in bricks and mortar, plant and equipment” Richard explains, “we have a committed

strategy in the investment and training of our people and are currently undertaking a recruitment drive for a further 6 apprentices starting in September.”

Working with Water Utilities

Deritend were working with one water utility company in the midlands where 3 pumps supply water to the homes of Wolverhampton. Deritend engineers were in the middle of a planned and scheduled maintenance on one of the pumps. Unexpectedly, the second pump failed, leaving only the third pump left to supply all 40,000 homes with water. With spare parts for the equipment usually taking 8 to 10 weeks from the OEM, a project can take several months to complete, leaving Wolverhampton’s



Dedicated spray booths for cleaning and painting ensure particles don't contaminate other areas of the workshop.



residents and the utility company in a very precarious situation.

To fix the pump as quickly as possible Deritend were commissioned to take the failed pump to the midlands service centre and work on the machine round

the clock. The failed and damaged components were re-engineered, rather than ordering new parts from the OEM, reducing the projects timescale by weeks. After 6 days solid work, the pump was back with the customer supplying water to homes again. What else? They

also upgraded the efficiency of the machine, helping the water boards to reduce their carbon emissions.

Demands from OFWAT have made water companies look more closely at the efficiency and carbon emissions of their machines. This is down to the fact the water is supplied for public consumption, and they want lower prices for their water. For industry, it's different. "The demand for the same level of service on motors in industry has been slower," Richard mentions. "We are, however, starting to see a demand from food and beverage companies." The recent demands on the industry to reduce their plastic addiction, has also led to scrutiny on the pollution and emissions the sector gives out.

In reaction to the demands from OFWAT, Deritend developed a fixed asset monitoring system. The system has already helped Deritend's customers to increase the efficiency of their dynamic pumping systems, reducing CO2 emissions. As demand for water increases, or tariffs change, the system can recommend the most efficient use of pumps 24/7. This serves as a condition



To commit to a sustainable future, everything that can be recycled is stripped from the motor, including the oils and greases in water butts and the copper stripped from within the motor.



monitoring platform, providing a range of data which can later be used to further improve the pumping systems. It won't be long before similar systems will be common place in most sectors, whether public or privately focused.

The Industry

I asked Richard what opportunities he sees in the electrical and mechanical engineering trades, "Looking at our industry now, the one area I feel we fall

short on is the value we place in our skills. In Deritend, we have over 3000 years of shared experience between our team. We have the skills to keep the 'wheels of industry turning in an emergency', such as the Wolverhampton pump failure. In one year, we will have saved our customers countless hours of lost production time. In other sectors, such skills would be charged out at many times the price we find ourselves competing against. We should be

Deritend Centres of Excellence:

SOUTHERN AREA

Location: Luton, just off the M1 Junction 11a
 Size: 20,000 sq. ft.
 Lifting capacity: 20 tonne, 10 metre height
 Test bed: 1MW (800 amps)
 Employees: 50
 Investment: £1.5 million

MIDLANDS AREA

Location: Wolverhampton and West Bromwich
 Size: 60,000 sq. ft.
 Lifting capacity: 20 Tonnes
 Test bed: 1MW (800amps)
 Employees: 70
 Investment: £2 million

NORTHERN AREA

Location: Middlesbrough
 Size: 15,000sq ft
 Employees 30
 Lifting capacity: 10 Tonnes
 Other: CE Accredited fabrication unit

promoting the high standards we work to and showcasing the emissions we are helping the industry cut. In time, the UK will start seeing the value we have in our fantastically talented engineers."

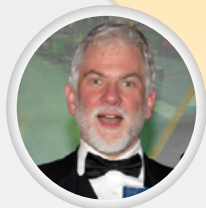
Next year, Deritend will be celebrating 75 years of continued membership, in one form or another, with the AEMT. It's rare for companies to be around for so long, so they are among a select few!

The company was founded in the second industrial revolution and has survived the third revolution. Steam power went to electrical power. Electrical power was empowered by microchips and computing power. Now we face the internet of things, artificial intelligence and global markets. We are in a very similar period to that of the 18th century entrepreneur Henry Shoolbred. He pounced on the opportunity to invest in the second industrial revolution, and we should be doing the same with the fourth! ■

Call for nominations now open...



Endorsements:



"Westin Drives were thrilled and delighted to receive the Service Centre of the Year Award. It was a great pleasure to be recognised for the effort we have expended in establishing our new facility."

Michael Limb
Westin Drives



"The awards are a great way to recognise achievements in the industry. We were honoured to collect the Project of the Year Award, and great to catch up with everyone. Thank you to AEMT for another fantastic event."

Shaun Sutton
Central Group



Thursday, November 21st 2019

Doubletree by Hilton Hotel, Coventry

The awards are a global celebration of business and professional excellence. They recognise the achievements of both individuals and companies manufacturing, distributing, maintaining and repairing industrial machinery such as electric motors, drives, pumps, fans, gearboxes, generators, transformers, switchgear and ancillary equipment.

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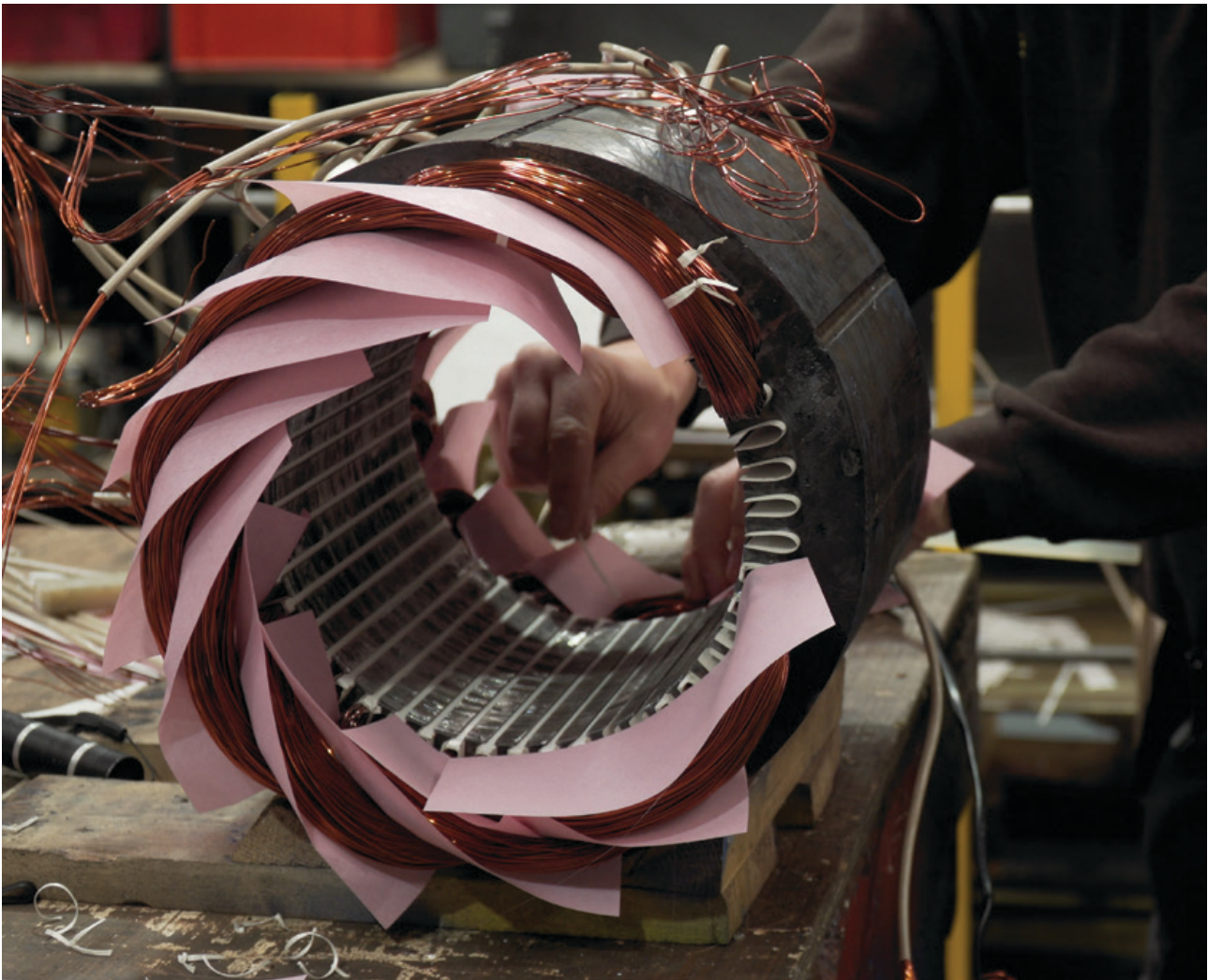


Enter Now: www.aemtawards.com

Deadline: Tues, 5th September

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Elevated Engineering Services – a business on the up-and-up!

Based out of Manchester, Elevated Engineering Services (EES) continue to develop a unique service and repair capability at their Middleton headquarters. In his 50th year in the electro-mechanical industry, John Mellors, founder and Managing Director of EES speaks to Steve Ashman of EMIR Software about the life of the business and its ties with the lift and escalator sector.



Steve Ashman
(Business Development
Manager of EMIR Software)

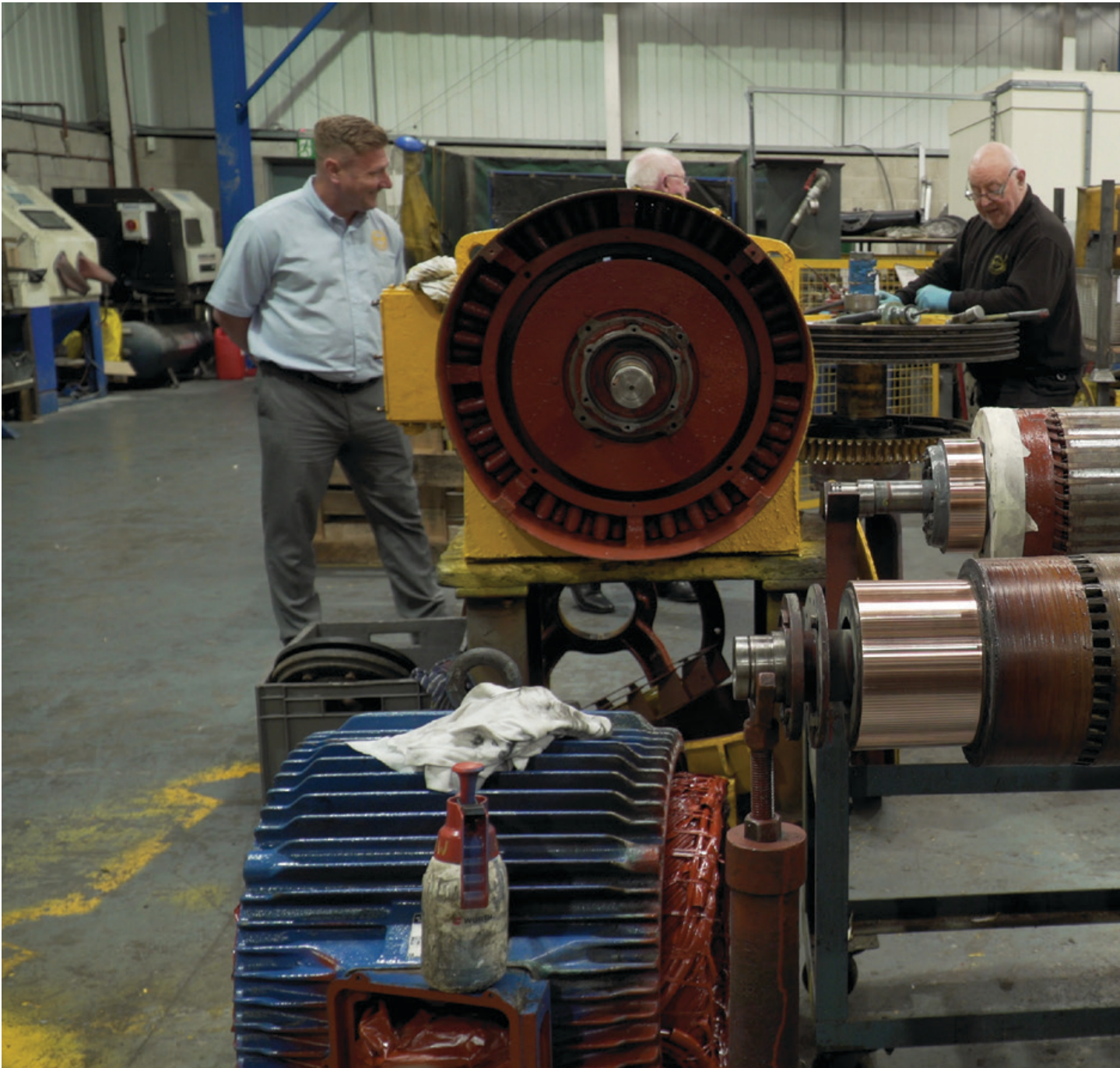
A lifetime of experience

John Mellors joined Hall Electric Motor Repairs in Oldham as a 15-year-old hands-on apprentice and has remained in the industry ever since. Hall's was originally a DC motor manufacturer. It closed during WWII and then reincarnated itself as a motor repairer. This is when John joined the company

and where he remained for the majority of his career. He learned the trade from every angle, as a technician on the shop floor and commercially, out on the road. "There had been a number of buyouts over the years," explains John, "Hall Rewinds, as it eventually became, were finally purchased and integrated into Taylor & Goodman. By that time, I was the National Engineering Director

working with the MD Pete Ryder. We looked after the 9 or 10 operational centre's that Taylor & Goodman owned at that time."

John recalls 2009 as a pivotal year. With the planned closure of the Northern branches of Taylor & Goodman, he took the bold step to cross the line from employee to business owner and



Elevated Engineering Services was born. From a 4,000 sq ft premises and a handful of skilled labour, EES turned over £250k in the first year. Ten years later and with a turnover in excess of £2.5m, life is somewhat different. Simon Horn, EES's Finance Director speaks about his appointment just as the business turned its first million pounds. "Thankfully John had the foresight to install an ERP solution called EMIR in the early days of the company, which we could grow into. We had control over the whole process and the costs. The software gave us the ability to measure

profitability on the work in progress as well as work completed, whilst keeping the burden of administration light throughout the process." Now with a team of commercial directors, operational managers and engineers, EES benefit from the combined skills of over 45 people.

The business operates roughly on a 50:50 split of workshop and on-site repair with an equal number of people paired to each side. Alongside conventional repair, service work and their speciality lift capability, EES hold

strong relationships with major facilities management companies. These have a presence in some of the best-known venues around the country including: museums, hospitals, business centres and hotels. This, John explains, is the draw for younger engineers, who have the desire to work away from home at some of the UK's most iconic landmarks and on a variety of different applications.

Service and repair excellence

There is a sense of pride when EES discusses the achievements of the



The business operates roughly on a 50:50 split of workshop and on-site repair with an equal number of people paired to each side. Alongside conventional repair, service work and their speciality lift capability, EES hold strong relationships with major facilities management companies.

business over the last 10 years. For Simon, the company's Finance Director, it was down to John's decision to invest all profits back into the business. "We are especially proud of what we've achieved in the workshop. It's segregated well and allows us to work in the order we want."

"Moving into these premises 2 years ago we started with the basic shell of a unit. We installed a 7-tonne crane and began the enviable task of designing from the ground up. New offices were installed on a mezzanine floor. We invested in

storage, milling and turning machines, ovens, and DC & AC rewinding. We are now a business that can meet the requirements and expectations from the customer. We are no longer reliant on contractors, reducing our overheads and lead times."

In the lift side of the business the skills and capability needed don't stop at electro-mechanical engineering. Category 3 lift engineer training means that they have the ability to stop and commission the movement of the lift, a unique aspect of the EES service delivery.

There are few companies who can boast the capability of specialised scaffolding teams with access to the lift shaft. EES engineers can work at height in enclosed and potentially dangerous environments. Servicing and repairing all aspects of the lift's engineering, including gearbox and motor repairs, re-roping, and control system design and implementation. As we spoke about the many challenges of running the operation, John was eager to tell me how the company had restructured after moving into the new premises to ensure that the right skills were evenly distributed across the business. With two operation managers, a health and safety officer, sales & HR and a steady supply of apprentices in the right place, the transition from small to a medium enterprise had been a costly, but important commitment.

Up-up-and-away!

John stresses, "We are not a lift company, we carry out repairs to the lift industry; that's all we do!" To be truthful, what makes EES unique is the way it embraces the working ethos of both the Association of Electrical and



Mechanical Trades (AEMT) and the Lift and Escalator Industry Association (LEIA). John explains. "As we see it, we are the only company in the country that can offer a turn-key service. Everything from isolating the equipment for maintenance, to putting the lift back into action."

With trained Level 3 lift engineers EES circumnavigate the usual delays caused by having to call out lift engineers to lock off, isolate and recommission each unit. Working for all of the major lift companies such as OTIS, Schindler, ThyssenKrupp, Kone, and their facilities management clients, who hold the keys to an abundance of motor, pump and lift work. This means EES can be relied on to complete all aspects of their projects.

How is the market changing?

We discussed and speculated over the future of the industry "In a way", John states, "everything points to the efficiencies that you get from using AC motors and invertors, although on the other hand, DC motors come with fantastic speed control and high torques. We thought as a business DC repairs were dropping off, but we've just got a customer on board who will only use DC motors and they won't change at all. So, whatever the reason, if the motor isn't working, they will still have it repaired."

...and what is their reasoning?

"They have thousands of units all over the country. I've sat down with the

engineers and asked why they don't they install more efficient systems and the answer is; there would be too much cost to do all of them." Every week work comes in from that client. As a fail-safe a DC winder has been employed, not just to cover the work, but to train up one of the apprentices to keep the skill set under one roof. Clearly technology is driving the future of the industry, however, there are still requirements for older equipment to be maintained, overhauled, and repaired. These machines will remain in the food-chain for many years to come and, as I discovered, "new" was not the always the answer.

There is no doubt that inverters have made a significant contribution to

Clearly technology is driving the future of the industry, however, there are still requirements for older equipment to be maintained, overhauled, and repaired. These machines will remain in the food-chain for many years to come and, as I discovered, "new" was not the always the answer.

lowering the carbon footprint in recent years and EES have been part of that drive. “The phrase ‘energy saving’ is what purchasing managers want to hear,” John recalls, “EES took on a massive project for one of the major banks which took over 3 months to review and commission. The project saved them hundreds of thousands of pounds, and it was all down to inverters.” The solution involved the installation of redundant machines on processing lines, enabling the division of work from one machine to another and allow for planned downtime. The result was no unexpected loss of production. Something the client had never dreamed would happen! These are common AEMT stories and are repeated over and over within the industry. AEMT members have the capability and processes to demonstrate the potential

return on investment when improving the efficiency of a plant. Something few customers should turn down!

For a man that has invested in technologies such as cloud servers and remote access through EMIR ERP, thermography and laser alignment, inverters and control panels; John is comfortable with the benefits these Innovations have brought. They have enabled EES to deliver quality on time. There is, however, one aspect of industry that does not light his passions.

“I’m not a great believer in rewind companies monitoring motors to be quite truthful, it can easily be used for self-gain, and I tell customers that. If customers want machinery to be monitored, there are companies out there that will do that, without the

interest of repair in mind.”

Over time, this technology will be supplied by manufacturers, or retrofitted onto older equipment, meaning most repairers will be faced with this proactive technology. As an industry, we will need to decide a strategy on how to promote the advantages or disadvantages as we see it. Many of the AEMT Award entries this year show that remote monitoring and system diagnosis are hot topics of discussion. Perhaps, stepping back and allowing the customer to have complete transparency of our approach is a way to promoting repair integrity.

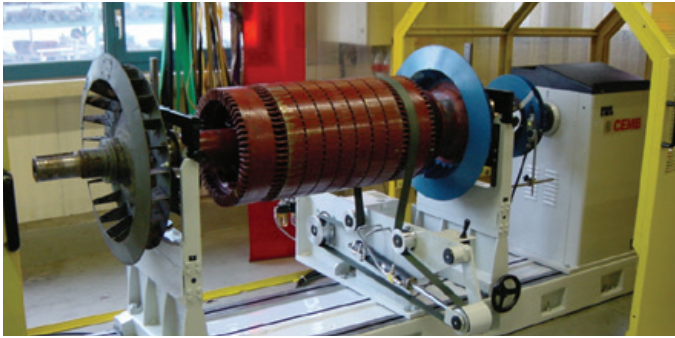
You can discover more about Elevated Engineering Services from their website www.eeslimited.co.uk ■



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Some of the EMIR Team involved in organising the Silverstone EMIR Open Day in 2017.

25 Years of EMIR!

EMIR Software was launched in 1994 and is celebrating its 25th year. EMIR is the preferred business system for AEMT members, with more users than any other product on the market. Thomas Marks, secretary of the AEMT, met with EMIR founder and MD of Solutions in I.T. Ltd, Gary Downes, to discuss all things EMIR and the AEMT!



Thomas Marks
(AEMT Secretary)

Thomas: So, 25 years is a long time, how did it all start? I understand you wrote the software originally.

Gary: Yes, that’s right! I studied Computer Science at University and then did a Masters in “Managing Innovation”, so I was always keen to invent a software package and bring it to market. Straight from completing my Masters, I joined International Computers Limited (ICL) in Stevenage and worked as a programmer of sorts, creating end-user applications to help analyse stock and help staff to provision properly in their “World Wide Spares” department. That is where a lot of EMIR’s inventory management has come from.

Thomas: How did that inspire an

Enterprise Resource Planning (ERP) product especially for the electro-mechanical market?

Gary: Well, one of the big issues at ICL was keeping track of assemblies that were sent for repair to external companies. Repairing items that came in from the field engineers, who mainly replaced computer boards and components, meant that ICL’s loop stock could be maintained. They didn’t have to buy all parts new, which in the current world situation, is obviously better for the environment! So, cutting a long story short, I eventually went to work for one of these repair companies, called Electromech Control Systems [ECS] in Dunstable. They asked me to write a system that would manage

their entire workflow, including: Quoting, Warranties, Order Processing, Job Costing, Stock, Purchasing and Finance. I spent about 18 months writing the solution for them. It was very comprehensive by the time it was finished!

Thomas: Did ECS repair Electric Motors?

Gary: Not exactly! They repaired a multitude of electro-mechanical items and that included some small electric motors. After 18 months, the directors of ECS were concerned that I would move on and leave their system unsupported, so they helped me set up a separate company to sell the system on, with ECS remaining as my primary customer to start with. I discovered the AEMT while

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who have made the last 25 years
an enormous success and continue
to support our journey!

- From the EMIR Team

EMIR
25
YEARS



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Members of the EMIR team, invited guests and past-presidents of the AEMT enjoying the AEMT Awards 2018.

marketing for new business, and thought that the Electric Motor repair market would be a good source of companies like ECS.

Thomas: Was it all plain sailing after that?

Gary: Not exactly, the system I had developed for ECS was called BOSS and was a completely live system. Engineers worked in clean environments and logged onto their own desktop PC's to record all aspects of their work as it happened. With Electric Motor repair, it is not a clean environment. Most costing was down to the 24-hour nature of the industry. Most companies also didn't want their engineers anywhere near a

computer! BOSS was about fixed priced repair. So this was again different to the more one-off, every-job-is-different, approach that was needed from the electric motor repair marketplace. I spent about a week re-writing the job costing process and then went onto sell the system from there.

Thomas: Who were your first customers?

Gary: In terms of the company that did the most to help me deliver EMIR, a special thanks must go to the recently departed Gerry Hann, who was AEMT president at the time [1995], and the Managing Director of Teamseed in Swansea, who are now part of Quartzelec. It was under his guidance

that much of the EMIR re-writing and adapting for the market was done. A special thanks must also go to Dave Whalley and Nigel Raveneau, the owners of ECS at the time, who were great guys and a real inspiration and help to me throughout the whole process of starting a business. They were also gracious enough to allow me to buy them out around 18 months after the business had started.

Thomas: So, the AEMT was important right from the start?

Gary: Yes, absolutely. It has always been my goal to try and get every AEMT member company using EMIR for their business! It is why EMIR came to be and its almost our mission! We have done well over the years and have sold to over 100 AEMT members using the system and around 200 companies overall.

Thomas: Were there any other AEMT members that help to inspire the development of EMIR?

Gary: Yes, absolutely, too many to mention, so I hope they will forgive me if I miss some out! EMIR has developed

"We have used EMIR for a long time. It continues to evolve and meet the complex diversity of our business and I see it as an intrinsic part of our business operation."

Jack Dunning, Houghton International



“EMIR software has always been at the heart of EES since we began back in 2009. As we grew, moved into the new premises and more people joined the business we decided to move to EMIR-Cloud. Now we have an uninterrupted computer system which we don’t need to maintain and we can work from anywhere on a simple broadband connection.”

Simon Horn, Elevated Engineering Services



"EMIR was known to us through somebody in the trade in the AEMT as being a successful out-of-the-box solution. We installed the system in 2003 and have since pushed it extremely hard and developed it. Today, it is the electronic backbone of Central and we couldn't run the business without it."

**Shaun Sutton,
Central Group**

enormously over the years. Most of it is inspired by our customers. Back in the early days, a very significant sale went to Mid-Kent Electrical who were the first EMIR users to need a multi-branch system. So, Andrew and Martin Savage, effectively helped to create the EMIR Professional system we have today. In the early 2000's, we also sold to Central Electrical and who inspired much of the functionality over the years including a Customer Relationship Manager tool and Online Job Tracker. Thanks to Shaun and Tim Sutton for their input and faith in us over the years. WGM Engineering in Glasgow, headed by Ian Mathieson, were also a very significant sale who have gone from 5 users to 70+ users in the last dozen years. They inspired a lot of the contracting/project management functionality along the way. Houghton International in Newcastle have also been with us since the mid 90's who have gone from strength to strength under Michael Mitten's leadership. He deserves much credit for their fantastic growth over recent years.

Thomas: So, are you personally still writing EMIR?



Gary Downes as President at the AEMT Awards.

Gary: No - unfortunately not! Because it was a very rewarding thing to do! I haven't written any code since 2000, when EMIR moved onto a Windows platform. Our product development is headed up by John Anderson who has done a fantastic job over the years. We now also use partners for our mobile app "Smart Site" and tablet-based "Workshop Routing" systems, so it's a much bigger concern now than when I used to write code!

Thomas: What are the plans for EMIR now?

Gary: EMIR is developing at the fastest rate it ever has and so more functionality is appearing on a monthly basis! We now have 18 modules and extensions as opposed to the 5 or so we started

out with in 1994. Importantly, the software is now not just for Electric Motor Repair companies. It now handles sales, repair, service, site work, hire, manufacturing and assembly for a wide-range of electro-mechanical items. EMIR has grown enormously in its build functionality and is increasingly being sold into companies that primarily manufacture and assemble items and who don't repair at all! This started with the EMIR sale to Hidrostral some 5 years ago. Annette Boulter deserves praise for her version and enthusiasm, which inspired this development.

Thomas: You've hosted some great Open Days in the past, what are your plans to celebrate 25 years?

Gary: Yes, we have had some great events at Old Trafford, the National



Space Centre and most recently Silverstone. This year we are going to the training home of English football at St George’s Park, near Burton-on-Trent. It is where Gareth Southgate and the England team train before every international fixture, as well as England’s boys, girls and ladies teams. Also, professional teams like Ajax come and use the facilities in the summer for pre-season training. The facilities also include a replica Wembley pitch! So, it’s a great facility and we hope to put on a good show for all our visitors. We will reveal EMIR’s latest functionality and our plans for the future. It is on Sept 26th so not long to book a place now!

Thomas: Finally, I can’t finish the interview without asking about your AEMT Presidency which has just

concluded at the AEMT AGM, how have you found it?

Gary: It has been great! I have really enjoyed my time as President and have found it very rewarding. I have been involved with council for 8 years now and spent the last 2 being President. I am the first Associate member to hold any office and the first to be President - we had to amend the articles of association to allow that to happen! So, I’m very privileged to have held the role and it is a sign that the AEMT is moving forward and embracing all its members and their opinions. I am particularly pleased that we managed to launch the AEMT Awards during my presidency. It is something I personally believe in, which is why we are also a main sponsor.

We’ve had two fantastic Awards nights so far and it’s really great to see 170 or so AEMT members and guests in one room celebrating the best of the industry together! Dave Hawley, another associate member has now taken over and I’m sure he will be a great President. The important thing is that the AEMT continues to represent and benefit its members. I’m sure this will continue to be the goal going forward!

Thomas: Thanks for your time Gary and we wish you and EMIR continued success!

Gary: Thanks Thomas and keep up the good work! ■

"As a growing business with multiple branches, projects and teams on the go, we very quickly had to seize control of our processes. Every person in our business has a role to play in our success and we all centre on EMIR to maintain that culture. EMIR means we do things once with accuracy assured."

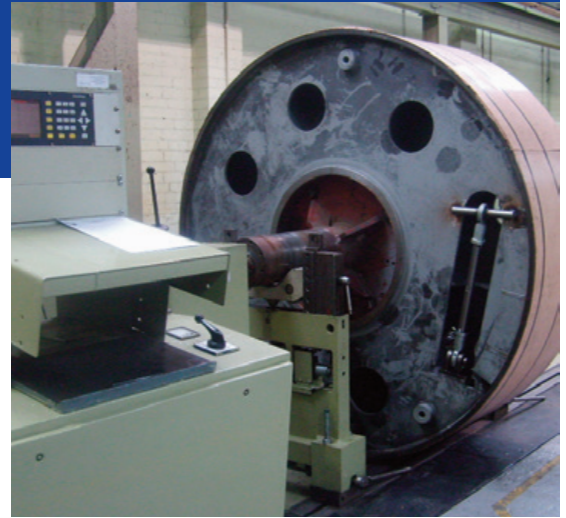
Andrew Savage, Mid Kent Electrical

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AEMT



John White - Vital Statistics:

Hours Worked: 100,000

Copper Wire Turned (at least): 300 tonnes (the equivalent of 41 male African Elephants!)
67,000km (six times round the moon!)

Bacon Butties Consumed: 2,300

Likes: Learning to programme his Raspberry Pi

Where you'll find him: At home in the garden.

John assembling a Rotary Engineering RRB Brazing Machine, used to braze copper strips of up to 200mm² cross section.

Reflecting on 50 years of service at Rotary Engineering

Thomas Marks, Secretary to the AEMT, speaks to John White, who looks back at his career with the Sheffield based engineering company, Rotary Engineering, as he approaches retirement.



Thomas Marks
(AEMT Secretary)

As I'm introduced to John by Rotary's MD, Simon Swallow, he mentions, "People like John are an essential asset to engineering companies and should be celebrated for their loyalty, reliability and the excellent work they do!" The varied nature of Rotary's business, has meant John's job is quite varied, including working on industrial electro-magnet rewinds, special machinery for repairing/manufacturing motors, electrical control systems, and electrical wiring of machines. Simon comments, "John has had the flexibility to approach different projects, and apply the same diligence to making sure something

is done correctly." John quickly adds, "I've always found it easier to do things correctly, rather than do a bad job!"

Starting out

It was the summer of '69; three superstar astronauts achieved one of the world's most staggering engineering feats to date, travelling 240,000 miles to our nearest celestial object, manoeuvre a lunar module to land safely on its surface, where two of the men step out onto the surface of our moon for the first time in history. In the same year, John White, a young 16-year-old lad fresh out of school, and at his most

impressionable age, stayed up late especially to watch the landing. Inspired by what he saw, it was at that time when he and 9 other peers began their apprenticeships with Rotary Engineering.

In those days, Sheffield's infrastructure was having a major overhaul as it went from 200V to 230V mains supply. Every motor in town had to be re-wound, making the workshop very hectic compared to these days. There was a lot of overtime, as the machines were re-wound over the weekend, and installed back on site for Monday morning. The additional pay enabled many of them to

be able to save up for their first homes. It gave John and his peers plenty of experience to start their careers with. One of his first lessons, John remembers, was to take his time, “I remember rushing a 6-pole machine and making a complete mess of it. We had to start all over again.”

Learning was done with 4 days in the workshop, and one day spent at college, which John remembers as “long days! We started in the classroom at 9am and worked through till 7pm. I remember bunking off to catch Star Trek on TV! By that point I wanted school behind me, so being sat down wasn’t the highlight of my apprenticeship!”

Training was done as part of a team where John felt there were plenty of people to turn to when you had a question, at that time it was common to have female winders and two or three were employed by Rotary. “It didn’t feel like training when you were in the workshop, you just got on with the job in hand. The progression to professional winder, around the age of 23, was seamless, without much fanfare over the transition. The nice thing was a pay rise, which was celebrated amongst my peers down at the pub!”

Of course, the motors 50 years ago were very different to what is found today. John remembers, “they were a lot easier to rewind back then. There was more room in the slots to get your turns into. Over time, motors have become more compact as they increase in efficiency. Better insulations have meant the motors can run hotter without burning out. A lot of smaller motors aren’t even able to be repaired now or include complex technology such as in servo motors. Over time, the motors requiring repair have got larger and larger.”

Working with copper throughout his career, one area John admits to finding difficult was winding with aluminium. “It’s an unforgiving material! Difficult to join, and if you get the tension wrong it can put the whole winding out of shape.”

Loyalty runs thick in Rotary – as epitomised by their continued membership of the AEMT for over 50 years! I asked John what motivated

him to remain loyal to Rotary for 50 straight years. “It’s hard to explain,” John says, “I’ve always felt very comfortable working with the people at Rotary. Work almost comes secondary to the people.”

Perhaps we should be taking more time to remember why we work in the first place. Ultimately, it all comes back to people - we’re social creatures after all! As a trade association one of the best benefits we offer is the opportunity to network with people who are all in the same trade.

Memorable moments

Asking John about his most memorable moments throughout his career at Rotary, he modestly admits, “The early days will always be a good memory. Really, I’ve just enjoyed turning up to work, and getting on with the job.” John has handled some pretty important work however; in the early days, Rotary was contracted to overhaul Drax power station’s generators. John’s part in the project involved him forming the machine’s coils. Ultimately, he was a part of a team who ensured power was generated for millions of people living in England.

John also worked on a prototyping project for a submarine. A tiny magnet, which involved the customer coming to Rotary for trials. John’s skill and knowledge from handling many electromagnets at Rotary was essential for developing the final design.

An Oil and Gas company also employed John’s knowledge when developing a



John White in his early days at Rotary Engineering.

piece of kit to cap oil wells. The device had to be inserted through a hole in the side of the pipe, and for this reason, the windings had to be formed spherically, rather than being loaded vertically, which would have employed drum motor technology and a lot more concrete in order to cap the well. The initial design was in fact changed quite radically after John’s suggestions.

Simon ends the interview by adding, “Today, society has made people very ambitious in their careers. Rarely are people interested in staying in one job for their entire career. Employee’s such as John are an essential part of Rotary’s business. As demonstrated by his breadth of knowledge and skill, which would be lost had he moved away from the workshop to a desk job.” ■



Son follows father. John leaves his legacy in his son Mathew, who has already served 10 years at Rotary.

AEMT Event Photos

Menzel Elektromotoren, Berlin



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3

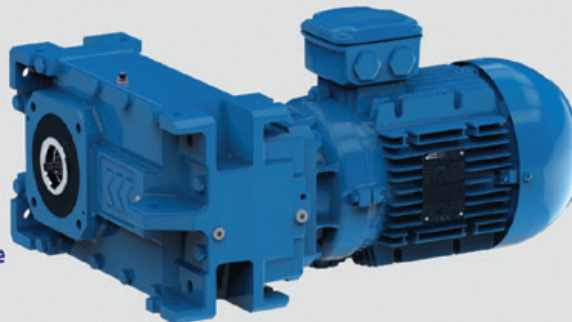


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5

1. Mathis Menzel presenting to members at the AEMT Berlin Meeting in May.
2. Danny Fox of Parsons Peebles
3. Gary Downes of Solutions in IT
4. Scott Edwards of TEC Motors reading an AEMT Journal
5. A winder at Menzel's Berlin
6. Group photo at Menzel's Berlin



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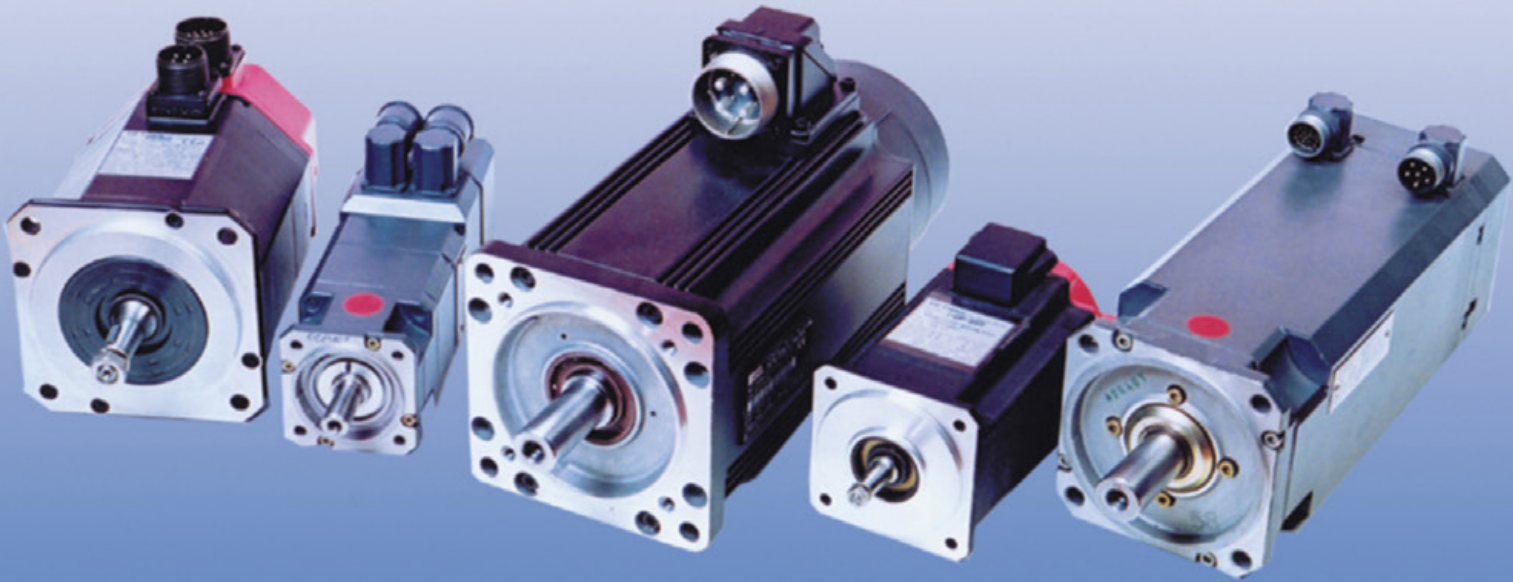
- 7. *Simon Swallow of Rotary Engineering*
- 8. *Matt Phillips of Simpro*
- 9. *Len Jones of Parsons Peebles*
- 10. *Melanie Mallin of Motor Technical Services*
- 11. *Richard Hale at the AGM*
- 12. *Dave Hawley giving his inauguration speech at AGM*
- 13. *Thomas Marks, Secretary of the AEMT welcomes David Hawley of ABB as Honorary President at the AGM*

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