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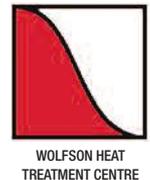
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Details will feature in the next *Hotline*. Meantime, readers interested in offering conference presentations on heat treatment innovation, and/or having a table-top display at the event, should contact CHTA Secretary Alan J Hick at [mail@chta.co.uk](mailto:mail@chta.co.uk).

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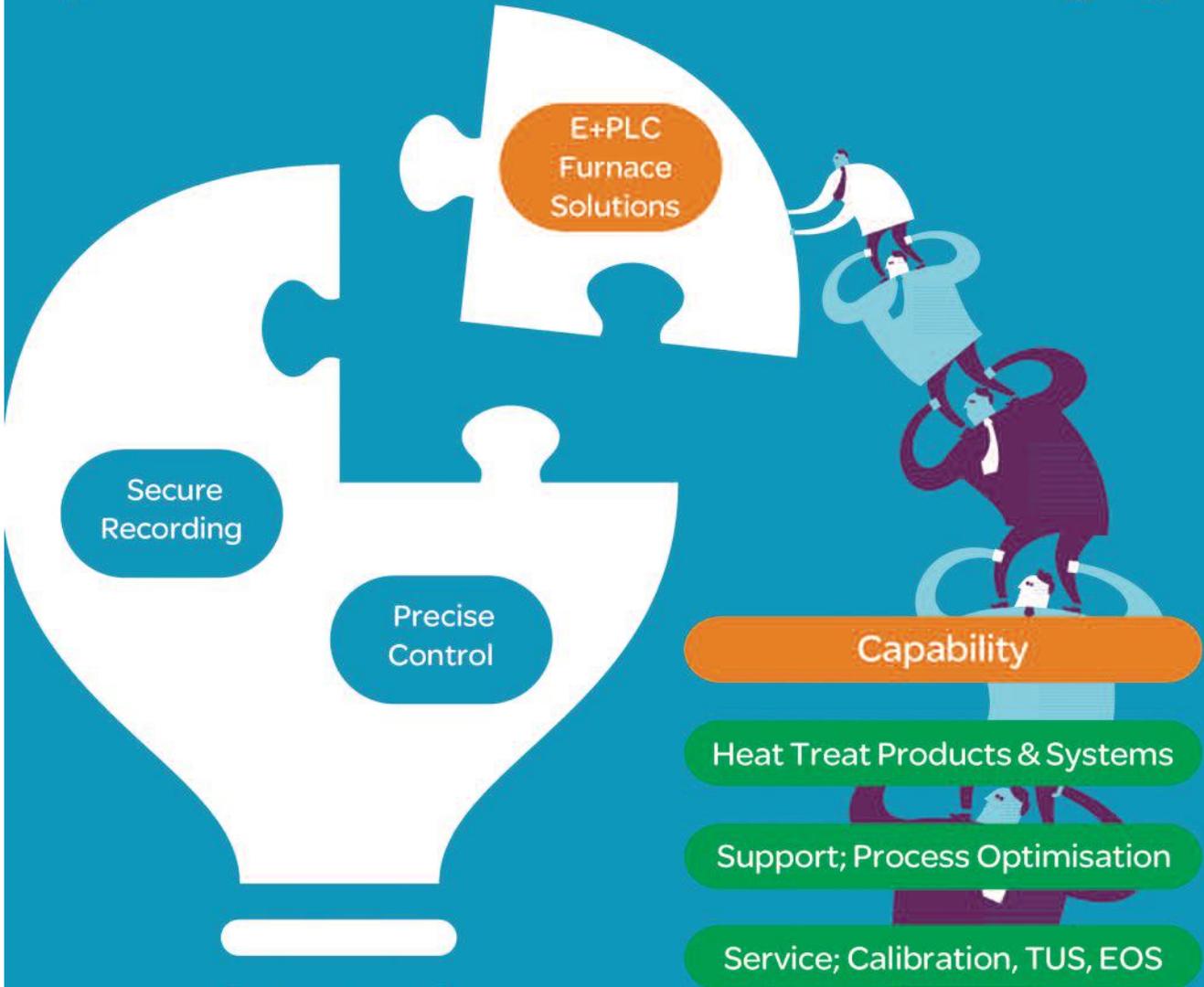
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## Easing the test-house bottleneck

With increased demand for testing driven by modern quality assurance requirements, CHTA members are finding some of their turnround times extended by delays in busy test-house services. **Debbie Mellor** of Keighley Laboratories, both contract heat treaters and test house, offers some thoughts.

### How to get the best from your subcontract testing facility

Most of the following will be apparent from our own frustrations as fellow heat treaters. However, I think it is useful to reinforce what we would like to see from a test-house perspective.

As we all know, communication is key to a smooth process from both heat treatment and testing points of view.

### Technical contract review (TCR)

The order should be documented correctly with full current material specification and concise testing requirements, as well as clear identification of the test piece and its orientation. Where possible, include the

relevant page from the specification, detailing requirements, and contact details of the individual requesting testing.

A significant amount of work is undertaken at the TCR stage – prior to any machining or testing taking place; the accreditation bodies by whom we are governed require that we carry out a full and accurate TCR before commencing any work. Any missing information on orders will significantly impact on turnround times.

### Sample size

This needs to be appropriate to the test that is required, preferably sectioned. Oversize samples can add to turnround due to excessive machining requirements.

### Test piece

Consideration needs to be given to understanding the tests required and the previous processes to which the test piece has been subjected. Material type and hardness can dramatically affect the machining time. Another important factor in quality testing is the correct preparation of the samples: results can be best analysed when the

sample has been prepared correctly. We have had instances where a product has failed on numerous occasions at another test house; however, with the correct preparation, together with our testing knowledge (the nature of the material and its notch sensitivity had not been recognised or understood previously), the product passed first time.

### Test duration awareness

Some tests that take a specific duration, such as a 90-hour corrosion test, obviously cannot be carried out in a shorter time!

An understanding of test requirements would also be beneficial. For example, a surface contamination test includes sample preparation, metallography, full hardness surveys, validation of test results and reporting – per item! As a quality test house, we always validate our results, not just report them.

### Certification

It would be helpful if our customers could state what documentation is needed: results only or reported against a specification? Also, what preferred method of communication is required, such as hard copy or e-mail?

The compilation of certificates requires the test house to assess against a relevant specification – this can be time-consuming if we have the specification in-house, but more so if we have to obtain a copy of an unusual specification from an external source. Recently a specification took three weeks to arrive from the USA.

### Test failure

Should your test fail, please discuss further with the test house involved; there may be ways that further communication can allow each party to understand the needs of the other.

As heat treaters (and testers), we all know that quality takes time.

## CHTA MANAGEMENT COMMITTEE

## Serving CHTA members...

CHTA's Management Committee 2014, pictured at its latest quarterly meeting. Back row (l. to r.): Paul Handley (Heat Treatment 2000), Mike Leach (Alpha-Rowen), Mark Florance (Techniques Surfaces UK), Richard Burslem (Wallwork Heat Treatment), SEA CEO Dave Elliott (regular part-time guest), Debbie Mellor (Keighley Laboratories) and Simon Day (ADI Treatments). Front row: Senior Vice-Chairman Chris Kenward (Ajax Tocco International), Chairman Simon Blantern (Bodycote Heat Treatments) and Junior Vice-Chairman Andy Borg (TTI Group).



Following completion of his two-year tenure, Simon Blantern hands over CHTA Chairmanship to Andy Borg in February 2015.



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# Record turnout for Understanding Heat Treatment

The enduring value to our industry of Wolfson Heat Treatment Centre's well-established three-day *Understanding Heat Treatment* course was again illustrated by a record turnout, of thirty-six delegates, at the latest October event.

Over 1890 have now attended the 79 such courses staged since the series was inaugurated, in 1977, to convey a general appreciation of the metallurgical/technological background to industrial heat treatment processing.

As ever, there was strong support for the Birmingham-based course from CHTA

members, who this time provided almost half of the delegates (seen in our photograph below).

The success of the course is down to Wolfson Manager Derek Close, who not only organises and co-ordinates it but has a major input as the main lecturer. He tells *Hotline* that the next *Understanding Heat Treatment* event is scheduled for **13-15 October 2015**. For full details, e-mail [derek.close@sea.org.uk](mailto:derek.close@sea.org.uk).

*Bill Hewitt, formerly Bodycote's Group Quality Manager, retired as Understanding Heat*



Treatment's much-admired speaker on quality assurance after the October event. A regular Wolfson lecturer since 2000, Bill is seen here with CHTA Secretary Alan J Hick (left), a fellow course speaker on controlled atmospheres.



CHTA-member participants at Wolfson's *Understanding Heat Treatment* course on 14-16 October (l. to r.): James Bolter (TTI Group), David Lakin (Tamworth Heat Treatment), Krzysztof Tworz (TTI Group), course organiser/chairman/speaker Derek Close (Wolfson Heat Treatment Centre), Pranesh Latchayya (TTI Group), Jack Barber (Heat Treatment 2000), Daniel Whitehouse (Tamworth Heat Treatment), Jack Bruce and Rikki Lee-Jones (both Heat Treatment 2000), Robert Britton and Graham Lilly (both Wallwork Heat Treatment, Birmingham), David Huntington (Special Steels), Paul Williams and Nick Wiggans (both Wallwork Heat Treatment), Kelly Barton and Adam Love (both Wallwork Heat Treatment, Birmingham) course speaker Bill Hewitt (ex Bodycote Heat Treatments), Thomas Dutton and James Bailey (both Wallwork Heat Treatment).

## CHTA WEBSITE

For the best in subcontract heat treatment services, go to . . .

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. . . your guide to sourcing from over 60 UK-wide heat treatment specialists



### LOOKING FOR SPECIFIC HEAT TREATMENT CAPACITY?

Where a job is proving difficult to source, the "Ask the Members" page on CHTA's website allows the visitor to ask all CHTA members if they have appropriate capacity. Once submitted, such an enquiry is e-forwarded to members instantly; any able to help reply directly.

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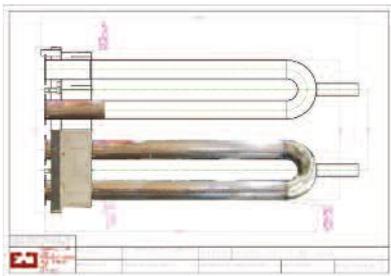
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*Hotline* welcomes advertising (other than recruitment) from CHTA members and suppliers to the trade.

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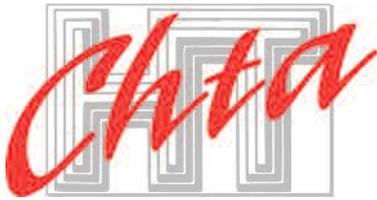
Size	Dimensions	Charge
Quarter page	121mm high x 86mm wide	£199+VAT
Half page	121mm high x 178mm wide or 254mm high x 86mm wide	£352+VAT
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Advertisers in four consecutive quarterly editions of *Hotline* are entitled to a series rate where all of the above prices are discounted by 20% per insertion.

Series advertisers also feature on the new Suppliers page of CHTA's website at no extra charge.

Booking deadline for March's *Hotline* 139: February 11th  
For further details, contact *Hotline* Editor Alan J. Hick  
Tel: 0121 329 2970; e-mail: mail@chta.co.uk



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# MEMBER DIRECTORY 2015

For full details of member services, go to [www.chta.co.uk](http://www.chta.co.uk)...

The screenshot shows the CHTA website interface. At the top, there is a navigation bar with the CHTA logo and the text "The Contract Heat Treatment Association". Below this is a search bar and a "MEMBERS AREA" section with fields for Username, Password, and a Login button. A main navigation menu includes: Membership, Find a Heat Treater, A-Z of Members, Approvals, Datasheets, Newsletter, Training, Links, Suppliers, and Contact Us.

The main content area features several service tiles:

- Thinking of Using a Contract Heat Treater?**: Promotes CHTA members' expertise in heat treatment, with a "Using CHTA Members" button.
- Specifying Heat Treatment**: Offers downloadable datasheets for heat treatment processing, with a "Download Datasheets" button.
- Find a Heat Treater**: Allows searching the CHTA database by location, processes, and materials, with a "Search for CHTA Members" button.
- Ask the Members**: Encourages users to ask questions of CHTA members, with an "Ask Members a Question..." button.
- Download our Hotline newsletter**: Provides access to the latest newsletter.
- Article Archive**: Lists articles such as "Outsourcing Heat Treatment is a No-brainer" and "Finding a Heat Treater".
- Contract Heat Treatment – the preferred option**: A central article explaining the benefits of outsourcing heat treatment, including cost savings and access to expertise.
- Nationwide Capacity**: Features a map of the UK with location markers and a "Find a CHTA Member" button.
- Register for a regular copy of our printed newsletter...**: Includes a "Register" button and a thumbnail of the newsletter.

At the bottom, there is a banner for "CHTA is sponsored by AIR PRODUCTS" and "maximising efficiency... reducing costs". The footer contains copyright information for 2013 CHTA and logos for AIR PRODUCTS and LiquidWeb.

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**For full details of services offered, go to "A-Z of Members" on CHTA's website at [www.chta.co.uk](http://www.chta.co.uk).**

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

## Selecting a heat treater at [www.chta.co.uk](http://www.chta.co.uk)

The foregoing pages update the listing of CHTA members previously found in the CHTA Member Directory 2014 published in Hotline 134, December 2013. It also supplements the more detailed information that can be found at [www.chta.co.uk](http://www.chta.co.uk), the website that facilitates easy identification of those able to meet specific heat treatment requirements.

### Find a Heat Treater

Clicking on "Find a Heat Treater" at [www.chta.co.uk](http://www.chta.co.uk) takes the visitor to a constantly-updated searchable database that enables easy identification of CHTA members providing various subcontract heat treatment services in the North, Midlands and South geographical areas of the UK.

Selection, based on processes offered, materials treated and location, results in a list of names of appropriate companies; clicking on a name yields full details of the company, with direct access to its own website. Enquiries can be submitted to one or more of the chosen companies with a single click.

### Processes

The "Find a Heat Treater" database covers over forty heat treatment and ancillary processes from which the visitor can select.

Where appropriate, the search can be refined in order to specify the preferred medium in which a heat treatment is

conducted, the choice being: air or products of combustion; controlled/ protective gas atmosphere; fluidised bed; pack; plasma; salt; or vacuum/low-pressure processing.

### Approvals

All companies featured in the database are members of the CHTA and, as such, are pledged to maintain the highest standards of quality and service. ISO 9001 is currently the universally-accepted quality accreditation, but many members hold additional quality approvals from major organisations, which are especially relevant in particular market sectors.

National and international accreditations/certifications held by CHTA members (such as ISO 9001, ISO 14001, AS 9100, CQI-9, ISO/TS 16949 and Nadcap) are listed on the "Approvals" page of the website.

### Using a Contract Heat Treater

In order to benefit fully from the services of a company featured here and in "Find a Heat Treater", the website recommends that buyers of contract heat treatment should involve the intended supplier at the earliest moment.

CHTA member companies have a wealth of experience in heat treatment which can:

- make a positive contribution in the selection of the most appropriate treatment;
- warn of possible pitfalls;
- help avoid costly mistakes.

But, as the website observes, all of this can only happen if the visitor chooses to draw upon this expertise and specialist knowledge.

### Specifying Heat Treatment

Clicking on "Specifying Heat Treatment" or "Datasheets" at [www.chta.co.uk](http://www.chta.co.uk) accesses CHTA's series of *Datasheets for Non-heat-treaters*, guides aimed at aiding sensible specification of subcontract heat treatment processing and avoidance of common problems. Couched in layman's terms, they answer the questions: What are the treatments? What are the benefits? What materials can be treated? What are the limitations? What problems could arise? How do I specify? Where do I go?

In response to the last question, the datasheets recommend contact with appropriate CHTA member companies from those listed in this directory and at [www.chta.co.uk](http://www.chta.co.uk).

## Ask all the members instantly

Where a job is proving difficult to source (say, because of size or other special requirements), the "Ask the Members" page on CHTA's website allows the visitor to ask all CHTA members if they can offer appropriate specific capacity. Once submitted, such an enquiry is e-forwarded to members instantly; any able to help reply directly.

## Looking for specific subcontract heat treatment capacity? ...

### Ask the Members

Looking for specific heat treatment capacity? Send your enquiry direct to all CHTA members instantly

Ask Members a Question...



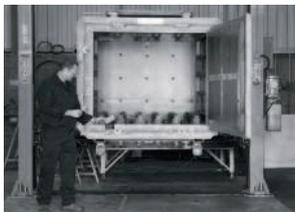
... post your enquiry on "Ask the Members" at [www.chta.co.uk](http://www.chta.co.uk)





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Nottingham, NG2 3GJ  
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Web: [www.claytonholdings.com](http://www.claytonholdings.com)



## Ammonia, can you handle it?

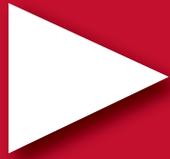
BOC offer a half day on site hazard awareness workshop for ammonia processes

- Safe handling and storage of ammonia
- Awareness of ammonia chemical properties
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Designed for people working with ammonia the course focuses on safe working practice and risk management and aims to aid incident prevention.

To find out more about our courses call us on 01483 244 597 or email us at [specialproducts@boc.com](mailto:specialproducts@boc.com)



# Hot isostatic pressing

*Stewart Griffiths of TTI Group reviews the process and its applications.*

## HIP history

Hot isostatic pressing (HIP), originally known as gas pressure bonding, was first developed in 1955 when the Atomic Energy Commission issued a challenge to develop a process to bond zirconium-clad nuclear fuel elements whilst maintaining strict dimensional tolerances. The research undertaken by the Battelle Institute resulted in the development of the first cold-walled HIP vessel.

HIP technology has come a long way since these early designs, with the development of wire-wound units and rapid-cooling facilities allowing HIP cycles to incorporate heat treatment, reduce lead times/cost and improve safety. TTI has been operating the HIP process since 1992 and recently the equipment and control systems have been upgraded to meet the demands of the future.

## Process overview

The HIP process uses the simultaneous application of temperature and pressure, in a specially-designed pressure vessel, to remove internal voids from materials, usually either cast or in the form of encapsulated powders.

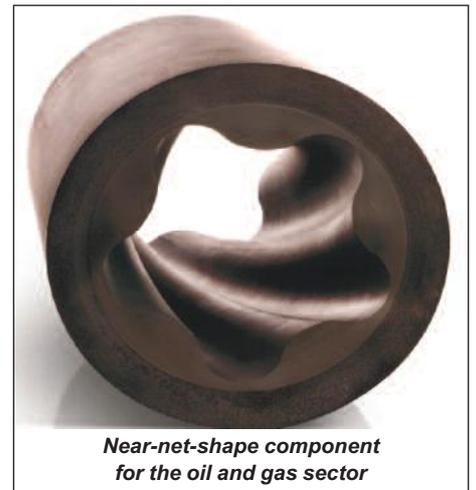
The pressure is usually applied by introducing an inert gas, typically nitrogen or argon, to the pressure vessel with the aid of a pumping system. This results in equal, isostatic, pressure being applied across the surface of the material. Imposing temperature and pressure in this way results in removal of internal voids through a combination of creep, plastic deformation and diffusion bonding. Post HIP, the material will exhibit improved mechanical and fatigue properties as well as improved surface finish, post machining, due to the removal of these internal voids.

Typical process temperatures range from 500°C for aluminium to above 2000°C for some ceramics. Pressures range from 500bar to roughly 2500bar, with dwell times anywhere from one to four hours (sometimes even longer) depending on component geometry.

## HIP uses

As part of the manufacturing process, there are many uses for HIP. Traditionally, it's used to consolidate cast product and remove porosity caused by shrinkage during the casting process. Other applications for HIP include the diffusion bonding

of materials, allowing joining without filler materials, consolidation of powder metal to form near-net-shape components with a homogenous isotropic structure, as well as the densification of sintered powder compacts. It is possible to HIP a vast array of materials; plastics, metals and ceramics can all be processed successfully with appropriate cycle parameters. HIP also lends itself to the manufacture of metal matrix composites (MMCs) which combine metals usually with ceramic materials to produce novel alloys that are difficult or even impossible to produce using traditional techniques.



*Near-net-shape component for the oil and gas sector*

## Industries using the process

The applications for HIP are broad, to say the least. Some parts we HIP to improve mechanical properties include turbine blades, in the aerospace and gas-turbine industries, and engine components, including blocks and cylinder heads, in the automotive sector.

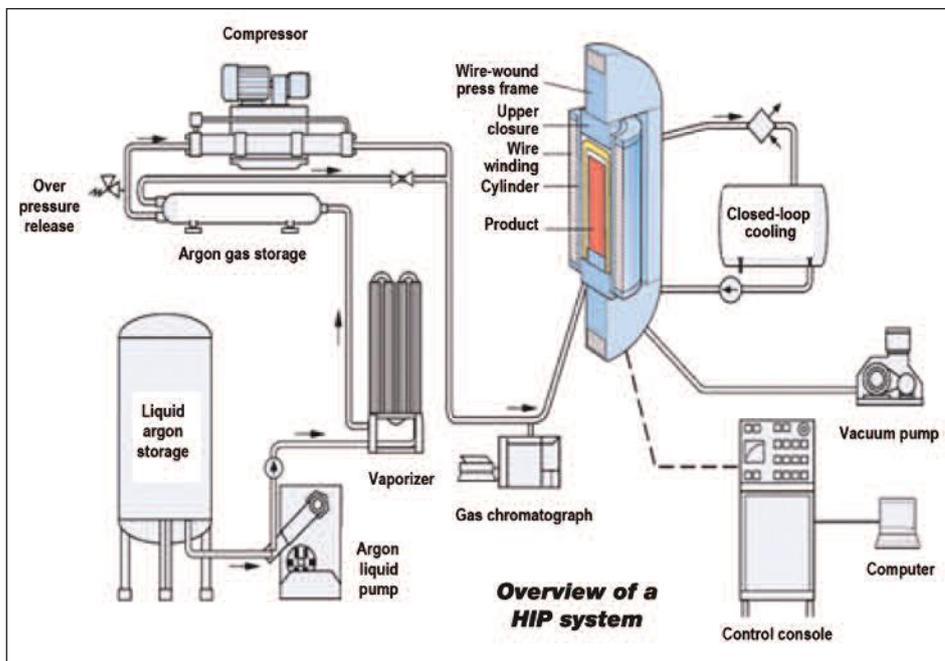
Other components where HIP is applied to improve surface finish include medical devices and even, recently, a number of bespoke toilet cisterns.

The oil and gas industry uses HIP to produce high-performance parts, through powder consolidation, for subsea use. Recent developments in additive manufacturing have also led to the use of HIP to improve the fatigue properties of components produced via laser sintering.

## HIP future – additive manufacture / NNS / powder metallurgy, etc

Developments in net-shape manufacture are continuously improving the accuracy with which powder metal parts can be produced using HIP.

In addition, novel parts are being produced using this technology, allowing them to be “functionally structured” so that different areas of the part contain metal powders with higher wear resistance and other characteristics in specific areas. This could





Encapsulated powder can prior to can removal

potentially lead to replacement of complex assemblies with parts produced in a single operation.

Other additive-manufacture and powder-metal processes are opening up new opportunities for the application of HIP which can reduce material cost for parts produced in exotic and expensive materials.

In my view, many of the developing advanced manufacturing techniques, like laser sintering, can benefit from the improved density resulting from HIP. As combinations of the processes are researched and applications established, HIP will continue to form a fundamental part of high-end manufacture for the future.

For more about the HIP process and its capabilities, contact Stewart Griffiths on 07815 740870; [stewartgriffiths@ttigroup.co.uk](mailto:stewartgriffiths@ttigroup.co.uk).

#### CHTA MEMBERSHIP FEES

The annual CHTA membership fee for a single-site company is raised by £10 to £610+VAT for 2015. For multi-site companies, the additional fee will be £155+VAT per extra division. The 2015 fees are being invoiced on behalf of CHTA by SEA/BATF.

#### AIR PRODUCTS SPONSORSHIP

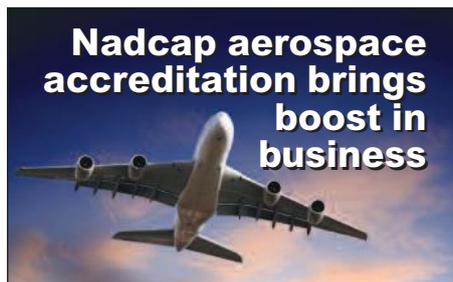
CHTA is delighted to announce that Air Products plc will again be kindly sponsoring both the Association's website and Hotline in 2015.

Their much-valued support now extends to an unbroken period of sixteen years.

#### Season's Greetings to all our readers



## Member news



The Nadcap programme is recognised as the world's premier quality audit scheme for special processes in the aerospace and defence industry. With this level of accreditation, a company can effectively gain access to worldwide suppliers of the aerospace and defence industries, with more than half of approved organisations reporting that Nadcap has helped to increase sales and gain new business, according to programme administrators PRI.

That is certainly true of Yorkshire metallurgical specialist Keighley Laboratories, whose Technical Services division was awarded world-class Nadcap accreditation for a Materials Testing Laboratory (MTL) last year, in the process achieving coveted Merit Status for a superior audit performance.

As a result of this achievement and a consequent uplift in its worldwide industry profile, the division recorded an increase in sales in excess of 30%, with orders coming from as far afield as China. It is also reporting new business from the United Arab Emirates, which is set to become a global aerospace hub, as well as from the length and breadth of the UK.

One of the few Nadcap-accredited MTL facilities in the UK, Keighley Labs has been assessed successfully for the evaluation of aerospace welds, micro and macro metallography, micro-indentation hardness procedures, mechanical test specimen preparations, and tensile, impact and bend testing. This particularly confirms the company's international status as a centre of excellence for weld testing and inspection services, running alongside its UKAS certification to many commercial standards and specifications and Civil Aviation Authority Chapter A8-10 approval of its in-house weld specimen supervisors.

Nadcap Merit Accreditation is additionally attracting attention from other industries, such as the nuclear supplier chain, which places similar emphasis upon safety and quality requirements. This has enabled Keighley Labs to win metal tensile testing contracts within the UK nuclear industry, along with an influx of work from other quality-minded sectors.

With MTL reaccreditation recently granted, following another extensive audit as part of the ongoing Nadcap certification process, Keighley Labs expects to win more export sales from weld testing and other laboratory procedures, as well as introducing further quality improvements to its own internal processes.



Following their involvement in the *Farnborough Airshow*, the Wallwork Group again showcased their extensive services for heat treatment, surface coatings, vacuum brazing and R&D capabilities at November's *Advanced Engineering Show* (Birmingham) and the *Professional Motorsport World Expo* in Germany.

The company emphasised service to clients, particularly the rapid turnaround in processing components, in keeping with aerospace, motorsport and engineering demands for lean and just-in-time production.

"The major challenge for all engineering manufacturers is to improve component and business performance. We support these objectives with a range of heat treatment and coating processes to modify the surface characteristics of components and tools to enhance service life and performance. To back this up, we have a world class R&D facility and a dedicated logistics operation able to collect and return components quickly so clients can maintain production momentum," explained sales and marketing director Simeon Collins.

At *Professional Motorsport World*, Wallwork highlighted the latest advances in micro-thin coatings that improve metal wear resistance, lubricity and performance of critical engine, gearbox and transmission components. The company works extensively with leading F1 teams on key components such as camshafts, gearing, bearings and turbochargers.

Wallwork operate a national service from three sites; Manchester, Birmingham and Cambridge. This places them close to major aerospace, engineering and motorsport centres and good proximity to leading universities and research establishments. Facilities are accredited by Nadcap, aerospace majors such as BAE Systems, Airbus, Rolls-Royce and many other leading manufacturers.

# Eurotherm by Schneider Electric

*Peter Sherwin, Eurotherm Global Marketing, reports the latest on Hotline's new series advertiser.*

## Glance back, focus forward – 2015, a key milestone for everyone at Eurotherm

This is the time of year when you reflect on the highs and lows during the past 11+ months and start preparations for the New Year – before I forget, best wishes to all!

It's not every year you turn 50, and certainly not every company hits this milestone. So it is with great pride that, in 2015, Eurotherm will be celebrating 50 years of providing support to heat treatment and other industries.

More about the 50-year celebrations in the next issue; but now it's time to take a quick look back at 2014 and the key events and activities that took place.

## 2014 review

Not long after the 2013 mince pies had run out and the all the turkeys had exited the building, Eurotherm, along with the rest of the Invensys business, was neatly packaged up and acquired by Schneider Electric in January 2014.

At the same time, Eurotherm took the first steps in a bold entry into the PLC world, with the release of the E+PLC family of products.

## Eurotherm by Schneider Electric and heat treatment

After rapid rebranding to "Eurotherm by Schneider Electric" (the building signage changing again at the Worthing Site) and countless integration meetings, we now have a steady path forward as part of the Schneider Electric family.

Commitment to the heat treat and metals industry is supported in the quotes below by key individuals in Schneider Electric and Eurotherm:

"Schneider Electric has a comprehensive approach on selected segments. The mining, minerals and metals focus is supported by a dedicated and worldwide organisation including sales, key account management, centres of expertise and marketing and R&D resources." - Klaus Lachmann (Mining, Minerals and Metals Solution Director, Schneider Electric)

"The value of the Eurotherm brand has been recognised by Schneider Electric during the acquisition as having a high brand value in the core markets that we serve. As such, our Eurotherm brand has been maintained and is now "Eurotherm by Schneider Electric." - Chris Ashworth (VP & Managing Director, Eurotherm)

## New product family - E+PLC

The E+PLC range was released for general use in early 2014 and, subsequently, the hard work began on the heat treatment variant with specific functions. This project had

already been two years in the making, with literally thousands of man-hours spent in creating a robust industrial-grade solution.

For those not aware of the back-story, the E+PLC was born from an idea to get the best of Eurotherm control (specifically the 3504 PID control) and secure data recording into a flexible, scalable open PLC platform. This was driven by key customers who wanted to avoid having a number of separate instruments (PID controller, recorder, and PLC) with the associated issues of multi-supplier solutions and complex communications.

Sounds easy? Well... nearly three years later we have just released the heat treatment version of the E+PLC family, with a front-of-panel (E+PLC<sup>100</sup>) device and back-of-panel (E+PLC<sup>400</sup>) din rail-mounted instrument that uses an HMI (E+HMI<sup>150</sup>) as the operator interface.

We had been told by a number of customers that ease of programming using different programming styles was important – reducing the length and height of the learning curve. CODESYS was the platform of choice due to its pre-existing global support, large knowledge base, and tight conformance to IEC61131-3 rules. It is purported that CODESYS is embedded in more PLC's on the market today than any other supplier, and its supported languages include; Ladder, Function Block, Sequential Function charts, Structured Text etc.

The risks involved with developing new hardware were minimised by adopting two existing platforms as the base for the hardware design and including built-in or separate touchscreen displays.

To meet the requirements of the main heat treatment standards (AMS2750E and CQI-9), it was important that the instruments went

through environmental testing to ensure accuracy requirements, out-of-the-box, and acceptable drift characteristics when in use. With the heavy emphasis of as-found results now in AMS2750E, you don't want to fall foul of the specification with an instrument that is prone to drift!

Apart from PID control and secure recording functions, we also knew we had to satisfy some basic requirements for a product suitable for the heat treatment industry. A configurable setpoint programmer has been added, plus, using modelling tools, we were able to port across key functions from existing products, including the zirconia block used for carburising, oxygen and dewpoint control, and vacuum functions including pump-down timers, leak-rate strategies and direct active gauge input.

The structured text language also makes it easier to incorporate higher-level algorithms. We can offer options including a 3-gas IR function block that takes CO, CO<sub>2</sub> and CH<sub>4</sub> atmosphere level signals from an infrared analyser, calculates the carbon% based on the readings, then uses the results to continuously adjust the carbon probe process factors in order to ensure accurate carbon potential levels.

Using diffusion modelling, we can provide real-time carbon diffusion profiles that illustrate the case-depth profile as the carburising process is running. This theoretical model can be used to set case-depth targets, rather than rely on the conventional fixed time periods used for boost/diffuse carburising. The system adjusts (within set limits) the carburising time period based on real-time feedback of the atmosphere carbon content.

A unique feature of the E+PLC range is the ability for anyone to create custom function blocks – this gives a layer of flexibility to enable specific company IP to be incorporated into the E+PLC system. Eurotherm are continuing to work on higher-level algorithms to add to this function library.

## On the road

The E+PLC for heat treatment was launched at all the major international heat treatment shows in 2014; *Furnaces North America*, *HärtereiKongress* in Germany, the Aero show in the UK and the ASM show in India.

In the first half of 2015, we will continue to run company-specific local and international events discussing compliance to AMS2750E and CQI-9.

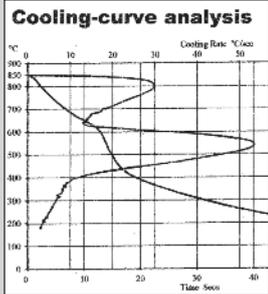
Please contact Eurotherm's Kevin Robinson to discuss your heat treatment requirements - [kevin.robinson@schneider-electric.com](mailto:kevin.robinson@schneider-electric.com).

For the latest information about Eurotherm products and solutions for the heat treatment industry, please follow the link <http://www.eurotherm.com/heattreatment>.

# Quench oil regeneration

**COST-EFFECTIVE / ENVIRONMENTALLY SOUND**

- Spent quench oils brought back to original specification by removal of contaminant water/solids and replenishment of additive packages.
- Result: clean, dry and sterilised quench oils, at a fraction of the cost of virgin products.
- Cooling-curve analysis available to confirm quenching performance characteristics.
- Negates disposal problems.
- Unique combination of technical expertise and practical experience gained through over 50 years of oil re-conditioning and recovery.



- Accredited to ISO 9001/2000 and ISO 14001.



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Fax: 0121 585 5405

E-mail: [info@midlandoil.co.uk](mailto:info@midlandoil.co.uk)

Shelah Road, Halesowen,

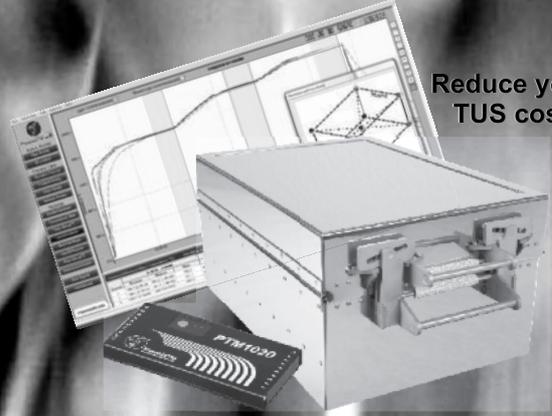
West Midlands B63 3PN

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



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[www.codere.ch](http://www.codere.ch)

2942 Alle, Switzerland

T : +41 32 465 10 10

[d.howard@codere.ch](mailto:d.howard@codere.ch)

### BATCH-TYPE FURNACE LINES

Under controlled atmosphere, in modular construction  
No mechanical locking of the charge



- Manual or fully-automated operation (automates + monitoring system)
- System 250 offers solutions from small to multi product series from 7kg up to 5 ton, changing of temperatures and atmosphere within minutes
- Unique patented quench transfer with no intermediate chamber increases security in modular construction (Add one furnace to double production)
- Respecting AMS 2750E, CQI-9 and CE norms for temperature and atmosphere precision
- New range of low-cost laboratory furnaces for stress relieving, hardening, preheating and tempering processes

[www.youtube.com/codere123](http://www.youtube.com/codere123)

## Intelligent Hardness Testing

- UKAS accredited
- ISO, ASTM and Nadcap approved
- Test blocks, indenters and accessories
- Free and helpful advisory service
- All machines built to ISO 17025:2005
- Bespoke tooling supplied
- On site training and telephone support
- All machine types supplied
- Flexible solutions to suit your needs
- British designed, engineered and manufactured



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[sales.info@zwick.co.uk](mailto:sales.info@zwick.co.uk)  
t: 01568 61 5201

**Zwick / Roell**  
Indentec

# Diary

January 22 2015  
**PRINCIPLES OF HEAT TREATMENT**  
 Aberdeen, Scotland [www.amrctraining.co.uk](http://www.amrctraining.co.uk)

January 29 2015  
**CHTA PUBLICITY SUBCOMMITTEE\***  
 Birmingham, England

January 29 2015  
**PRINCIPLES OF HEAT TREATMENT**  
 Tyneside, England [www.amrctraining.co.uk](http://www.amrctraining.co.uk)

February 3-4 2015  
**INTRODUCTION TO PYROMETRY**  
 Sheffield, England  
[www.equalearn.com/learncenter.asp?id=178409](http://www.equalearn.com/learncenter.asp?id=178409)

February 12 2015  
**CHTA MANAGEMENT COMMITTEE\***  
 Birmingham, England

March 10 2015  
**BIFCA course: BURNER TECHNOLOGY**  
 West Bromwich, England [www.bifca.org.uk](http://www.bifca.org.uk)

March 10 2015  
**PRINCIPLES OF HEAT TREATMENT**  
 Milton Keynes, England [www.amrctraining.co.uk](http://www.amrctraining.co.uk)

March 13-14 2015  
**INTRODUCTION TO PYROMETRY**  
 Birmingham, England  
[www.equalearn.com/learncenter.asp?id=178409](http://www.equalearn.com/learncenter.asp?id=178409)

April 1 2015  
**PRINCIPLES OF HEAT TREATMENT**  
 West Midlands, England [www.amrctraining.co.uk](http://www.amrctraining.co.uk)

April 8 2015  
**BIFCA course: INTRODUCTION TO INDUCTION HARDENING**  
 West Bromwich, England [www.bifca.org.uk](http://www.bifca.org.uk)

April 14 2015  
**PRINCIPLES OF HEAT TREATMENT**  
 Rotherham, England [www.amrctraining.co.uk](http://www.amrctraining.co.uk)

April 16 2015  
**PRINCIPLES OF HEAT TREATMENT**  
 West Midlands, England [www.amrctraining.co.uk](http://www.amrctraining.co.uk)

April 20-21 2015  
**INTRODUCTION TO PYROMETRY**  
 Bristol, England  
[www.equalearn.com/learncenter.asp?id=178409](http://www.equalearn.com/learncenter.asp?id=178409)

April 21-22 2015 (Revised date)  
**EUROPEAN VACUUM CARBURISING SUMMIT 2014**  
 Wroclaw, Poland  
 Conference organised by the new Global Heat Treatment Network. [www.vacuum-carburizing-summit.com/homepage/](http://www.vacuum-carburizing-summit.com/homepage/)

April 21-23 2015  
**HEAT TREATMENT FORUM**  
 Wroclaw, Poland  
 Conference/exhibition organised by the Global Heat Treatment Network. [www.heat-treatment-forum.pl/homepage/](http://www.heat-treatment-forum.pl/homepage/)

April 23 2015  
**CHTA PUBLICITY SUBCOMMITTEE\***  
 Birmingham, England

May 7 2015  
**CHTA MANAGEMENT COMMITTEE/ AGM\***  
 Birmingham, England

May 12 2015  
**BIFCA course: FURNACE & BURNER CONTROLS**  
 West Bromwich, England [www.bifca.org.uk](http://www.bifca.org.uk)

May 20-22 2015  
**22ND IFHTSE CONGRESS / 2015 EUROPEAN CONFERENCE ON HEAT TREATMENT**  
 Mestre/Venice, Italy [www.aimnet.it/ht2015.htm](http://www.aimnet.it/ht2015.htm)

May 28-29 2015  
**HEAT TREATING: PROCESS OWNER**  
 Sheffield, England  
 Training course allowing students to interface with PRI/ Nadcap subject matter experts.  
[www.equalearn.com/learncenter.asp?id=178409](http://www.equalearn.com/learncenter.asp?id=178409)

\*Members wishing issues to be raised at CHTA meetings should notify CHTA's Secretary, well beforehand, at [mail@chta.co.uk](mailto:mail@chta.co.uk)

# Market Movements

ANALYSIS OF QUESTIONNAIRE REPLIES RELATING TO 32 CHTA MEMBER SITES

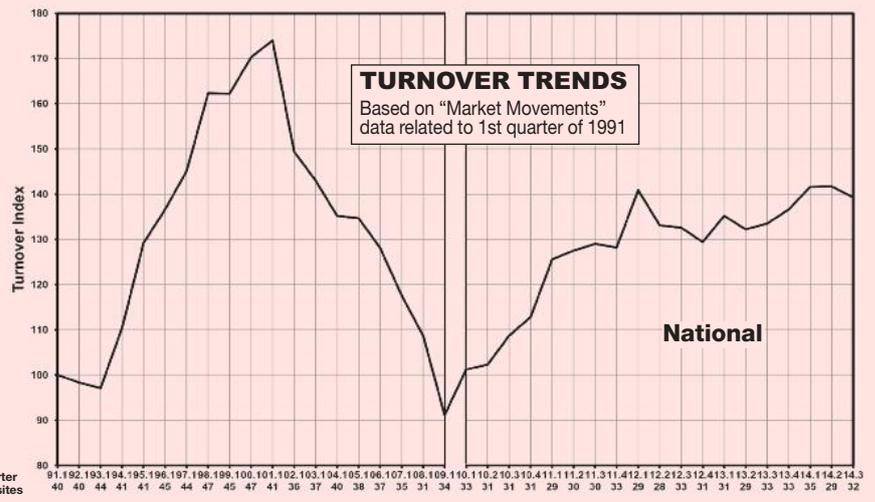
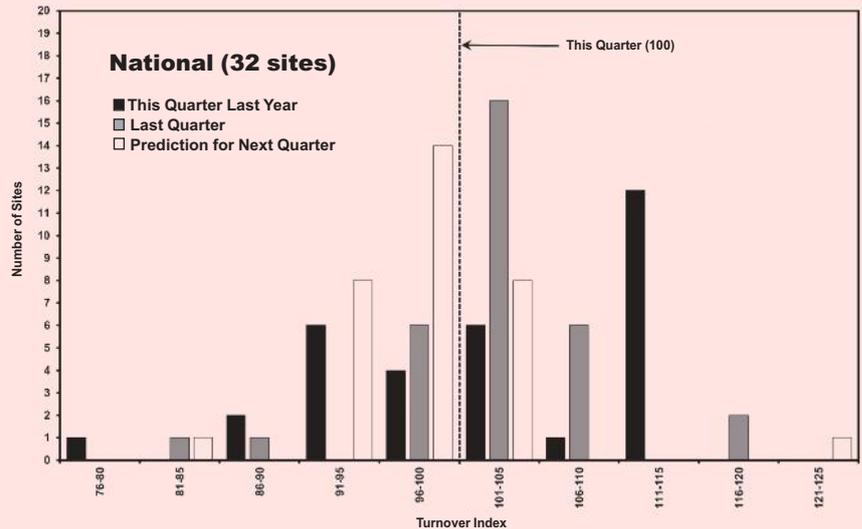
**"THIS QUARTER" =**

**1 JULY – 30 SEPTEMBER 2014**

**= TURNOVER INDEX 100**

**OVERALL ANALYSIS (32 SITES)**

	Mean index
This quarter last year	102.1
Last quarter	101.7
Predicted next quarter	99.5



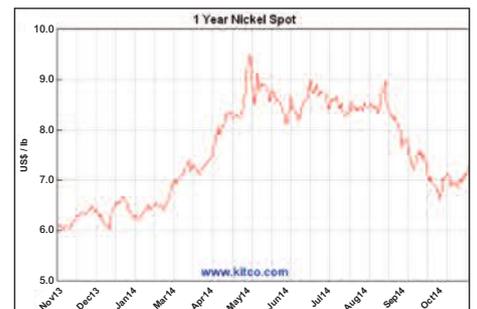
## STATESIDE STATS

### NORTH AMERICAN 2014 SALES UP 4.6% IN FIRST NINE MONTHS

CHTA counterparts participating in the Metal Treating Institute's Monthly Sales Statistics Program reported heat-treating sales of \$710.2million for the first nine months of 2014, an increase of 4.6% from the \$678.8million posted for the same period in 2013.

With eight out of the nine MTI districts (Middle Atlantic(!); South Central; Michigan; South East; North Central; Pacific Coast; South West; Canada) reporting higher sales, this September's billings amounted to \$82.3million, an increase of 11.1% compared with September 2013's \$74.1million.

## NICKEL PRICE (US\$/lb)



Please send comment and news items for March's Hotline 139 to: [mail@chta.co.uk](mailto:mail@chta.co.uk)  
 Deadline: February 18th