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CHTA Secretariat

Items for inclusion in *Hotline* and enquiries about CHTA activities should be addressed to:

Contract Heat Treatment Association
c/o SEA / BATF,
Federation House, 10 Vyse Street,
Birmingham B18 6LT
Tel: 0121 329 2970 (or 0121 237 1123)
Fax: 0121 237 1124
E-mail: mail@chta.co.uk
Website: www.chta.co.uk

CHTA Secretary and *Hotline* Editor:
Alan J. Hick B.Sc., C. Eng., FIMMM

The Contract Heat Treatment Association is not responsible for the statements made or opinions expressed by contributors to *Hotline*.



CHTA is affiliated to the Surface Engineering Association

UPCOMING...



Join us here
for a great
evening!

Friday October 20th

**SURFACE ENGINEERING
ASSOCIATION AWARDS & CONTRACT
HEAT TREATMENT ASSOCIATION
50TH ANNIVERSARY GALA DINNER**

Grand Hotel, Birmingham

Bring along your company colleagues and partners for this celebration of the special milestone in CHTA's history.

Details at www.sea.org.uk/2023-awards/



November 1st-2nd

ADVANCED ENGINEERING 2023

SEA report that only a few pods remain available on their pavilion at the forthcoming NEC-based show. To take advantage of this low-cost opportunity to exhibit, CHTA members should contact SEA on 0121 237 1123 or at info@sea.org.uk.

ONGOING...



Shaun Bailey, MP for West Bromwich West, is seen here with, on the left, Mike Leach, MD of CHTA member Alpha-Rowen Ltd.

SEA/CHTA LOBBYING ON ENERGY

Previously-reported campaigning for Government support on our energy concerns continues.

Following the recent SEA/CHTA briefing session at The House of Lords, Shaun Bailey MP, a champion of our cause, met with the Chancellor of the Exchequer to discuss the issues.

With parliament in recess and the party conference season upcoming, opportunities for engaging politicians are currently restricted. Nonetheless, the fight goes on!

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Member news



WALLWORK OPENS NEW HIP CENTRE

With a £10million investment, Wallwork Group is establishing a state-of-the-art hot isostatic pressing (HIP) centre at their Bury, North Manchester site. Housed in a newly-prepared 2500m² facility, the first of their new HIPs is expected to be fully operational this month.

Quintus Technologies are currently completing the installation of the first of Wallwork's HIPs. They are the global leader in high-pressure technology and have over 2000 systems working worldwide, in industries including aerospace, energy, medical implants, space, automotive and food processing.

"As the UK's premier independent heat treatment, vacuum brazing and advanced ultra-hard coatings company, this is a significant expansion of Wallwork's thermal processing services and is part of a commitment to invest £20million over the next five years. It cements our position as the UK one-stop shop for component manufacturers. All secondary processes are easily accessible on this or another Wallwork site and backed by our national pickup/delivery transport fleet," said director Simeon Collins.

Wallwork director James Bailey and David Loughlin (HIP Business Manager) are heading the new Wallwork HIP Centre, along with Andy Day in sales. Joining the company to take on the new role, David brings with him his extensive experience, in running a HIP facility in Europe, and understands customer expectations on high service, competitive pricing and quality.

David explained, "The demand for HIP is growing quickly, in part driven by the leaps forward in additive manufacturing

technology. HIP is extremely efficient at removing the porosity from AM parts made from metal powders – this densification process is often the only way for AM builds to fulfil their safety-critical potential. With the Quintus URC system, offering reduced cycle times and high pressure capability, we are set to meet customer demand and expectations in these developing areas. Compared with the US and Europe, the UK has been lagging behind in HIP capacity. This investment, and those planned by Wallwork, will go a long way to rectify that. In addition to Wallwork's focus on quality, service and value added, I'm looking forward to developing some new relationships for the company."



David Loughlin, new HIP Business Manager, and Wallwork director Simeon Collins (right).

James added, "The Quintus Technologies' HIP operates at pressures from 40 to 207MPa (5,800 to 30,000psi) and temperatures up to 1250°C. The new unit being installed has the latest technology, capable of rapid cooling and also the ability to increase cycle pressures to aid with new engineering advances particular in additive manufacturing. This requires some major engineering and civil works, hence the high investment we need to make to enter this growing market. The ability to improve material fatigue properties, ductility, structural integrity and fracture toughness applies to AM, castings, forgings and subtractive-engineered components. Components with complex geometries can also be processed to near-net shape, saving customers additional machining steps and therefore cost."

Simeon Collins concluded, "Beginning the design phase for the first of our HIPs during the pandemic presented many unforeseen challenges for Wallwork and the team at Quintus Technologies. This has forged a solid working relationship and gives us great confidence in their support for the technology going forward as we continue to invest. As the Bury site is already the largest single-site UK heat treating facility, with an aerospace scope covering nine Nadcap check sheets, we expect to be adding new certifications and approvals for HIP as quickly as possible.

We also have a dedicated online customer portal in development that will aid load scheduling."

FLAME HARDENERS SUPPORT FOR OLDER WORKERS

The UK Government is currently expressing concerns regarding the number of workers aged over 55 who are not in work, or unable to obtain work, in particular as a means to boost the economy and productivity. However, research has found that these older workers, whilst offering a wide range of skills and experience, are still often shut out due to narrow views of their age.

Offering a different viewpoint, and bucking the trend, Roger Haw, Managing Director at Sheffield-based Flame Hardeners is a firm advocate of employing older workers: "It is well worthwhile to pick up someone older who can do a good job; they give some thought to instructions and procedures and are flexible, reliable and have a good work ethic."

A typical example of this ethos is fork-lift operator Dave Jones who had spent most of his working life in warehouse work and had been driving fork-lift trucks for six years, until being made redundant.

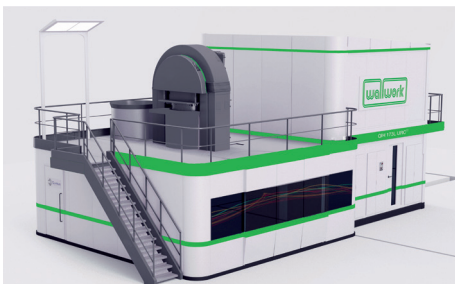


At 62, Dave wasn't confident about finding permanent work and so had been doing short-term work via an agency. As a result, he joined Flame Hardeners on a temporary basis in November last year and was then offered a permanent job after Christmas.

Dave explains: "The whole heat treatment environment is new to me, but I'm enjoying learning new skills; and I get good guidance from management. "In this job I'm covering everything – not just raw material in, as I was before. I'm also learning about engineering components and the background to the heat treatment processes. It keeps the 'grey matter' going."

"I really enjoy the work, and wish I'd found this job 20 years ago. I like to be active and working, so I'm not planning on retiring anytime soon!" adds Dave.

"The Government sees an unused army of potential workers over 55 years of age, and we have been pleasantly surprised with Dave," concludes Roger Haw.



The first of Wallwork's HIPs is being installed by Quintus Technologies.

**Please send news items for
December's Hotline 174 to:
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Deadline: November 10th**

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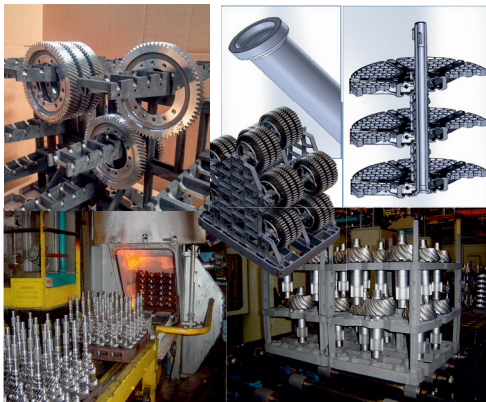


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Paulina Kus writes...

We are thrilled to return as *Hotline* sponsor and would like to congratulate all members on the celebration of the 50th anniversary of CHTA. Let us re-introduce ourselves on this occasion...

Air Products is a global leading manufacturer of industrial gases such as nitrogen, oxygen, argon, hydrogen and helium, as well as related equipment. We also offer applications expertise and help companies across dozens of industries to improve yields, reduce energy consumption and lower emissions – in other words, “to make more with less”. Air Products’ sustainable offerings include gases, equipment and applications that enable our customers and their customers to improve sustainability performance or address significant societal needs. We evaluate these offerings using a consistent life-cycle-derived approach, comparing them with equivalent benchmarks across key environmental and social criteria. We estimated that, in 2022, our sustainable offerings enabled the downstream supply chain to avoid the equivalent of 86 million tonnes of carbon dioxide emissions which is more than three times our own direct and indirect CO₂ emissions.

Our aim at Air Products is to develop lasting relationships with our customers based on qualities such as an understanding of their needs and expectations, integrity, and honesty in the way we do business.

We offer gases in a range of supply modes from cylinders, liquid bulk through to onsite generation and cryogenic air-separation plants. Systems are selected and designed for customer process requirements and optimised to match their volume, desired pressure, purity level, flow rate and operating pattern.

The author



Joining Air Products in 2018, Paulina Kus has held various roles in the European Metals Processing team and currently shares her time between development work and customer process support as an Application Specialist in Metals Processing in the UK and Ireland.

We are not just a gas supplier

For decades, we have provided technical assistance and technologies for a wide range of heat treatment applications to ensure our customers’ processes run efficiently and with correct atmosphere for their requirements. When customers are challenged to keep costs down, quality up, throughput high and safety a top priority, our European Metals Processing team is happy to help!

In metal heat treatment processes, tailored atmospheres are used to prevent undesired reactions on the metal surface and to adjust the desired mechanical properties of the parts. For example, in carburising, neutral hardening or annealing operations, furnace atmospheres derived from natural gas are frequently the first choice and have been for years now due to low cost and availability of this source. Popular blends of nitrogen, hydrogen, nitrogen/methanol or nitrogen, hydrogen, and hydrocarbons are not far behind, providing large operational flexibility for a variety of material compositions. Volatile energy prices, hydrogen enrichment of natural gas pipeline or even long-term availability of natural gas are prompting the question among many manufacturers not only about keeping up with the rocketing production costs, but also creating a need for alternative sustainable solutions for their processes.

Nowadays, we experience a shift in the European and UK industry drivers from a primary focus on low operational costs (albeit still a high priority) to also having to consider sustainable resources, net-zero manufacturing, legislative compliance or even keeping up with industry digitalisation and process automation.

Metals Processing Specialists

Whatever the main driver is, at Air Products we do our best to help our customers through those struggles. Our Metals Processing Specialists can help you:

- understand atmosphere distribution within a furnace and the effect on product quality;
- evaluate and choose the optimal (and the most economical) atmosphere composition;
- select, and provide supply systems such as blending and flow control equipment;
- perform on-site atmosphere measurements analysis and documentation;

- optimise the process;
- provide computational fluid dynamic (CFD) modelling;
- or even deliver safety training and comprehensive audits of key process areas.

In addition to ensuring your gas supply is tailored to your needs, we strive to help you achieve optimal efficiency and energy consumption in your production process. Accurate specification, measurement and control of heat-treating atmospheres are always critical to achieving the desired metallurgical and microstructural results. At Air Products, we believe the combination of atmosphere measurements and other furnace operating parameters can provide a better overview of the whole production. Thermodynamic calculations and lab tests combined with field experiences provide process engineers with more capabilities to manage and optimise production and utilities.

Whether it relates to annealing, sintering, hardening, carburising or cryogenic treatment, we can help. Our portfolio also includes a variety of enabling equipment and technology suited to your process needs:

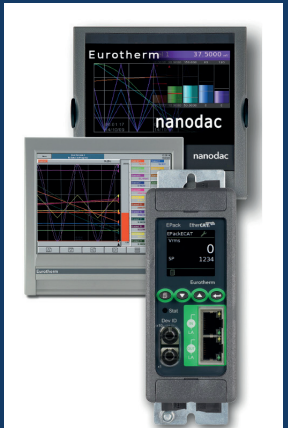
- Our methanol storage and supply systems in a range of capacities and flow rates.
- Award-winning Smart methanol lance, for nitrogen-methanol injection, that provides powerful process intelligence, reduced maintenance costs and increased productivity in various steel heat treatment processes like carburising, hardening and annealing.
- Atmosphere control systems, enabling gas savings through key performance indicator monitoring and closed-loop atmosphere control without compromising material quality.
- Cryo-tempering chambers for cryogenic treatment to enhance the mechanical properties and complete the austenite to martensite transformation.

We also have an umbrella of digital solutions (Air Products Smart Technology) that could upgrade your furnaces with Industry 4.0 capabilities to analyse the process and atmosphere data and enable process quality optimisation, resulting in cutting production costs and part energy intensity.

Understandably, there is no single advice or standard solution that fits all the heat treatment furnace types and challenges encountered in day-to-day production, but we hope to learn more about your processes, needs and vision for the development of the British heat treatment industry in the years to come.

If you'd like to see our metals processing experts in action, follow us on LinkedIn where the team answers the most frequently asked questions in heat treatment.

Watlow Eurotherm: pioneering complete thermal loop solutions and embracing the future



Peter Sherwin and Kevin Robinson
update on *Hotline's* regular advertiser.

Eurotherm, a trailblazer in the heat treatment industry, has been at the forefront of innovation since its establishment in 1965. In November 2022, the company underwent a significant change in ownership when it was acquired by Watlow from Schneider Electric.

This updated profile pays tribute to Eurotherm's rich history of excellence and its remarkable journey of transforming heat treatment processes. From discrete controllers and advanced SCR power controllers to tamper-evident paperless recorders, Eurotherm, continues to lead the way in delivering complete thermal loop solutions.

Eurotherm: a legacy of innovation and evolution

Eurotherm's story began in 1965, guided by a vision to revolutionise the heat treatment industry. Initially focusing on discrete controllers, Eurotherm quickly gained recognition for its commitment to excellence. As the industry advanced, Eurotherm pioneered the integration of advanced SCR power controllers into its product portfolio. These controllers provided precise and efficient control over power delivery, enabling improved performance and energy management in heat treatment processes.

Tamper-evident paperless recorders

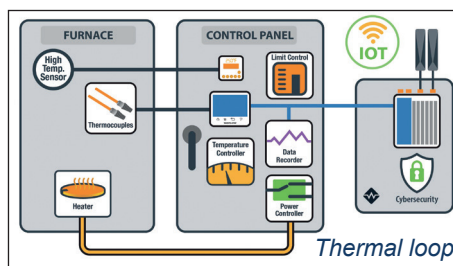
In its dedication to innovation, Eurotherm introduced tamper-evident paperless recorders to the industry. These revolutionised data acquisition and documentation, ensuring accurate and secure record-keeping of critical process variables. By eliminating the need for manual paper records, Eurotherm's paperless recorders increased efficiency, reduced errors and enabled more straightforward access to historical data for analysis and compliance purposes.

The software to analyse data helps meet

aerospace (AMS2750G) and automotive (CQI9 version 4) standards. Eurotherm *Data Reviewer V4* is the latest release, an updated software based on the original *Review* product used across the heat treatment industry for 20 years.

The transition to PLCs and complete thermal loop solutions

Eurotherm recognised the need for more advanced control solutions as the heat treatment industry continued to evolve. The tightening of industry standards required a better quality of PLC; hence the development and integration of programmable logic controllers (PLCs) into its product range. The E+PLC range offers a more flexible and efficient approach to heat treatment processes, enhancing precision control, process visualisation and data capture.



Eurotherm's commitment to delivering comprehensive solutions led to integrating heaters and sensors from the Watlow portfolio. Following the acquisition by Watlow, this strategic partnership enables Eurotherm to offer complete thermal loop solutions, addressing the holistic needs of heat treatment processes. The integration of Watlow's exceptional heaters and sensors complemented Eurotherm's control systems, providing a seamless and optimised thermal loop solution.

Achieving compliance with AMS2750G

Eurotherm, driven by its commitment to quality and industry standards, adheres to the latest benchmark in heat treatment requirements: AMS2750G. This standard outlines the guidelines for temperature

uniformity, instrumentation accuracy and system performance. By fully catering for AMS2750G, Eurotherm ensures that its solutions meet the highest standards of accuracy and reliability in heat treatment applications.

Advantages of complete thermal loop solutions

Complete thermal loop solutions offer numerous advantages that elevate heat treatment processes to new heights:

Enhanced precision and control: Eurotherm's comprehensive solutions, encompassing control systems, PLCs, advanced SCR power controllers, heaters and sensors, enable precise temperature control and help ensure consistent and accurate results.

Efficiency and optimisation: The integration of advanced control algorithms and intelligent strategies in thermal loop solutions optimises energy consumption, reducing operational costs and supporting sustainability efforts.

Flexibility and adaptability: Eurotherm's complete thermal loop solutions provide flexibility in process design and adaptability to changing requirements. The integration of heaters and sensors from the Watlow portfolio allows for tailored solutions to meet specific heat treatment needs.

Compliance and quality assurance: By adhering to industry standards like AMS2750G, Eurotherm demonstrates its commitment to delivering solutions that meet the highest quality and performance requirements.

Looking to the future

Eurotherm's journey of innovation and evolution continues under the ownership of Watlow as it embraces emerging technologies and industry advancements. The company is poised to help shape the future of heat treatment, enabling enhanced precision, efficiency and quality assurance for the industry at large.

FOUNDRAx



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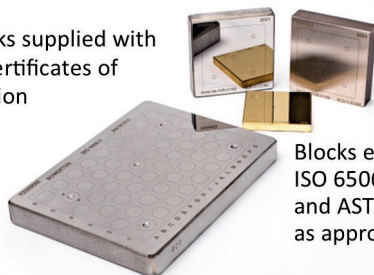
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Full page	254mm high x 178mm wide	£630 +VAT

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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.

2023 DEADLINES

Issue	Publication month	Order deadline	Copy deadline
Hotline 171	March	3 February	10 February
Hotline 172	June	5 May	12 May
Hotline 173	September	4 August	11 August
Hotline 174	December	3 November	10 November



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Diary

September 7 & 14 2023

VIRTUAL HEAT TREATMENT OF GEAR STEELS

British Gear Association online course

www.bga.org.uk/event-details/virtual-heat-treatment-of-gear-steels-3

September 7-8 2023

VACUUM HEAT TREATING

ASM Education virtual option online

www.asminternational.org/learning/courses

September 12 2023

AN INTRODUCTION TO MECHANICAL TESTING

Grantham, England

www.iom3.org/careers-learning/training-academy/materials-courses-and-qualifications/metallurgy-in-practice/mechanical-testing.html

September 13-14 2023

UK METALS EXPO

Birmingham, England

This NEC exhibition/conference is billed as "the only event that brings together the entire metals supply chain".

<https://ukmetalsexpo.com>

September 18-20 2023

HEAT TREAT BOOT CAMP

Pittsburgh, USA

www.heatbootcamp.com

September 20-21 2023

IPSEN MEET THE HEAT

Kleve, Germany

<https://ipsenglobal.com/knowledge-center/meet-the-heat-2023/>

September 27 2023

SPAIN HEAT TREATMENT CONGRESS

Bilbao, Spain

<http://metalspain.com/heat-treatment.htm>

October 3 2023

HEAT TREATING: NADCAP AUDIT CRITERIA REVIEW

Cambridge, England

[PRI Training \(pri-training.com\)](http://pri-training.com)

October 4-5 2023

INTRODUCTION TO PYROMETRY

Cambridge, England

[PRI Training \(pri-training.com\)](http://pri-training.com)

October 10-12 2023

EUROPEAN MODERN FURNACE BRAZING SCHOOL

Pontardawe, Wales

www.wallcolmonoy.com/products-capabilities/brazing-alloys/brazing-school/

October 17-19 2023

HEAT TREAT 2023

Detroit, USA

www.asminternational.org/web/heat-treat/home

October 18-19 2023

METALLURGY FOR NON-METALLURGISTS

CBM online course

<https://thecbm.co.uk/news-and-events/events/>

October 20 2023

SEA AWARDS AND CHTA 50TH ANNIVERSARY GALA DINNER

Birmingham, UK

www.sea.org.uk/2023-awards/

October 23-25 2023

BASICS OF HEAT TREATING

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www.asminternational.org/learning/courses

October 24-26 2023

79TH HÄRTEREIKONGRESS

Cologne, Germany

Heat treatment congress and exhibition. www.hk-awt.de/

October 26-27 2023

HEAT TREATING FURNACES AND EQUIPMENT

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October 26 2023

CHTA PUBLICITY SUBCOMMITTEE*

Birmingham, England

November 1-2 2023

ADVANCED ENGINEERING 2023

Birmingham, England

www.advancedengineeringuk.com

November 6-8 2023

PRACTICAL HEAT TREATING

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Market Movements

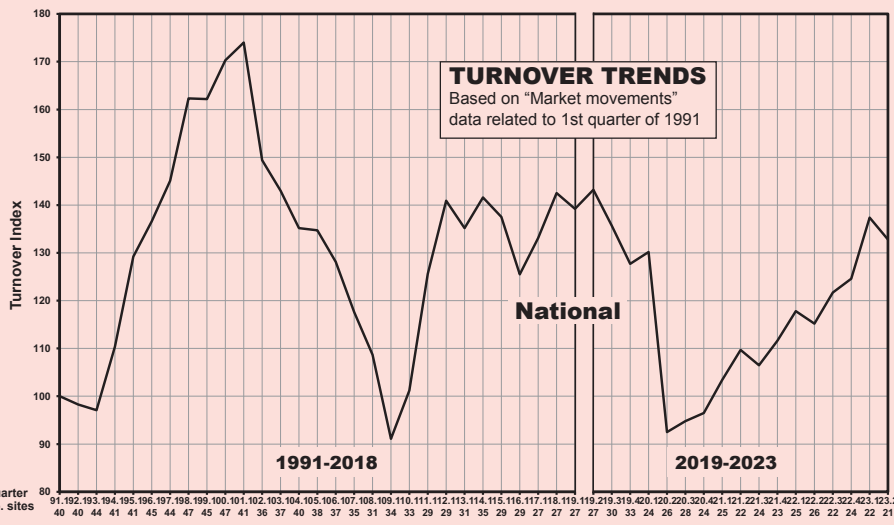
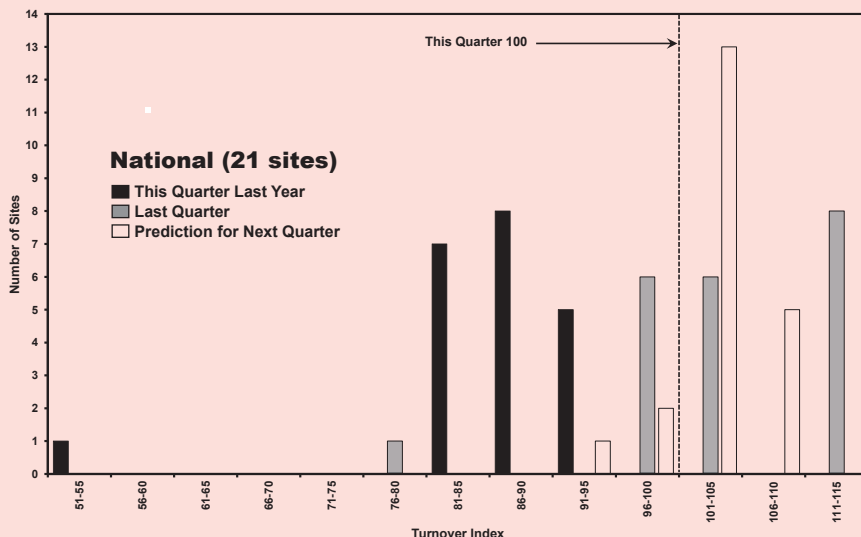
ANALYSIS OF QUESTIONNAIRE REPLIES RELATING TO 21 CHTA MEMBER SITES

"THIS QUARTER" =

**1 APRIL -
30 JUNE 2023**

= **TURNOVER INDEX 100**

OVERALL ANALYSIS (21 SITES)	Mean index
This quarter last year	86.7
Last quarter	103.5
Predicted next quarter	103.5



November 9 2023

CHTA MANAGEMENT COMMITTEE*

Birmingham, England

November 13-14 2023

ADVANCED PYROMETRY

Birmingham, England

[PRI Training \(pri-training.com\)](http://pri-training.com)

November 13-16 2023

28TH IFHTSE CONGRESS

Yokohama, Japan

<https://jsht.or.jp/ifhtse2023/>

November 16-17 2023

INTRODUCTION TO PYROMETRY

Derby, England

[PRI Training \(pri-training.com\)](http://pri-training.com)

December 4-6 2023

PRACTICAL INDUCTION HEAT TREATING

ASM Education virtual option online

www.asminternational.org/learning/courses

December 4-5 2023

79TH HÄRTEREIKONGRESS

INTRODUCTION TO PYROMETRY

Coventry, England

[PRI Training \(pri-training.com\)](http://pri-training.com)

*Members wishing issues to be raised at CHTA meetings should notify CHTA's Secretary, well beforehand, at mail@chta.co.uk

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Please send comment and news items for December's Hotline 174 to: mail@chta.co.uk
Deadline: November 10th