

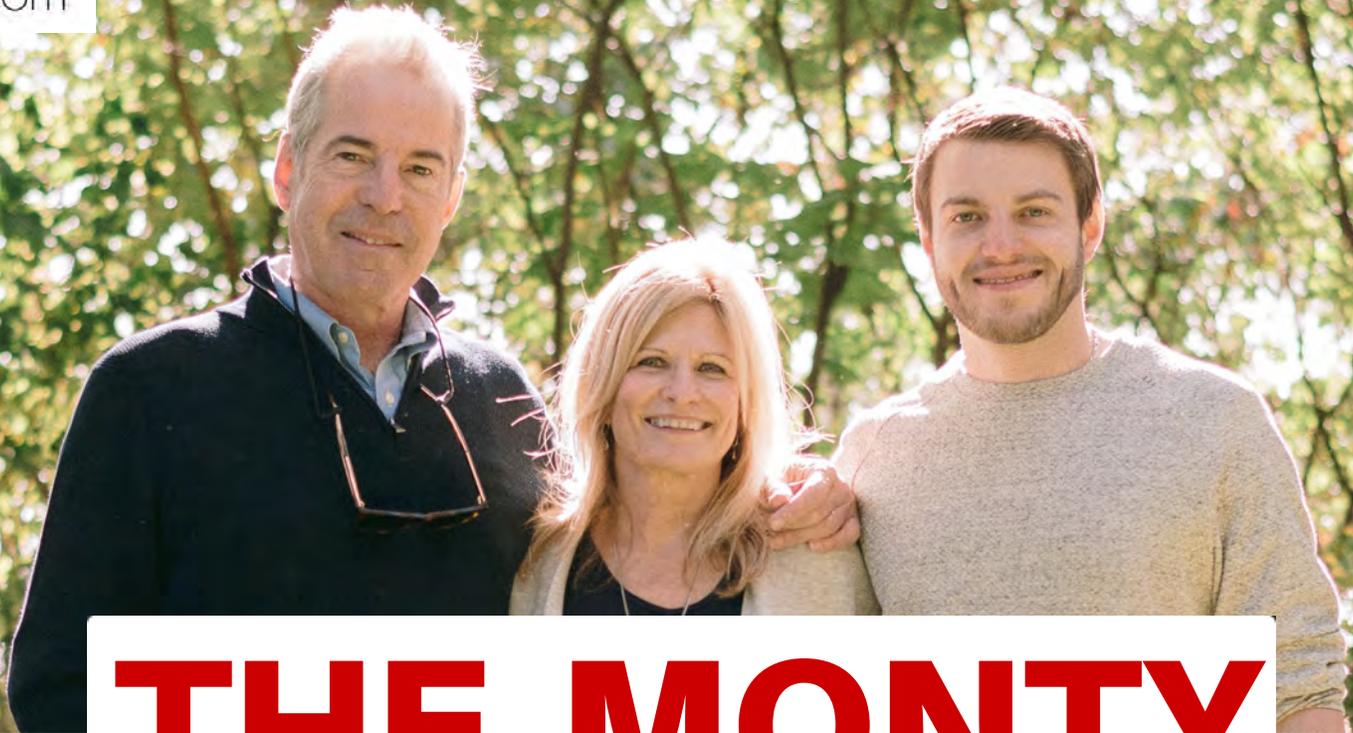
The background of the advertisement is a photograph of an industrial facility. In the foreground, a large, cylindrical heat treatment chamber with a circular door is visible. The door is open, revealing the interior. To the right of the chamber, there is a complex assembly of pipes, valves, and electrical components. In the background, more industrial equipment and structural elements of the factory are visible. The lighting is bright, typical of an industrial environment.

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HEAT TREAT NEWS

WG Montgomery Ltd. is a third generation family owned business founded in 1969 by William Gordon Montgomery to service the worldwide heat treating industry. In 1999 the company started publishing "The Monty Heat Treat News" digital magazine which was quickly followed by a website dedicated to the industry www.themonty.com "The Monty" is dedicated to providing the most up to date news and trends in the global heat treatment industry. Our readership consists of many of the largest captive heat treaters on the planet as well as commercial heat treaters and industry suppliers.



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Feintool US in Cincinnati, Ohio Brings Heat Treating in House

Nov 30, 2020



Based in Switzerland, Feintool International has facilities around the world doing fineblanking, an example of this would be clutch plates in automotive applications. Over the years the company has outsourced their heat treating requirements to commercial heat treaters however this has been slowly changing in the past few years. In 2018 the company added gas and plasma nitriding capabilities to their forming plant in Ohrdruf, Germany- this photo shows part of the heat treating department.

Just last week the company announce that their facility in Cincinnati, Ohio, USA has now brought their heat treating requirements in house as you can see in the press release below. The company gives a number of reasons for this move including reduced costs, more control over quality and reduced lead times. Our experience at “*The Monty*” tells us the number one reason to bring heat treating in house is a reduced lead time, followed by complete control over the entire process with cost savings being dead last.

“Fineblanked automotive parts, such as clutch plates, are often subjected to tremendous wear and stress. You don’t have to look further than the iconic yellow school busses to see this in action. From the frigid cold temperatures in Fairbanks, Alaska to the scorching desert heat in Reno, Nevada, millions of children rely on the dependable and essential transportation of school busses to get them safely to and from school.

School bus powertrains, with the constant stop-and-go operation, must perform reliably in extreme conditions. Fineblanked components with the controlled surface, flatness, perpendicular cutting surfaces and a clean finish throughout the entire material thickness bring the precision and reliability to the hard-working transmissions.

The physical properties of fineblanked automotive parts must be optimized for their particular application. Heat treating, also called ‘heat flattening’ or ‘heat setting,’ plays a vital role in achieving the desired flatness and surface hardness of fineblanked components.

Now, Feintool U.S. has brought this specialized operation in-house and incorporated it into its vertically integrated manufacturing process. ‘At Feintool, we pride ourselves on having a cradle-to-grave approach,’ said Lars Reich, EVP, Sales & Marketing, Feintool U.S. ‘From design, to our fineblanking

manufacturing process, and now our heat treating capabilities, controlling these operations ourselves ensures we deliver the highest quality parts at the best value.'

One way Feintool maintains its competitive edge is by continuously refining its manufacturing processes to be as efficient and cost-effective as possible. With a precise process such as heat treating, fine-tuning specific variables, such as time and temperature, can have a drastic impact on the final product. 'The unique aspect about Feintool's heat treating operation is that we can control every part of the process, including the temperature, ramp-up, soak time, cool-down, and the gas we use,' said Dan Todaro, Director of Manufacturing for Feintool Cincinnati. 'We can also use the most advanced technology and the latest techniques to create the best product possible and stay ahead of our competitors.'

'By integrating the process, we can deliver the highest quality at the most competitive cost,' added Reich. 'And since we no longer have to send the parts to a third-party for heat treating, there is no risk of damaging components during shipping, ensuring we can meet our customers' demanding production timelines.' In addition to manufacturing a flatter, more durable, higher-quality product, owning the heat treating process also enables Feintool to control its inventory levels better, reduce lead times, and allows for the flexibility to react to customer order changes to support just-in-time delivery."



We Need Your Votes To Determine The Top 25 Most Influential People In The Heat Treating Industry in 2020

Nov 30, 2020



Who are the 25 Most Influential People in the North American Heat Treating Industry? Who are the individuals who decide which technologies will succeed and which will fail? Who are the people who decide which brand of furnaces to buy? On a semi annual basis “The Monty Heat Treat News” has for over 20 years published a list of the individuals who are in a position to change the course of the captive and commercial heat treating markets in North America either in terms of presenting new technologies, influencing purchasing decisions, deciding what type of heat treating to do or effecting current heat treatment practices-our list from 2019 can be found at <https://themonty.com/project/25-most-influential-people-in-the-north-american-heat-treating-industry/>

The individuals on this list are not chosen by us but by fellow heat treaters through your votes. Examples could include pioneers in new forms of heat treatment, the fellow at a major captive heat treater who decides which furnaces to buy, CEO’s of major furnace builders, large commercial heat treaters or consultants who advise on what equipment should be used. In addition, to make the list individuals must currently be active in the industry. Submit your vote today to Jordan Montgomery jordan@themonty.com and the final list will be presented early January of 2021. All votes are anonymous and we will provide regular updates on some of the suggestions up until the end of the year. And by the way the Most Influential Individual in the North American Heat Treating Industry on our last list? Mr. Stephen Harris, CEO of Bodycote, the world’s largest commercial heat treater.



Names in the News in the Heat Treatment Industry

Nov 30, 2020

We see that Ramiro Canales is back as a Field Service Engineer for Canadian furnace manufacturer Can-Eng Furnaces of Niagara Falls, Ontario. Ramiro worked with the company from 2015 to 2019 before taking a short break from the industry. We don't know Ramiro personally but he certainly has an impressive resume having helped on commissioning Can Eng mesh belt lines at Acument Global Technologies in Mexico and Brazil, a roller hearth furnace line at parts maker Linamar in North Carolina, a mesh belt line for fasteners at IBS (Gruppo Fontana) in Italy and a host of others. Incidentally rumor has it that Can-Eng recently landed an order for a 6,000 pound per hour mesh belt line from a North American customer but at this point this is a rumor.



"Wirco, Incorporated is pleased to announce the appointment of Jordan Jensen to the position of Executive Sales Manager. Mr. Jensen will be based out of the Wirco Corporate office in Avilla, Indiana and will be responsible for the development of new markets and opportunities for Wirco's Casting and Fabrication divisions as well as leading Wirco's digital marketing efforts." Mr. Jensen has been with Wirco since early this year and was just appointed to Executive Sales Manger a few weeks ago. Previous to Wirco he worked with alloy foundry Steeltech in Michigan.



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World's Largest Commercial Heat Treater Issues Update

Nov 27, 2020

Bodycote, the world's largest commercial heat treater issued a trading update November 26, 2020 covering the 4 month period from July 1 to October 31. Our feeling at *"The Monty Heat Treat News"* is that there is no better summary of the heat treating industry than a Bodycote financial report by dint of the fact that Bodycote does heat treating for virtually every single type of product which requires heat treating and does it on a global basis. Below you will find a condensed version with the full report available at [Trading Update - Bodycote Plc](#) We searched through our photo archives to find an interesting *"Bodycote"* photo to go with this report and came up with this one taken at the *"Bodycote"* facility in Hudiksvall, Sweden.

COVID-19 has severely impacted the global economy and Bodycote's business



with it. We have responded to this challenge and, through this response, we have ensured that a stronger Bodycote will emerge as the global economy recovers. Overall, profitability

has held up relatively well in light of the significant drop in revenues. We have continued to prioritise the health and safety of our employees and other stakeholders. We are taking all necessary actions to maintain a safe working environment for our employees, who have responded magnificently to this year's challenges.

Group revenue for the period was £193.6m, 20% lower than last year (18% lower at constant currency). This represents a recovery from the 28% decline in constant currency revenues in the second quarter when the COVID-19

related downturn was at its peak. Group revenue for the 10 months to 31 October 2020 was £500.3m, 18% down on last year (17% lower at constant currency).

All percentage movements in the following review of the Group's markets compare to the same period from July to October 2019, at constant currency, unless otherwise stated.

Our two divisions experienced differing fortunes during the period, with revenues in the ADE business declining 33% (excluding the £10.3m revenue contribution from the Ellison acquisition), while revenues in the AGI division were down 15%.

As anticipated, civil aerospace revenue declined the most, with like-for-like revenues down 50%. This reflects the impact throughout the period of the downturn in civil aerospace that has affected our business from May onwards. The impact is across all our geographies, but is most acute in Western Europe, where the weighting in our wide-bodied business is greater.

Energy revenue declined 18% as a result of weakness in our onshore US oil & gas business, which is dependent on the fortunes of the Permian Basin. Lower oil prices have reduced activity in this area among our customers. Car and light truck revenue declined 11%, which represents a very significant bounce back from the more than 50% decline in the second quarter. The recovery was strongest in North America, where inventory levels were also lowest following the production shutdowns seen in the second quarter. General industrial revenue was 13% lower, with most categories continuing to experience weakness and the negative impact of destocking continuing to weigh on performance.

Emerging markets, dominated by automotive and general industrial revenues, returned to growth, increasing 2%, with a 20% increase in our revenues in China more than offsetting continued weakness across Eastern Europe. Specialist Technologies' revenues, with their relative bias towards the harder hit ADE business, declined 21% in the period, excluding the contribution from Ellison. Each of the Specialist Technologies in the AGI business registered revenue growth in the period and, as expected, Specialist Technologies continued to outperform the background market.

Management Actions; The restructuring announced in the first half was mainly focused on our AGI business, which was most immediately impacted by the COVID-19 related downturn. As this restructuring program continues to be

implemented, Bodycote's headcount has reduced to 4,813 FTEs at 31 October. This compares with proforma FTEs of 5,764 at the beginning of the year. Once the restructuring announced in the first half has been fully completed, headcount will be reduced by a further 100 FTEs. Our expectation is that the civil aerospace market will remain near the current low levels for at least the next 18 months. This provides us with the opportunity to consolidate our ADE footprint into fewer, larger facilities. The exercise to do this requires significant study, since we expect the civil aerospace market to recover strongly in due course and we want to be in the best position possible to take full advantage as this happens. There will, therefore, be a further restructuring program, similar to the program already announced in the first half, but which will be more focused on our ADE business. We will provide further details with our full year results in March.

Can-Eng Furnaces to Deliver Furnaces for Closed Die Forgings

Nov 26, 2020

"Can-Eng Furnaces International Ltd. has received orders to deliver a number of different furnace types to multiple customers in the United States and



Canada for the heating and heat treatment of aluminum and steel closed-die forgings. The furnace configurations either being built in the company shops or in the early stages of commissioning include rotary hearth, chain conveyor, roller hearth, mesh belt and cast-link belt. These furnaces will be delivered to Georgia, North Carolina and Ontario.

They will be used in the production of powertrain, suspension and steering/linkage components for the automotive sector. The demand for new furnace equipment is being driven by light weighing initiatives and a shortage of in-house heat-treatment capacity. All contracts will be in production by the first quarter of 2021."

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Heat Treatment Australia to Install Vacuum Aluminum Brazing Furnace

Nov 25, 2020

To give you some background to this story we can say that family owned Heat Treatment Australia is the largest commercial heat treater in Australia.



Over the years the firm has grown tremendously by investing in the accreditations, approvals and equipment necessary to supply the aerospace and defense industries-obviously this strategy was a good one. A few years back we had the opportunity to visit the HTA facilities in Australia and consequently we have these photos. The one shows Norm Tucker, Director of the company standing in front of a brand new SECO vacuum furnace-this

might have been the first SECO furnace the company purchased.

“SECO WARWICK will deliver the 7th furnace system to the HTA Group. The leading Commercial Heat Treater from Australia ordered a vacuum aluminum brazing furnace that will operate with a tight temperature tolerance of +/- 3 degrees C to meet the precision quality requirements of the aerospace industry. The HTA Group serves an elite portfolio of tier 1 aerospace clients including Boeing, Lockheed Martin, Northrup Grumman Corporation, Goodrich Actuation Systems (UK), Collins Aerospace Landing Systems, BAE Systems and Space X . For over 15 years, the HTA Group has provided accredited heat treatment processing services to the global aerospace industry. Prime contractors, OEM’s and supply chain businesses look to HTA on a regular basis to process a huge variety of airplane and aerospace components, both commercial and military. HTA is NADCAP and AS9100 certified for multiple processes, meaning that these customers are assured of consistent quality outcomes. The HTA Group has 3 locations in Australia, and 1 on the West Coast of the United States.

*“Our team of experienced heat treatment professionals appreciate working with SECO/WARWICK experts and technologies. We demand high quality, precision solutions due to the stringent requirements of the aerospace applications that we work with. SECO/WARWICK meets and exceeds these demands, hence we placed our 7th order for their technology because of their experience with these clients. This expertise helps us to meet our promises. That’s a real partnership,” says **Norm Tucker**, Director, HTA Group. The HTA Group bought the first SECO/WARWICK furnace in 2007. Since then, there*

have been 4 furnaces in the Brisbane location, and 2 in the USA. plant. This order is the 3rd vacuum furnace to be used for vacuum brazing aluminum parts.

The system has been designed with 6 temperature control zones in order to meet the tight temperature requirements of +/-3 degrees C as specified by the AMS2750F pyrometry specification. The powerful high vacuum system will be equipped with a large diffusion pump. The furnace can accommodate loads up to 800x800x1600mm (WxHxD). The furnace will be equipped with an external gas cooling system which will accelerate the process and improve the part quality after brazing.



The VAB furnace allows the brazing of aluminum parts for applications where the use of brazing flux is not permitted due to corrosion. This process is typically used for the most critical applications. “SECO/WARWICK has for years been providing high-end solutions on the most demanding applications for the aerospace industry all over the world. We are experienced at meeting all the specifications and continuously exceed them to secure our clients with the best heat treatment solution available today and in the years to come,” says **Maciej Korecki**, VP, Vacuum Business Segment, SECO/WARWICK Group.

“Our core values of safety and stability are crucial especially in providing precision technologies for the aerospace industry. We keep human and machine error to a minimum, installing safety buffers and using mobile parameter monitoring, warning systems and a full range of advanced maintenance and diagnostics to keep systems in check. Our employment policies ensure work stability and encourages continuous improvement for employees as well as retaining corporate knowledge and experience gathered carefully for decades,” added **Slawomir Woźniak**, CEO SECO/WARWICK Group.



Carsten Stoelting, Aichelin Furnace, Service Group-Where Are They Now? Nov 25, 2020



We see that Carsten Stoelting who for 7 years was head of AICHELIN Service GmbH made a career change just a few weeks ago as you can see in this press release;

“On 1 November 2020 Carsten Stoelting has taken over the role as Managing Director of Hitachi Zosen Inova Deutschland (HZID). Furthermore, he will lead Hitachi Zosen Inovas operations for its Systems & Service Business in Central Europe countries (including Germany) and Nordics. He succeeds Berthold Büttenbender, who led the company for six years. Berthold Büttenbender will leave the company by the end of 2020 and will continue to work for us as an adviser.”

Exactly one year ago we spent some time with Carsten and his team at the Aichelin Service facility in Ludwigsburg, Germany at which time we published this story about the Service Division of furnace builder Aichelin, the largest heat treat furnace supplier in the world;

“NOVEMBER 5/2019. Aichelin Service Group, Ludwigsburg, Germany; Based in Austria the Aichelin Furnace Group is amongst the largest furnace builders in the world so it is rather odd to see that the spare parts/service department for the company is located in another country-Germany to be exact. Since 2004 the Aichelin Service Group has been based in Ludwigsburg, Germany which is near the major city of Stuttgart-at this point some background is in order.

When the service group was formed the logic was that the service and spare parts department of any company can become secondary to that of building

new equipment, hence the decision was made to set up a completely separate company,



“Aichelin Service Group” near the city of Stuttgart which was where Aichelin originally started and where many of the company’s installations are located. Since that time the service group has grown and prospered, so much so that it now had annual sales of 45 million

euros and employs 140 people around the world with 80 people in this location alone. At some point in the past the decision was made to provide spare parts and service for any brand of furnace which means today the group spends 20-25% of their time on competitors equipment.

It’s an interesting concept and one which we have run across a couple of times recently although this sounds like the first example since it dates back 15 years now. In this photo you can see a couple of the people responsible for this success; Mr. Stephan Mueller, Head of Product Development, Carsten Stoelting, CEO of Aichelin Service Group along with Gord Montgomery.”



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- Full one year warranty



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- SolarVac® PC based control system
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McKechnie Aluminum Solutions in New Zealand Installs Nitrocarburizing System

Nov 25, 2020

“McKechnie Aluminum Solutions, a pioneer aluminum extrusion company based in New Zealand, upgraded their manufacturing operations with the addition of a Nitrex NXK-812 compact nitrocarburizing system that boasts a 1000 kg / 2200 lb. load capacity and a working space of 800 mm diameter x 1200 mm high (31 ½” x 47¼”).

The addition of the new Nitrex nitriding system is a continuation of McKechnie’s efforts to gain headway into the future of aluminum manufacturing that was first set into motion with a new 35 MN extrusion press commissioned in 2019. This capital investment saw the company’s production capacity nearly double and the recent implementation of downstream equipment like the Nitrex system will support this increased capacity. The nitrocarburizing system will treat H13 extrusion dies.



The NXK system is equipped with the Nitreg®-C nitrocarburizing technology that holds the merit of being environmentally friendly and is proven to achieve higher fatigue strength of dies, which dramatically reduces the incidence of flaking and other defects during the extrusion process. This benefit improves the performance of the extrusion die and similarly extends its service life. The Nitrex system also advances McKechnie’s goal of sustainability by enabling more efficient use of process gases and energy. Presently, the company is the only aluminum extruder in Australasia with a re-melt facility, and as a result of

this, a high proportion of the company's extruded products are made from recycled aluminum.

"The investments in a new extrusion line and Nitrex nitrocarburizing technology will make it possible for McKechnie to continue to enter new markets by developing product offerings that appeal to the Australasian market. With the current pandemic situation and travel restrictions, the Nitrex system will be installed and commissioned by our virtual on-site technical services team, who will realize this project to the same exacting quality and productivity standards as our live in-person crew. Additionally, the system will also meet all the necessary safety and environmental standards in New Zealand," said Nikola Dzepina, International Account Executive at Nitrex.

The installation and start-up are set to be completed by the end of November. All components of the turnkey NXK system will be fixed on a structural platform that will allow for a substantially shorter commissioning time and quick production startup at McKechnie"

Accurate Brazing to Add a Second Hot Isostatic Press

Nov 24, 2020

To go with this interesting news item we have two photos. The first shows the first HIP unit installed by Accurate when installation had just been



completed. The second shows one of the individuals tasked with finding work for this second unit, Ms. Jennifer McPeek who in July of this year was appointed Southeast Regional Sales Manager for the company.

"GREENVILLE, SC, November 23, 2020 Accurate Brazing, a full-service provider of specialized heat-treating solutions, plans to add a second Hot Isostatic Press unit in 2021 to its state-of-the-art Greenville, SC facility. "Based on overwhelming feedback from the marketplace, we are pleased to be moving forward with our second Hot Isostatic Press from Quintus

Technologies," says Steven Francis, President of Accurate Brazing. The investment in the second HIP unit shows Accurate Brazing's commitment to stay at the forefront to meet the needs of aerospace manufacturers and other industries that demand high quality and quick turns with unrivaled accuracy.

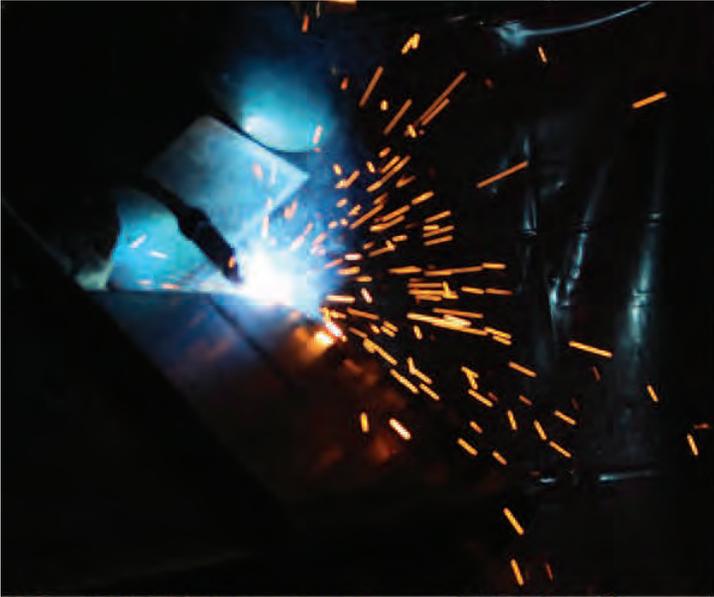
Both presses are model QIH 122 M URC and are equipped with the Quintus proprietary uniform rapid cooling (URC) feature, which combines HIP and heat

treatment in a single process. This process, called High Pressure Heat Treatment (HPHT), streamlines the steps involved in material densification and heat treatment. This innovative approach also enables all processed components to cool uniformly, resulting in minimal thermal distortion and nonuniform grain growth. “The Quintus technology allows us to shorten lead times, improve product metallurgy, and eliminate some additional outside operations, which is very attractive to our customers,” says Mr. Francis. Accurate Brazing’s customers will benefit from increased capacity and reduced delivery times with the addition of the second HIP unit.

Both presses offer a work zone of 26.0 inches (660 mm) in diameter and 68.9 inches (1,750mm) in height. They operate at a maximum temperature of 2,552°F (1,400°C) and a maximum pressure of 30,000 psi (2,070 bar). Accurate Brazing anticipates the new unit will arrive in February 2021 and be operational in 2Q 2021.

Accurate Brazing, a subsidiary of Aalberts N.V., is a full-service, one-stop shop for Vacuum Brazing, Heat-treating, and HIP’ing with over thirty years in the business and is tailored to support the Aerospace, Additive, and Power Generation markets. Accurate Brazing has facilities located in South Carolina, Connecticut, and New Hampshire.”





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Nexteer Automotive, Michigan to Auction Off Vacuum Carburizing System Nov 23, 2020



At one time the Nexteer Automotive facility in Saginaw, Michigan, USA was one of the largest captive heat treaters in North America (previously the company was called Delphi Steering and was part of General Motors). Times change and while this is still a large facility the heat treatment department is a shadow of its former self and destined to become smaller.

As we speak the company is accepting bids for a large ECM vacuum carburizing system with the full description of the equipment below. Bidding ends December 3rd with an opening bid starting at \$100,000 USD and a “buy now” price of \$1.5 million, new the system was \$6 million USD.

“ECM Technologies Vacuum Carburizing furnace, new in 2013. This is a late model ECM vacuum carburizing furnace built new in 2013, part of a complete heat treat and carburizing line. Consisting of EWN-34-75E Wisconsin Oven Corp electric batch furnaces with a maximum temperature of 250C and including the ECM carburizing furnace. Siemens PLC control. No longer required for seller continuing operations. Low hours and in very good condition.”



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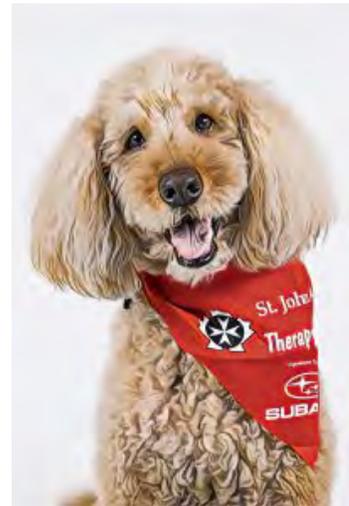
We will buy your equipment



Milo, Cambridge Heat Treating, Cambridge, Ontario, Canada

Nov 20, 2020

For the past 15 years every single visitor to commercial heat treater Cambridge Heat Treating in Cambridge, Ontario, Canada was greeted at the front door by “Milo” the dog. **Greg Steiger** of Idemitsu, **Bob Fincken** of SSI, the late **Bernie Parry** of AFC-Holcroft, **Gunner Poschmann** (the SECO/WARWICK rep in Canada), **Chris Dankert** of Wirco all were greeted warmly by Milo. Unfortunately Milo passed away last week.



From Cheryl Mortimer one of the owners of the company we have this note;

“Milo as you know was the head of the public relations department at Cambridge Heat Treating from 2005 – 2020. He had the best attendance record. He was so devoted that when I took holidays he still came to work. When you walk in the office door of Cambridge Heat Treating there was a good chance Milo would be there to show you in. Milo loved his job as much as all our family has. He was a calm dog as you know. He was Cambridge Heat Treating’s “Stress Reliever”. He will be sadly missed by everyone at Cambridge Heat Treating as well as many customers and suppliers. Everyone loved to see Milo. Cheryl, Cambridge Heat Treating Inc., 753 Bishop St. N., Cambridge, Ontario.”

Aluminum Drop Bottom Ovens-Auction

Nov 19, 2020



Thursday, December 10 **Mobex Global** in Franklin, Indiana, USA will be auctioning off some surplus equipment including 3 Despatch Aluminum Drop Bottom Ovens. Quite often what you see at these auctions is tired, worn out old junk but in this case this is really nice looking equipment and our prediction is that it will sell and sell for a reasonable price; *“HEAT TREAT*

SYSTEMS (3) DESPATCH Heat Treat Systems – SOLUTION 1000° Furnaces, Direct Gas Fired, 5 Million BTU, 8” Dia. Fa Duct, 9” x 16” Exhaust Duct, Full Close Damper, Purge Doors – Age Oven, Direct Gas Fired, 750,000 BTU, 338° Max Temp, Quarantine / Release Exhaust Hood & Platform – Load Cars on Tracks, Hoists for Quench Tank, Single Lateral Moving Quench Tank, MCC Cabinets & Panels.”

Ohio Metallurgical Fire

Nov 18, 2020

We always hate hearing about fires in the industry but they are a common occurrence unfortunately. Ohio Metallurgical is a family owned company with a long, proud history in the heat treatment industry in the USA. From the “Morning Journal” we have the story; “ELYRIA, Ohio – A fire broke out at Ohio Metallurgical Services in Elyria Monday night, causing \$1 million in damages, according to the Elyria Fire Chief. Firefighters were called to Ohio Metallurgical Services, 1033 Street in Elyria. There were employees inside when the fire started, but all were accounted for and not injured. Four departments assisted in controlling the fire that caused damages to the building. The Ohio State Fire Marshal will investigate the fire Tuesday. The cause of the fire has not yet been determined.”





Technomet Group Inaugurates Bangalore Heat Treatment Facility

Nov 18, 2020



Today we go to India for a news item about commercial heat treater Technomet. Technomet is one of the larger heat treaters in India with a total of 15 sealed quench (batch IQ for us North Americans) and 20 vacuum furnaces spread over a number of different facilities around the country. November 5th of this year the company inaugurated a brand new facility called Bangalore Technomet Pvt Ltd., in the city of Bangalore. This is a partnership with gear manufacturer Bharat Gears Limited which will involve Technomet setting up two sealed quench furnaces manufactured by Triad Engineering inside the Bharat Gear plant in Lonand, Satara. The inauguration included a very typical Indian tradition of celebrating the start up by planting samplings and hanging flowers on the equipment.



A number of years ago we at “The Monty” were involved in a similar ceremony also in Bangalore at the facilities of commercial heat treater HighTemp as you can see in the one photo below. The ceremony might appear rather odd to most North Americans but our feeling is that it is a very interesting custom and we enjoyed it.

Pyromaitre Builds Largest Tempering Oven in Their History

Nov 17, 2020



Familiar with oven builder Pyromaitre? Pyromaitre is based in Quebec City, Canada which is not exactly a hotbed of manufacturing but one of the nicest cities in North America in our opinion. The company has been around for a number of years and has made a real name for themselves in a very specialized market-tempering ovens largely for the spring industry. The company is very excited by the fact that they just produced their largest oven ever, a monster capable of processing 13 tons (30,000 pounds) per hour of product. This by the way means 1200 suspension springs per hour which is what the oven is needed for. The system has working dimensions of 110" wide x 60' long, is capable of 1,000 F with temperature uniformity of +/-10F. It's a pretty cool system and we congratulate the company.





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Aerospace Manufacturer Orders Two Horizontal Vacuum Furnaces

Nov 17, 2020

TAV Vacuum Furnaces of Italy will design, build and ship two horizontal vacuum heat-treatment and brazing furnaces to a manufacturer of aircraft structural components that specializes in spherical bearing solutions. The furnaces have useful dimensions of 600 mm wide x 600 mm high x 900 mm deep (23.5 x 23.5 x 35.5 inches) with a maximum gross charge of 600 kg (1,323 pounds). They have a maximum operating temperature of 2192°F (1200°C). An AMS 2750F-compliant SCADA system provides comprehensive furnace monitoring and control. The configuration of the furnaces enables quick and easy loading of different volumes.



Job Opening: Heat Treat Manager



Gallmar Industries, LLC. is an Oshkosh-based leader in service-driven manufacturing, machining and heat treat. We are committed to unsurpassed quality and service along with consistently exceeding customer expectations. Our work environment is exciting, challenging, and family oriented. Employees are provided the opportunity to grow personally and professionally. We are currently seeking a full-time Heat Treat Manager experienced in Atmosphere Harden Temper, Carburizing and Annealing. (45 hrs/wk) Salary is based on experience.

Please send your resume to Human Resources at: 2110 Harrison Street, Oshkosh WI 54901.

Description of Job:

- Supervision of Heat Treat employees.
- Training of new employees.
- Keeps all production on schedule.
- May be required to do outside sales work.
- Maintains a safe and clean work environment.
- Participates in and provides leadership for team-related activities.
- Provides effective, positive leadership example relevant to this position.
- Maintains a high level of company morale.

- High School Diploma or equivalent required.
- Minimum of 10 years' experience in heat treating required.
- Experience with Microsoft Office programs (Word, Excel, PowerPoint, Outlook)
- May be required to work overtime or any shift, including weekends.
- Ability to lift 50 lbs

Solar Atmospheres Installing Carbottom Vacuum Furnace

Nov 17, 2020

Yesterday we had a news item about Solar Atmospheres in South Carolina, USA installing a vacuum furnace as we speak. Well this is what it looks like now partway through being installed.



Austempering-This Simple Idea Would Have Prevented a Death

Nov 16, 2020



As part of an occasional series about “Safety In a Heat Treatment Department” we present this cautionary tale involving austempering. Back in 2011 an individual working in the heat treat department of manufacturer Fisher Barton South Carolina, Inc., was tragically killed while adding salt to a molten salt bath at the end of a mesh belt austemper line. While standing above the open quench tank he lost his balance and fell into the quench tank and subsequently died-this is the OSHA report;

“Accident: 200375400 - Employee Is Killed In Fall Into Tank Of Molten Salt. Accident: 200375400 — Report ID: 0454510 — Event Date: 02/04/2011. Establishment Name; Fisher Barton South Carolina Inc. On February 4, 2011, Employee #1 was placing salt in a tank that was being prepared for production. He climbed on the side posts of the tank’s cover assembly, lost his balance, and fell into the tank of molten salt. Employee #1 was killed.”

It was such a terrible, avoidable death that we at “The Monty” have never forgotten the accident or the details. Fast forward to 2020 and we saw a simple, very ingenious system which would totally eliminate the chance of this sort of accident ever happening again.

What we witnessed at a captive heat treater with several mesh belt



austemper lines was a completely automated system for adding salt to a molten salt bath. It consists of a vibrating hopper into which the bags of new salt are added (the vibrating feature is to break up the salt), the hopper feeds a small enclosed conveyor which delivers the salt into the covered tank through a

12" diameter tube. The system allows the salt to be added without the quench tank ever being uncovered and completely eliminates the chance of anything falling into the tank and also eliminates the chance of “splash back”. The photo below shows the system. A simple ingenious idea which would have prevented a needless death.

Names In The News

Nov 16, 2020



We see that long time ALD Vacuum Technologies employee *Mr. Joachim Boss* very recently received a well deserved promotion. Joachim was Sales Manager, Heat Treat for the company, recently he became Head of Heat Treatment. ALD based in Hanau, Germany is both a manufacturer of new furnace system, specializing in vacuum carburizing and also one of the largest commercial heat treaters in the world. Congratulations to Joachim.



In the USA *Pontus Nilsson* just became Business Development Manager for *Quintus Technologies* based out of Västerås Sweden and with US Headquarters in Columbus OH. When we think of Quintus we think of “HIP” systems (hot isostatic pressing) a technology which has been in the news quite a bit recently. Previous to this Pontus was Vice President, Sales and Marketing at *GM Enterprises* one of the larger suppliers of vacuum furnaces. Below you see a photo of Pontus along with a picture of a new Quintus HIP systems at *Stack Metallurgical* in Oregon. We at “The Monty” took this photo back in January of this year when we were privileged to be able be part of the grand opening of Stack’s new HIP facility.



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Surface Combustion 5600 CFH Endothermic Generators Available (4 in total)

Nov 13, 2020

We have available 4 Surface Combustion 5600 CFH Endo Generators. Serial numbers BC40270-1A, BC40270-1B, BC40270-1C and C-10021-1A. All are gas fired. 480V/3ph/60cycle, maximum temperature 1950F. Eurotherm digital control and over-temp with MMI Multipro data logging and carbon control. Good condition. \$15,000 USD Each.



CFC Fixtures – the Guarantee of Added Value in Heat Treatment

Nov 13, 2020

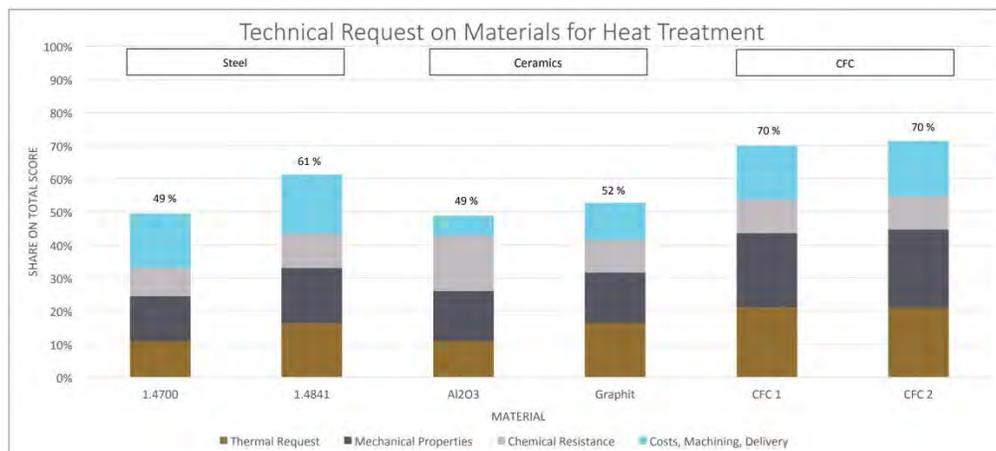
Dr. Rolf Terjung, founder and CEO of CFC fixturing company *Graphite Materials* provides us with this excellent article about why CFC racks make so much sense in heat treating applications. <https://www.graphite-materials.com/?lang=en>

CFC racks have established themselves today in the various heat treatment processes. An essential prerequisite for this is reliability, which is ensured, among other things, by the predictability of the loading conditions and the reproducible material production. Basic design principles have been predestined over the years. The customer benefit lies in the significantly higher added value compared to the cast steel devices and consists of: More components per batch (turnover), increased process reliability, automation, additional furnace capacity and lower workload. As a result, the higher

acquisition costs are amortised already after 18 months, depending on the component. Different designs for “horizontal”, “vertical” or “hanging” batching are used.

Devices: materials in competition. Why have CFC fixtures become established in the competition against heatresistant steels/cast steel? For effective heat treatment, devices are imperative to improve process reliability, workpiece quality, shorten process times and reduce costs [1] to list just a few fundamental reasons. Devices made of steel are still widely used with their challenges that are known:

- dimensional and shape changes,
- heavy weight,
- short lifespan (growth, embrittlement).

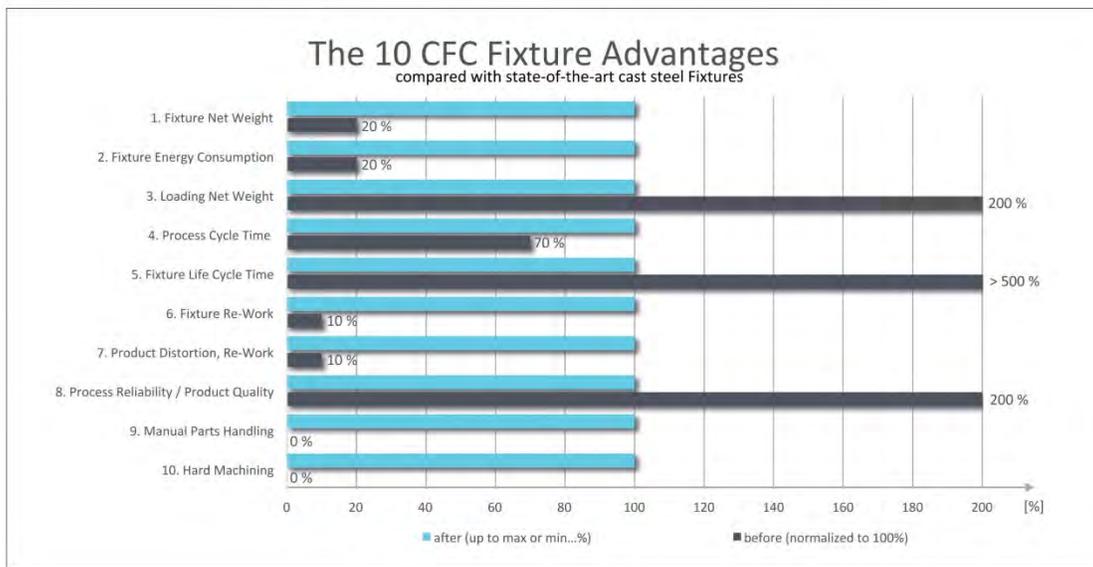


In the mid-1990s, with the support of research, the industry began to test and evaluate CFC (Carbon Fibre-Reinforced Carbon, CFC Fixtures – the Guarantee of Added Value in Heat Treatment CFC racks have established themselves today in the various heat treatment processes. An essential prerequisite for this is reliability, which is ensured, among other things, by the predictability of the loading conditions and the reproducible material production. Basic design principles have been predestined over the years. The customer benefit lies in the significantly higher added value compared to the cast steel devices and consists of: More components per batch (turnover), increased process reliability, automation, additional furnace capacity and lower workload. As a result, the higher acquisition costs are amortised already after 18 months, depending on the component. Different designs for “horizontal”, “vertical” or “hanging” batching are used. Keywords CFC fixtures, near-net-shape positioning, alumina fibres, loading condition, calculation, added value, distortion, reliability.

Carbon Composites C/C) as a new fixture material in the competition against heat-resistant steels (over 750 °C) [1]. The requirements for the “ideal” material for hardening devices were defined as follows [1]:

- high temperature resistance (absolute and gradient),
- high mechanical strength (σ Tensile, σ Bending, σ Compression, Youngs-Modulus, Ductility) with low density (ρ),
- good chemical resistance to atmospheres, quenching media, washing media and the material to be hardened,
- high dimensional and shape stability at high temperatures (CTE low, “ λ ” high, cp small),
- good workability,
- low costs (material, machining, longevity, no rework, no levelling),
- large variety of shapes/designs: tubes, bars, grids, plates,
- high delivery performance.

Heat-resistant steels (standard), technical ceramic (engineering or high-performance ceramics), graphite (ceramic) and fibre composite materials (CFC) were evaluated as suitable materials in a matrix. CFC proved itself to be the optimum material. The experience gained so far with CFC racks compared to cast steel in the various heat treatment processes (tempering, surface hardening, nitrocarburizing, brazing and sintering) is rated in Fig 2.



The ten CFC-fixture and rack advantages (min./max. values of the bars depending on customer situation and investment volume; non-binding; by experience). The requirements for the “ideal” material CFC stand out in this

illustration. An example from industry (automotive parts) makes the difference clear in absolute figures. [3]. The device weight could be reduced by 62 % and at the same time used for more components by means of new positioning. Only the furnace capacity of 1500 kg can be “sold”. The decisive factor for value creation and thus also for amortization is the approximately 90 % increase in the number of parts per furnace cycle (turnover = quantity x price). The furnace utilization (max. 1500 kg) could be almost doubled with components, from 43 % to 80 %. The process time remained almost unchanged. Acceptance through reliability CFC devices have become established in the various processes, but still not to the extent that the advantages (Fig. 2) suggest. Due to the density (CFC: 1,6 g/cm³/ steel: 7,9 g/cm³) there is a weight advantage of approx. 60–80 % for CFC, as is shown in Fig. 2. The fixture can be made to be comparatively “slim”. If a filigree-looking CFC and a “massive” steel rack with the same load-bearing capacity are placed side by side, the load-bearing capacity is obviously questioned. The calculation of the rack load-bearing capacity for standard and special constructions is an essential prerequisite for customer acceptance. Well-honed manufacturing processes for the mass production of CFC today guarantee reproducible material parameters (material data sheet) for engineering (materials technology - design - simulation - production) [4]. In-house market research on heat treatment furnaces revealed two main grid dimensions:

- 600 mm x 500 mm (500 kg);
- 900 mm x 1200 mm (to 1500 kg)

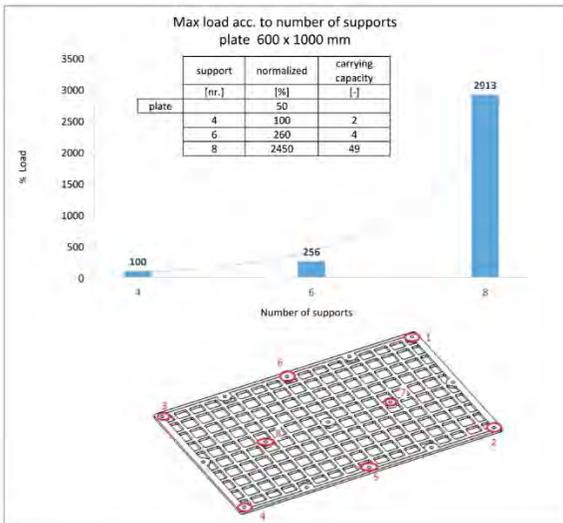


Fig. 3
Plate, 600 mm x 1000 mm, max. load acc. to the number of supports

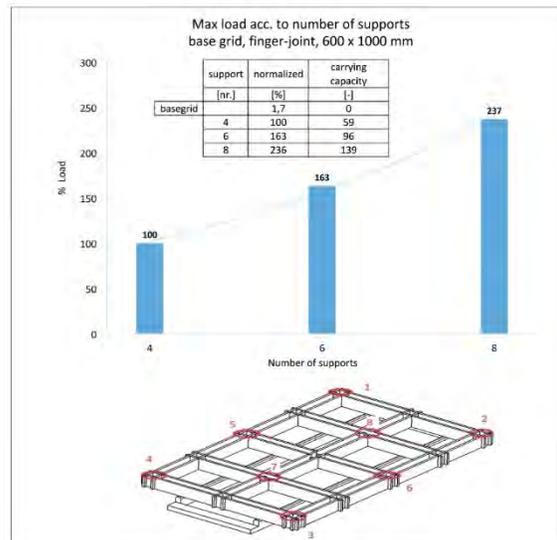


Fig. 4
Base grid, 45 mm x 600 mm x 1000 mm, max. load acc. to the number of supports

The furnace chamber capacity is between 500–1500 kg, with special sizes that can be both smaller and larger. The mechanical loading condition can be calculated with high accuracy for the frequently used “horizontal” component batching. The material data used refer to a unidirectional CFC with pitch matrix. The continuous fibres are each offset by 90° in the superimposed levels (0°/90° layer structure). The results presented for a plate and finger-joint design are based on an FEM analysis (Finite Element Method). The deflection value for both, plate and base grid, is set to minimise the component distortion. The load capacity (parts load in [kg]) was standardized on 4 supports (100 %). The number of supports for this dimension is usually 6. The load capacity is approximately 5 times the weight of the plate. Two additional supports (net weight 70 g/support) increase the load capacity 50-fold. The matching base rack (finger jointed slats, Fig. 4) with the same number of supports carries 630 kg, which is approx. 100 times its own weight. The loading condition is designed to be supported by the transport fork (transport and batching). This requirement must be met in the furnace or a beam support along the three longitudinal connectors (1000 mm) outside-centre-outside (standard).

The calculation is carried out for the loading condition at room temperature. CFC materials have the advantageous characteristic that the strength increases with increasing temperature. At process temperatures of 1000 °C the values are approx. 10–15 % higher than at room temperature [4]. The calculation approaches have proven themselves through industrial experience. These simulations are extended to the most common rack designs in order to increase the benefit/cost advantage further through a “standard design”. The load becomes “calculable” and with industrial experiences a guarantee for process reliability. Component distortion is controlled by near-net-shape component positioning. The greater the surface/volume ratio for a component, the higher the likelihood of component distortion. Mastering the dimensional and shape tolerances becomes more difficult. The further development of the heat treatment process has achieved considerable process advancement e.g. in vacuum heat treatment. Highly stressed components in automotive, mechanical and plant engineering are now case hardened in many cases by Low-Pressure Carburizing (LPC) with high pressure gas quenching (HPGQ) [5]. Fig. 5 shows a “horizontal” batch of ring gears on plates. A batch consists of two stacks (side by side), each with 10 layers stacked on top of each other (500 mm x 600 mm) [6]. The influence of the “steel” and “CFC” device materials on the component distortion is shown schematically in Fig. 6.



Fig. 5
Fully loaded C/C fixture, plate design, with internal gears, 10 layers (3-dimensional), 5 mm x 500 mm x 600 mm, 120 parts [6]

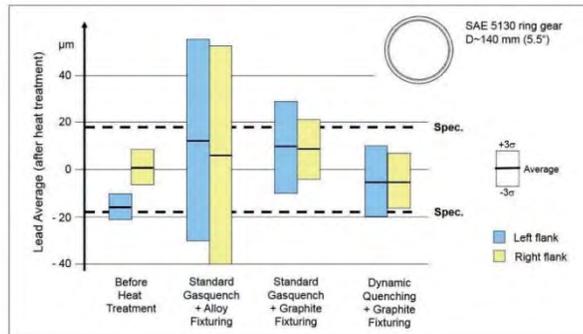


Fig. 6
Base grid, 600 mm x 1000 mm, max. load acc. to the number of supports [7]

The shape deviation is reduced considerably when batching with a CFC device and can also be further improved by process optimization (dynamic quenching). Due to the low CFC expansion coefficient (CTE: CFC 1 to steel 12·10⁻⁶/K) the component (steel) can “grow” relative to the device (Temperature T k) and “shrink” (T m). With reference to Fig. 2 the 6th advantage “Fixture Re-Work” and 7th “Product Distortion, Re-Work” are clear with this example. In recent years, single-layer batching (2-dimensional) has been established to master component distortion [5]. The heating and cooling process can be carried out evenly and process-induced stresses can be minimized. The influence of the near net-shape component position on the CFC device with regard to the roundness deviation of a thin-walled ring is shown in Fig. 7. The rings were initially evenly distributed on a plate (loose and without contact). Due to the near net-shape positioning, the maximum values of the roundness deviation could be reduced by 25 % to 0,3 mm and the mean deviation by 50 % to $\bar{x}^- = 0,12$ mm. Rejects were reduced to almost zero. Process reliability and product quality improved tremendously (Fig. 2, 8th advantage).

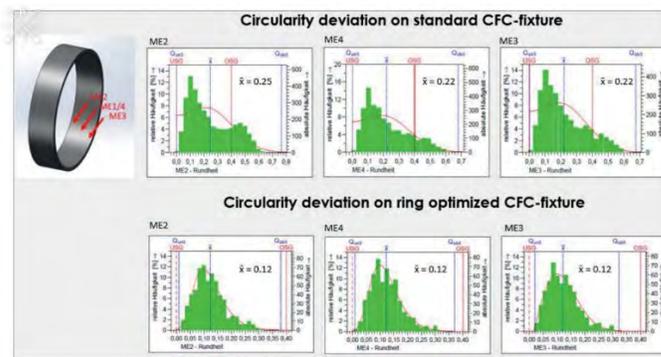


Fig. 7
Circularity deviation of rings (diameter) on standard and near-net-shape component holder [6]

Process conditions:

- *vacuum, atmosphere (contains oxygen?),*
- *pre-oxidation (temperature-level),*
- *process temperature (contact reaction),*
- *furnace capacity (max. loading [kg]),*
- *batching (horizontal, vertical, hanging),*
- *loading and unloading (manual, automated).*

Fixture criteria:

- *component cross section (bulkiness),*
- *distortion criteria (dimensional and shape tolerances),*
- *shape and position of the component position (contact surfaces component – device, shading),*
- *flow through (heat flow),*
- *loading density (parts per batch),*
- *load capacity,*
- *positioning accuracy.*

Restrictions and countermeasures

In addition to the proven advantages of CFC material, there are also restrictions that limit its use, particularly in air and oxygen-containing atmospheres. It is recommended to assess the following three aspects for each application:

- *Reaction with oxygen (O₂): an oxidising reaction occurs in air or oxygencontaining atmospheres above 350 °C [2]. Carbon (CM) from the matrix “burns” with air-oxygen (O₂) to form carbon dioxide (CO₂). In the presence of water vapour (H₂O), matrix carbon oxidises above 700 °C to CO or CO₂ with the elimination of hydrogen. Preoxidation processes must be adapted to this limitation.*
- *Reactions with steel: above 1000 °C (vacuum, inert gas) contact reactions can occur in the form of discoloration, unwanted carburization or even local melting (eutectics) [2].*
- *Reactions with media: adsorption of liquid media (quenching oils, washing media) via the open porosity and the rack design. Oxidation in air can only be prevented by temperature. CFC racks should not be used in air above 350 °C. Different impregnations and coatings are*

successfully used in atmospheres with very low oxygen concentrations. Pitch-bonded (matrix) CFC qualities with comparatively high densities (1,6 g/cm³) are advantageous because of the graphitic structure. Graphite is less reactive than carbon (amorphous) to oxygen and other media [8]. The contact reactions with steel can be reliably prevented by a mechanical separation. For this purpose, various components made of aluminium oxide (Al₂O₃) fibre ceramics have proven themselves in recent years. Various solutions for process temperatures above 1000 °C (vacuum, inert gas) have been developed under the brand name DuComGrid® = Dual Composite Grid [4]. According to the author's knowledge, industrial washing processes (<90 °C) with fat-dissolving media, also in connection with ultrasound support, have no damaging effect on the CFC material. If quenching oils (gas carburizing with an oil bath) are used to cool the batch, the batch temperature (furnace outlet) should be significantly below the flash point of the oil in order to avoid self-ignition (flame formation, oxidation >350 °C). After a few treatment cycles (<10), the oil intake stops [2]. Oil build-ups form residues in the subsequent "tempering" (150–300 °C) and fill the open pores. In addition, the "running off" of liquids can be made easier by constructive measures in order to minimize build-up.

Potential and outlook

The device is mandatory because the components for heat treatment must be batched. The component achieves added value and the costs of the process are therefore reduced. CFC racks increase added value and at the same time reduce costs, as the "10 Fixture Advantages" make clear. Well-honed manufacturing processes ensure reproducible material parameters, which enable a reliable calculation of the load configuration. Impregnations and coatings permanently minimize the reaction with residual oxygen and increase the rack service life. In the future, further improvements can be expected here. Aluminium oxide fibre ceramics in a CFC rack can exclude the contact reaction to the work piece. By means of Additive Manufacturing (AM), near-net-shape contact points can be pressed from ceramic and integrated into the rack in a form-fitting manner. This gives the design additional freedom, which helps to master the dimensional and shape tolerances. The processing is carried out using proven technologies (turning, milling, water-jet-cutting), and the raw material base (matrix [phenolic resins/ pitches] and fibres) is set up ready for delivery. The advantages of the CFC device are different but measurable for each user in the evaluation: more parts per furnace cycle, with reduced reworking due to less warping, increase turnover (quantity x price). The automatic loading contributes to the quality and the service life and to the investment costs. All advantages reduce process costs, shorten amortization

and increase added value. The calculation approaches are refined further, because the increasing degree of individualization of components requires not only the “special solution” but also the competitive “customization” for small series.

Ignoring “lockout/tagout” Can Lead to Death

Nov 12, 2020



November 2 of this year we had a news item entitled *“Ignoring Heat Treatment Safety Has Lethal Consequences”* <https://themonty.com/ignoring-heat-treatment-safety-has-lethal-consequences/> The purpose of the article was to point out that the heat treatment industry can be dangerous if safety procedures are not followed, that particular story pointed out that not following Lock Out Tag Out (LOTO) and Confined Space Entry Policies directly lead to two deaths. What is “Lockout/tagout”? The U.S. Department of Labor’s Occupational Safety and Health Administration (OSHA) defines it in this summary;

“Lockout/tagout” refers to specific practices and procedures to safeguard employees from the unexpected energization or startup of machinery and equipment, or the release of hazardous energy during service or maintenance activities.¹ This requires, in part, that a designated individual turns off and disconnects the machinery or equipment from its energy source(s) before performing service or maintenance and that the authorized employee(s) either lock or tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy has been isolated effectively. If the potential exists for the release of hazardous stored energy or for the reaccumulation of stored energy to a hazardous level, the employer must ensure that the employee(s) take steps to prevent injury that may result from the release of the stored energy.

Lockout devices hold energy-isolation devices in a safe or “off” position. They provide protection by preventing machines or equipment from becoming energized because they are positive restraints that no one can remove without a key or other unlocking mechanism, or through extraordinary means, such as bolt cutters. Tagout devices, by contrast, are prominent warning devices that an authorized employee fastens to energy-isolating devices to warn employees not to reenergize the machine while he or she services or maintains it. Tagout devices are easier to remove and, by themselves, provide employees with less protection than do lockout devices.”

Unfortunately, the example we used in our previous article is not the only one which we have run across over the years. In 2018 there was an incident at a commercial heat treater in the US Midwest which led to the death of an employee, the details are below. In that particular case “lockout/tagout did not cause the death, however the company was cited for not following this procedure. Please, please keep in mind that safety rules and regulations should always be followed.

“OSHA Fines XXX Heat Treating \$181K After an Employee Was Electrocuted. By OSHA Jul 02, 2019.

The U.S. Department of Labor’s Occupational Safety and Health Administration (OSHA) has cited XXX Heat Treating- for 21 serious health and safety violations. The company faces penalties of \$181,662. OSHA inspected the company in December 2018 after an employee was electrocuted while using a damaged portable lamp when cleaning the inside of a metal tank. A second employee suffered electrical shock injuries in an attempt to assist the injured co-worker. Inspectors determined that the lamp’s cord had exposed bare conductors, and the lamp was unsuitable for use in wet locations. They also found a damaged extension cord used to connect the lamp to power. OSHA cited the employer for failing to use electrical safety work practices, provide appropriate personal protective equipment, train employees about electrical hazards, and repair damaged electrical outlets. OSHA also cited the company for exposing employees to falls, and failing to implement lockout/tagout procedures and a permit-required confined space program.”



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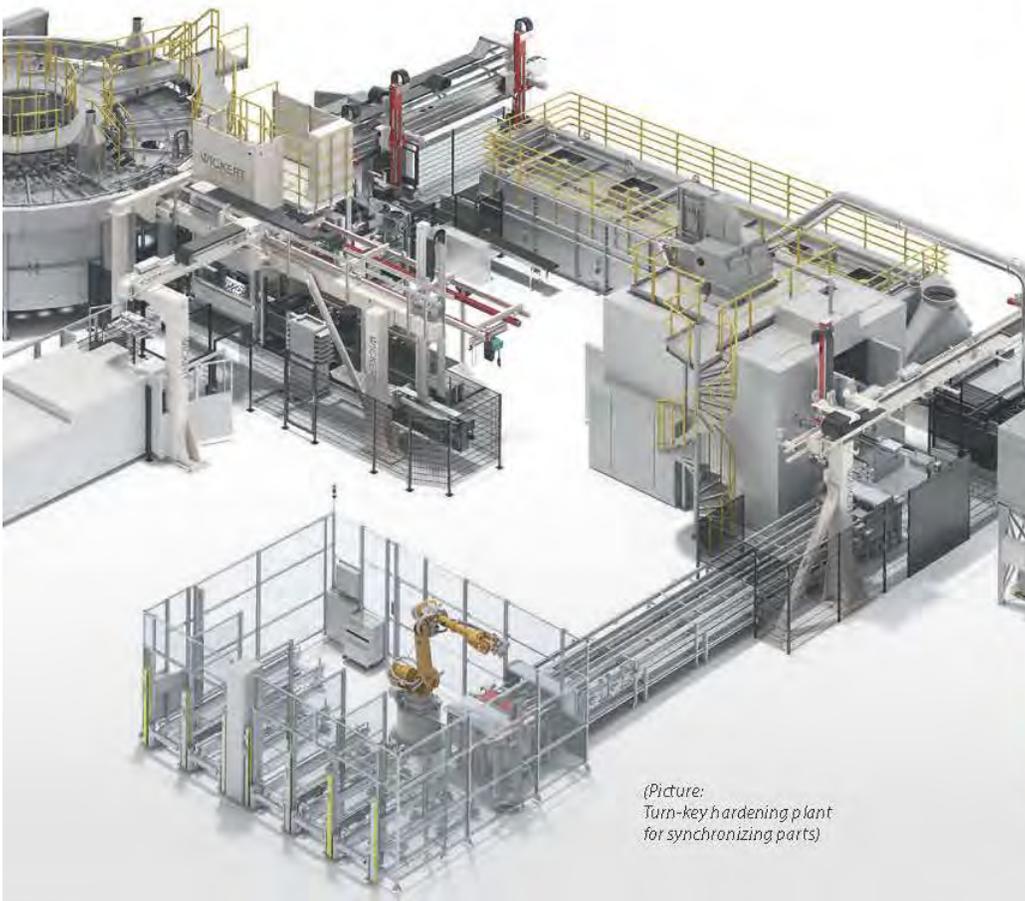
OSHA also cited the company for exposing employees to falls, and failing to implement lockout/tagout procedures and a permit-required confined space program.”



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*(Picture:
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Interesting Heat Treats-Grupo T.T.N.

Nov 12, 2020



Over the years “The Monty” team has visited literally hundreds of captive and commercial heat treats around the globe, a number stick out as being truly memorable. As part of a regular series we will mention some of the more memorable ones and we start off with a commercial heat treater in Italy by the name of Gruppo T.T.N. which we visited a little over a year ago. While a number of things were very unique about the company the main one was the depth of the gas nitriders and the size of the pit to hold them-the only pit which we can think of that even comes close is in the Bodycote, Melrose Park, Illinois facility. Below we have a brief summary of the company and two photos of the pit nitriders.



“Gruppo T.T.N./Italy. Last week we had the chance to visit commercial heat treater Gruppo T.T.N., at their headquarters in Nerviano, Italy which proved to be a rather interesting experience. The family owned group consists of 9 locations, all in northern Italy with a total of 500 employees-now 9 plants and 500 employees would rank the company as one of the largest commercial heat treaters in Europe and even the world for that matter. As far as we can tell there are no processes the company does not have-Induction, Vacuum, Salt, Gas & Plasma Nitriding, annealing, Quench & Temper, Vacuum Carburizing-there is literally not a process we can think of that the company does not have. The only common denominator would appear to be that the company focuses mainly on large parts, however since they also have belt furnaces even this statement is not entirely true.

In the lobby there is a rather interesting photo and certificate dating back about 15 years. The certificate of achievement is from Boeing and emphasizes the company’s contributions to the Nasa Space missions when they heat treated components for fuel tanks for rockets, a contribution which required a Boeing team to be on site for 6 months. Mr. Pirovano who founded the company back in 1978 and who is still very active turned out to be a very friendly and open fellow who allowed us to take photos of the entire plant-some of the results of which you can see below and are far more interesting than our scribblings.”

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Heat Treat Furnace Auction-Greenlee Tool, Rockford, Illinois, USA

Nov 11, 2020



In early 2020 Emerson Electric announced they would be shutting down their Greenlee Tool Division in Rockford, Illinois, USA. The facility which made punch tools did indeed close down and the remaining equipment is scheduled to go to auction Wednesday, November 18th. Included in the auction is most of the in house heat treating department (a vacuum furnace and some other items were moved to other Emerson locations). What remains are two Ipsen Batch IQ furnaces, tempers, a washer, an endo generator and a Lindberg Steam Homo furnace.



We will save you the suspense and tell you right up front that the equipment will sell for about \$50.00 USD for everything. It is complete and appears to be in reasonable condition but there are a lot of drawbacks. The relatively small size (24" X 36" X 18") is a drawback, the age (60's or 70's would be our guess) and the fact that everything is electrically heated (the kiss of death in most parts of North America) all conspire to make the equipment virtually worthless. Course we also know that it has been shopped to every single used equipment dealer in the US over the past few months and found no buyers so that tells you everything you need to know right there.

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ROTEC Russia to Install High Vacuum Brazing Furnace

Nov 11, 2020

ROTEC, Russia's first and only facility that manufactures welded honeycomb seals, has purchased a SECO/WARWICK vacuum furnace system that will enable ROTEC to expand the range and volume of manufactured products. The SECO/WARWICK technology solution improves the surface quality of products after brazing, preventing oxidation and discoloration. The central application for the SECOWARWICK vacuum furnace equipped with high vacuum (HPGQ) capability will be soldering parts for the aerospace industry and turbine manufacturing. SECO/WARWICK high vacuum systems are highly adaptable to a wide variety of processes characterized by shorter cycle times, increased throughput and precise process monitoring. This solution will significantly improve the quality of the surfaces of the treated metals in terms of deformation, color, oxidation and repeatability of the process, which is a solution to the basic problems involved with vacuum brazing. The heat treatment process results must meet the high standards of AMS2750E and AMS2769A.



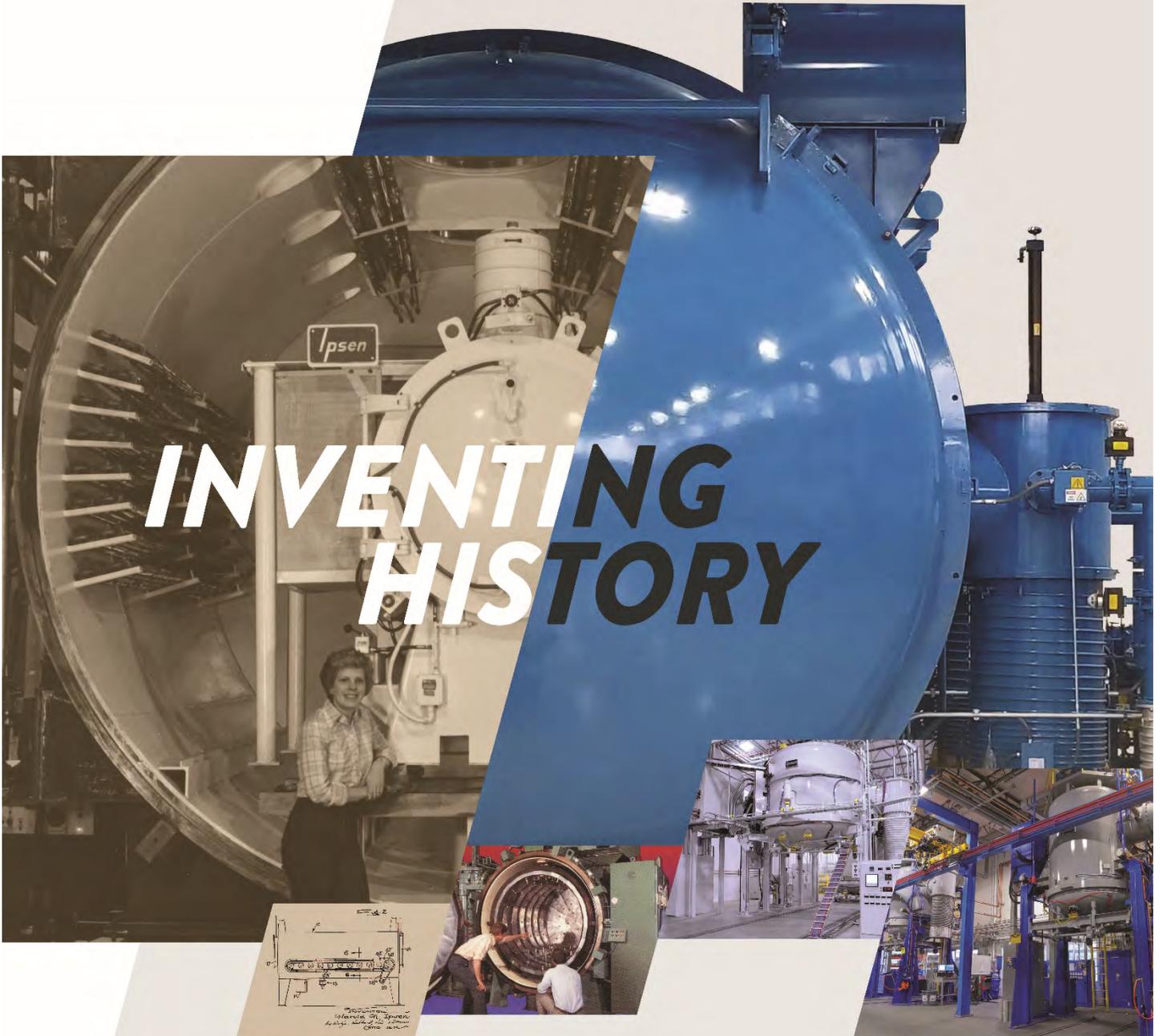
“Clients of highly demanding industries evaluate the experience, certificates and references of a partner, because they must be sure of the quality of the contractor’s work. There is no shortage of credentials for SECO/WARWICK. Our clients set their standards high and expect the highest quality equipment and services that will meet both restrictive industrial standards and their expectations in terms of the technology implemented. In the aerospace and energy industries where standards are set particularly high, meeting such requirements would not be possible without the regular implementation of product and technology innovations,” says Maciej Korecki, Vice President, Vacuum Furnace Segment SECO/WARWICK.

Maciej Korecki, Vice President, Vacuum Furnace Segment SECO/WARWICK ROTEC specializes in design and turnkey construction of complex power-engineering facilities and infrastructure, the development and commercial operation of the hardware-software analytic package for monitoring and predicting the condition of industrial equipment (PRANA system), the development and production of components for the aviation and power engineering applications, high-efficiency supercapacitor energy storage and accumulation systems, and also in manufacturing, retrofitting and maintaining basic energy equipment.



For more than 70 years, Ipsen has delivered revolutionary technology that empowers our customers to reshape the future by transforming space exploration, improving medical implants, developing efficient cars and jet engines, and making contributions to products used in society today.

Through our global partnerships and commitment to innovation, we continue to provide unmatched service and support for what's ahead.



INVENTING HISTORY

www.IpsenUSA.com

Pratt & Whitney to Build New Plant in North Carolina, USA

Nov 10, 2020

This is a very interesting news item on two different levels. First our understanding is that the new facility will include a heat treat department-one of those really high end vacuum aerospace departments that everybody gets excited about.

Second that this is a perfect example of a trend in the US manufacturing and consequently heat treating industries to move to the lower cost areas of the southern US. Labor costs are lower, taxes are lower, energy costs are lower and the weather is nicer to boot.

“Pratt & Whitney will build a 1-million square foot manufacturing plant in low-cost North Carolina, investing about \$650 million and creating 800 jobs through 2027, the jet engine manufacturer and state officials have announced. Pratt & Whitney did not approach Connecticut as a possible site for expansion, said a spokesman for the Department of Economic and Community Development. Commissioner David Lehman said Raytheon Technologies has advised the state the project will not affect jobs in Connecticut. “We have a strong and active partnership with Pratt & Whitney and its parent Raytheon Technologies Corp,” Lehman said Monday.

Raytheon Technologies sees shift of Pratt & Whitney work from Connecticut to North Carolina as one way to cut costs in the pandemic. Commercial aerospace revenue has fallen sharply during the COVID-19 pandemic as planes are grounded and travel restrictions drag on for months. Pratt & Whitney has imposed pay cuts, furloughs and laid off about 450 salaried workers in Connecticut.

Still, the East Hartford-based engine maker, a subsidiary of Raytheon Technologies Corp., is looking to expand and be ready for growth after the coronavirus has passed. Turbine airfoils are a critical component in Pratt & Whitney engines “and demand will increase significantly as the market recovers over the next several years,” said Chris Calio, president of Pratt & Whitney. “We need to invest today to ensure that we have the infrastructure, production capabilities and workforce in place to meet future market demand,” he said.

Employee pay, while high in North Carolina, is lower than for unionized workers in Connecticut, according to a representative of the Machinists union in East Hartford. Another advantage over Connecticut could be the cost of

electricity to run the massive plant, a business advocate said Monday. The factory will have an advanced casting foundry for production of high-pressure turbine airfoils for the next-generation geared turbofan and F-135 fighter jet engines. The supply chain has become a bottleneck, prompting manufacturers to bring the work in-house, said Chris DiPentima, president of the Connecticut Business & Industry Association.

Foundries consume a tremendous amount of energy, which is among the top five costs that manufacturers face, he said. Connecticut has been plagued by high electricity costs, a source of complaints not only by homeowners, but manufacturers that require power on continuously to run machines. Jamison Scott, executive director of the New Haven Manufacturers Association, said Connecticut is a high-cost state competing with the Carolinas and Florida for manufacturers and other businesses. The state is still drawing tens of millions of dollars in investments from companies smaller than Pratt & Whitney that “see value in Connecticut and our labor force,” he said. Mike Stone, directing business representative of the Machinists union, which represents Pratt & Whitney workers, said it’s a shame the new venture will be outside Connecticut where the engine maker’s start coincided with the beginnings of commercial aviation in the 1920s. “Naturally, we get a little trepidation when there’s a downside,” he said.

Since 2014, United Technologies Corp., the predecessor to Raytheon Technologies, created 4,055 net new jobs in the state, including, Lehman said, at Pratt & Whitney and Collins Aerospace, its other aviation subsidiary that manufactures cockpit, cabin and flight equipment and other components.



Raytheon Technologies has nearly 18,000 Connecticut employees across its businesses, Lehman said. And from 2014 to 2019, UTC invested more than \$4 billion in research and development in Connecticut. The average annual salary for new jobs at the Asheville, N.C., plant is expected to reach \$68,000, nearly 58% higher than the average wage in the area, but

less than the pay scale for unionized Connecticut workers, Stone said.

Solar Atmospheres South Carolina Facility Nuclear Approved

Nov 10, 2020

“Solar Atmospheres, Greenville, SC facility was recently approved to NQA-1, 10CFR50 Appendix B, and 10CFR21. These standards represent the nuclear power industry’s requirements for quality operating systems within the supply chain. Additionally, the approval allows Solar to eliminate our customer’s need within the Nuclear Industry to provide ongoing oversight of heat treatments.



Site Quality Manager and NQA-1 Lead Auditor Kevin Cyrulik states, “With this progression from Commercial Grade Supplier to externally approved NQA-1 Supplier, Solar continues to show its dedication and commitment to unmatched quality and product safety.”

Steve Prout, Solar Atmospheres Southeast President states, “At a time

when the entire manufacturing world is facing unprecedented operational challenges, Solar is thrilled to be able to support our customers with an opportunity to streamline their processes, saving them time and money.”

Vacuum Carburizing in a Pit Furnace?

Nov 9, 2020



We at *“The Monty”* are very familiar with Low Pressure Carburizing (LPC) or Vacuum Carburizing as we generally prefer to call the process but to date we don’t believe we have seen such a process in a pit furnace. Typically what we see are horizontal style vacuum furnaces with a carburizing atmosphere added, although in the early days ECM did offer a vertical style system.

According to this press release SECO/WARWICK is now offering a LPC system in a pit furnace called Pit-LPC, the advantage for some users being that you can process large diameter parts, gears being an obvious example. *Mark Hemsath* of SECO, USA has these comments and below them is the original press release.

“As with all LPC, it is critical to have our software and recipe simulator which is well proven with many years of experience. Combined with this new design of

a Pit vacuum furnace for quenching in a standard, separate pit-style oil quench, It is now economical to apply LPC and its benefits to vertical, deep case vacuum carburizing. What is unique about the Pit-LPC is that we are able take the furnace to atmospheric pressure prior to load removal, in order to allow for overhead load removal and transfer of the load to an existing or purchased vertical, pit-style oil quench bath. This transfer is identical to what users of pit furnaces do today.”

SECO/WARWICK Press Release; “Pit LPC Alternative for atmosphere carburizing, which achieved the maximum of its possibilities. Pit-LPC = cost reduction, taking care of the environment, production increase - all this is possible due to the process being carried out in vacuum and in higher temperatures. The state-of-the-art solution meets the most stringent ecological standards, while increasing the work safety through elimination of flammable and explosive atmosphere. High homogeneity of the process parameters has a direct effect on the thickness of the carbonized layer and, as a result, on the quality of the processed detail.”



Gord Montgomery, Mark Hemsath





ROHDE

SRU 35
recovery capacity
35 l/h | 9,2 gal/h brine

SRU 50
recovery capacity
50 l/h | 13,2 gal/h brine

SRU 80
recovery capacity
80 l/h | 21,1 gal/h brine

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Salt Recovery Unit Type SRU

Characteristics

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- Recovery of 100% water free clean liquid quench salt
- Recovered salt is reusable for Quenching, reducing raw material cost
- Condensate or recovered water is environmentally clean and reusable

Usable salts:

AS135 - AS220 / Quick Temper 275 - 430

Nitrex Nevada, USA Receives Honeywell Certification for Copper Plating

Nov 9, 2020

News to us that commercial heat treater Nitrex offers copper plating services but according to this press release they do. It's been a few years since we at "The Monty" visited this facility in Las Vegas, Nevada, USA but we still have some photos of our last visit including the one below showing the pit gas nitriders.

"Nitrex, through the commercial heat-treating services division (HTS), is pleased to announce that its Nevada facility has received certification from Honeywell for copper plating services. Honeywell is a global leader of aerospace parts and services supplying the commercial, defense, and space aircraft industries. "The approval involved a stringent audit process that the



experts at Nitrex went through diligently, which is something we always do, as part of our values and culture. In addition to copper plating, Nitrex HTS Nevada has also been approved by Honeywell for nitriding of

stainless steels, steel alloys, and tool steels," commented Joe Beal, Facility Manager of Nitrex Nevada.

Copper plating supplied to Honeywell is classified as Type II plating, which masks selected areas of the metal part to prevent nitriding of the part's substrate surface. Copper plating is done following AMS 2418 as well as the customer's specific specifications. The copper plating line at the Nevada facility can plate up to three rack loads and strip two rack loads of parts at the same time. In operation since 2015, the line received its NADCAP accreditation

in November 2016. Today the line processes parts for aerospace primes as well as Formula 1 Racing.

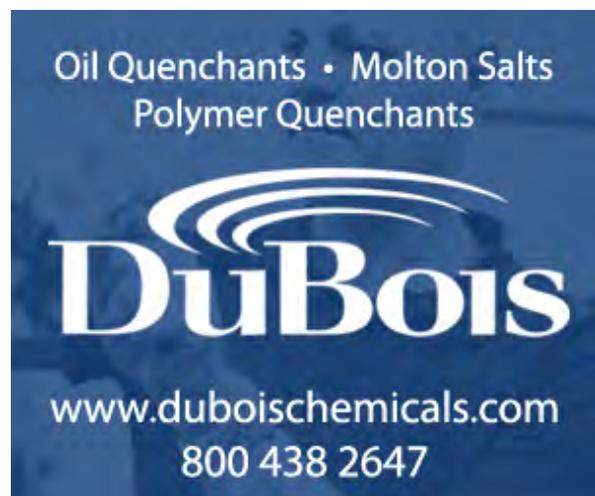
“This additional approval from Honeywell reflects the growing recognition and value that Nitrex brings to the aerospace market – first with NitregR nitriding services and today with copper plating. Our strength is our ability to work closely with customers, expand and adapt our capabilities to support them in their growth, and ultimately to ensure that their mission-critical applications are expertly serviced to meet or exceed in-service component performance. I want to thank our customer for their trust and business and congratulate the entire Nevada team for this accomplishment,” said Jason Orosz, President of Nitrex Heat Treating Services (HTS).”

Bob Stecker, Bodycote

Nov 5, 2020



At the world’s largest commercial heat treater, Bodycote we see a new addition to the team in North America. Bob Stecker has just joined the company as Director of Operations, Automotive, CHT-NA. We believe Bob will be based out of the fairly new Romulus, Michigan facility, a facility which we have always thought Bodycote should brag about more. This location is less than 2 years old and out of all the Bodycote locations we have seen around the world this is one of the nicest. We begged and pleaded during our last visit to take a couple of photos, unfortunately no luck.



The Mint of Poland Buys Second SECO/WARWICK Vacuum Furnace

Nov 5, 2020

In this press release from furnace builder SECO/WARWICK the company brags about how they have a great deal of experience working with mints around the world-while we at “The Monty” can’t validate this entirely we can say that this is the case at the Royal Canadian Mint in Canada. A number of years back the Canadian Mint in Ottawa installed a new SECO vacuum furnace in circumstances similar to this in that it was not an easy install. The Ottawa Mint has their heat treatment department installed in the basement of an old building right in the heart of the city. We can remember being very impressed that they were even able to get the furnace into the building much less into the basement.

“The Mint of Poland, a producer of circulation and collector coins for the National Bank of Poland, has purchased a second VECTORR vacuum furnace. The historic 250 year-old-plus institution will begin producing stamps and coins with the latest SECO/WARWICK solution. The new VECTORR vacuum furnace with SECO/WARWICK quality is a symbol of the highest craftsmanship in the field of minting. Equipped with 15 bar high-pressure gas quenching (HPGQ) capability, this is the second furnace of the same type purchased by the Mint of Poland. The first device, purchased in 2012 has continued to provide quick hardening in the most optimal floorspace for the customer throughout the past eight years in its Warsaw facility, considered one of the three most valued and technologically advanced mints in the world. The latest Vector vacuum furnace is primarily intended to increase the efficiency of the Mint of Poland. It is also a back-up resource in the event of failure or downtime due to service inspection of the current unit.

“Considering the nature of the mint’s operation, including the security of the coin and tool production process, an important aspect is duplicating the device in order to maintain the continuity of heat treatment in any situation and to ensure that the entire technological line is carried out on the premises of the Mint. The second device from the same supplier, SECO/WARWICK, secures our capabilities in this area,” says Piotr Kraszewski, Director of the Production Department at Mennica Polska SA. The distinguishing feature of this new design is the additional option of high vacuum, convection heating, and its PreNITLPCR technology, which opens up new possibilities for thin layer nitriding tests. This is an innovative application in the technological testing phase.

Mints recommend SECO/WARWICK vacuum furnaces; As emphasized by specialists in the heat treatment industry, mints around the world are very demanding customers who pay close attention to the technologies used in the production of coins, numismatics, medals, and stamps. It is an elite club of recipients of heat treatment technology, in which opinion and recommendations are taken very seriously and are often the first criterion for choosing a partner. SECO/WARWICK has for many years been on the list of the most recommended manufacturers of solutions for mints, not only state-owned but throughout the world. "We are recommended because we offer technologies that guarantee - in the production of a series of circulation coins - excellent reproducibility of results and durability, and in the case of collector series, extraordinary purity and quality of processed products," says Maciej Korecki, Vice President of the Vacuum Furnace Segment at SECO/WARWICK. "In our long-term cooperation with SECO/WARWICK, apart from the excellent final parameters of the products, we value the most their technological and service support, which allows us to try innovative solutions, rare or unheard of on the market. In our opinion, the technological knowledge and individual approach of engineers to the challenges that we set before them are as valuable and unique as our products," emphasizes Siemowit Kalukiewicz, Production and Operations Director at Mennica Polska SA.

Mint of Poland and SECO/WARWICK - history is written together; The Mint of



Poland started cooperation with SECO/WARWICK at the turn of 2011/2012, based on the recommendations of other mints and very good opinions of Polish users. One of the biggest initial challenges was to install and commission this full-size vacuum furnace on one of the floors of a skyscraper located in the very center of

Warsaw. It involved not only logistics issues but above all the operating conditions of the device in such a demanding external environment. Another challenge was the relocation of the furnace from this difficult restricted access location in the center of Warsaw to the new production site of the Mint of Poland. Over the years, SECO/WARWICK has participated in numerous technological trials of mint products, dies, and their heat treatment. Many of these tests represent unique technologies not available anywhere in the world at the moment. "The challenges posed by the Mint of Poland are, on the one hand, an interesting experiment, and on the other hand, a challenge for SECO/WARWICK engineers to expand the scope of our devices and their applications. Such cooperation has been going on for many years, and it serves both sides well," adds M.Korecki from SECO/WARWICK."

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- ✓ Product distortion: none*
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(* lower than requested specification)

Keith Fleming Joins Gasbarre Thermal Processing Systems as Business Development Manager

Nov 5, 2020

St. Marys, PA – Gasbarre is pleased to announce Keith Fleming has joined the organization as Business Development Manager for Gasbarre Thermal Processing Systems. Keith's experience and knowledge will allow him to support our existing customers and advance Gasbarre's growing footprint in the continuous annealing, brazing, and sintering markets.



Keith brings over 25 years of industry experience to Gasbarre; having previously worked with powder materials, powder metal parts producers, and investment castings. Keith is also dedicated to advancing the industries he is in by serving on Penn State DuBois' Industry Advisory Board, MPIF's Industry Development Board, and the Marketing and Membership Committee of the Investment Casting Institute. Keith's experience continues to show

Gasbarre's commitment to having personnel that understand our customer's challenges and provide proven solutions.

Says Mark Saline, President of Sinterite & C. I. Hayes divisions, "With the addition of Keith, we have added yet another team member to our organization that brings many years of experience. Keith's work in the powder metal industry and beyond has given him the tools necessary to support our growing customer base as well as advancing our products into new markets. We are excited to have him on board!"

About Gasbarre Thermal Processing Systems. *With locations in Plymouth, MI, Cranston, RI and St. Marys, PA Gasbarre Thermal Processing Systems has been designing, manufacturing, and servicing a full line of industrial thermal processing equipment for nearly 50 years. Gasbarre's product offering includes batch and continuous thermal processing equipment for both atmosphere and vacuum applications as well as a full line of alloy fabrications, replacement parts and auxiliary equipment which consists of atmosphere generators, quench tanks, washers and charge cars. Gasbarre's equipment is designed for your process by experienced engineers and metallurgists that understand your requirements.*

“Jimmy” Stewart, VP Akron Steel Treating 1960-2020

Nov 4, 2020

It is with genuine regret that we mention the passing of James “Jimmy” Stewart, Vice President of Akron Steel Treating in Akron, Ohio, USA. We met Jimmy a number of times and always had a high respect for the man. Akron



Steel Treating is one of the oldest commercial heat treaters in the USA and has a very interesting history. We include this photo of the owner of the company Mr. Joe Powell in the plant, circa 2018 to provide some background to James’s professional life.

“James W. Stewart, “Jimmy”, age 60 of Akron, Ohio, died on November 2, 2020 at Akron City Hospital. He was born on February 16, 1960 in Akron, the son of the late Gilbert and Ann (nee Williams) Stewart. Jimmy was a 1978 graduate of Central Hower High School. He was Vice President of Akron Steel Treating in Akron for 41 years. He enjoyed fishing and taking drives, however, his greatest joy was spending time with his family, especially his grandchildren.

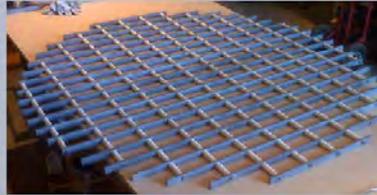
Survivors include his loving wife, the former Judith A. “Judy” Angerstien, whom he married on June 26, 1978; his two children, Craig Stewart and Marie Stewart; his three grandchildren, DJ Smith and John and Victoria Sowa. His siblings also survive, Margaret Oney, Thomas Stewart and Beverly Stewart and many nieces and nephews. Family and friends may visit on Sunday, November 8, 2020 from 4:00 – 7:00 PM at Newcomer Funeral Home, 131 North Canton Road, Akron. For those of you attending we do ask that you ADHERE TO SOCIAL DISTANCING GUIDELINES AND WEAR A MASK.”



GVT *Grammer Vacuum Technologies, Inc.*

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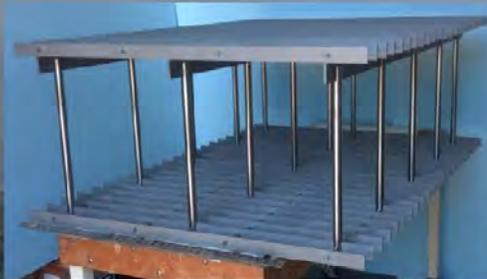
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Vacu Braze Trusts Ipsen for Special Processing Equipment

Nov 4, 2020

Vacu Braze, a specialty commercial heat-treating facility, meets the evolving needs of its customers with an Ipsen Turbo²Treater[®] vacuum furnace specially designed for carburizing and solution nitriding. With high-speed, high-pressure internal gas quenching, the Turbo²Treater[®] provides best-in-industry cycle times while minimizing part distortion and enhancing part quality. It can also adapt to a wide range of materials, geometries and load types.

Vacu Braze uses the Turbo²Treater[®] to harden steels with Ipsen's patented SolNit[®] (solution nitriding) process. The SolNit[®] process increases surface hardness and improves resistance against wear, erosion and cavitation. Parts treated in Ipsen's Turbo²Treater[®] range from surgical instruments to household appliances. Vacu Braze also uses Ipsen's aftermarket resources including installation, spare parts, controls upgrades, replacements and retrofits. "Vacu Braze is extremely proud of the relationship we have developed with Ipsen over the years," said Kirk Palermo, Vice President of Vacu Braze. Vacu Braze reports an increase in new market opportunity since installing the Turbo²Treater[®]. Learn more at ipsonusa.com/products/vacuum-furnaces/turbo2treater.

An Interview with Mr. Scott Puhalsky, Vice President of Sales for Cleveland Electric Laboratories of Twinsburg, Ohio, USA

Nov 3, 2020



Scott, I have been looking forward to talking to you and learning more about Cleveland Electric but first I want to ask how you are doing these days? How has COVID affected you and your family?

"It has certainly been an interesting year for us all. Each of us has handled things differently; I tend to immerse myself in work as a general distraction for outside noise in my life. That is not always easy. My wife and I are learning to work with potential home schooling for our youngest, and our two college kids that may or may not make it through a full semester. We have older parents that are concerned. In general, we are missing life as it was. But with change comes opportunity.

For me, that means coming out of this better and stronger. I have enjoyed time with family so much more, from walks and talks to just re-connecting

with each other. At work I have also been reminded of the daily value in each of our employees — their presence and input and passion.”

“Cleveland Electric Laboratories was established in Cleveland, Ohio in 1920. At that time, the primary focus was to service and repair electric meters for railroads and local Cleveland industries. Over time, field service became a more prevalent part of our business. At the request of customers, as well as our own requirements for higher quality thermocouples in our service work, CEL began to design and build thermocouples. Eventually the business model shifted exclusively to thermocouples as we began selling to a wide range of industries. What started as a small service and repair business has grown to be the global leader in industrial thermocouples and home to over 100 employees.”

I understand you have two locations, the one in Twinsburg, Ohio and a second, Advanced Technologies Group, in Tempe, Arizona-what is the story behind the Arizona location?

“CEL was looking to expand our physical footprint, create duplicity in manufacturing capability, and complement our existing product offering to our primary customer base, so in 2004 we opened our Advanced Technologies Group in Tempe, Arizona. Realizing that turbine engine manufacturers for both aerospace and power generation perform extensive testing for new designs and are constantly in search of greater efficiencies for existing models, CEL wanted to position itself to support these testing initiatives. Cleveland Electric Labs began fabricating specialty temperature and pressure probes, in addition to performing modification machining of customer components and offering engineering and installation of temperature, pressure and strain gauges on engine components.”

Our focus at “The Monty” as you know is the heat treatment industry, so this question is specifically dedicated to the heat treatment industry. What products do you offer to captive and commercial heat treaters and industry suppliers such as furnace builders?

“Cleveland Electric Labs is proud of its history and relationship in the heat treatment industry. Since our company is rooted in the service industry, we continually focus on how the customer uses our product, and how we can partner with them to meet or exceed expectations that are critical to them. We consider raw materials, accuracy, drift, response time, longevity, lead times and pricing. We work with significant industrial furnace manufacturers to understand form, fit, and function. In short, if it is an industrial

thermocouple, then we make it, but our expertise has moved towards high temperature (control or high limit sensors) and critical-to-quality builds.”

How do you sell your products? Direct salespeople? Manufacturers reps? Distributors?

“Our sales strategy is clean and simple – CEL sells direct. All the staff operates as a team and is salary based. The group all has the same goal: to diligently serve our customers, having their best interests in mind. If we can move a customer from a type ‘S’ to type ‘K’ for their application, I do not want our staff to ever think about how a decrease in sales dollars may affect their overall compensation. For that reason, any potential commission structure is removed from consideration. Our group is measured based on the longevity of our relationships, and the ability to retain, foster and grow them.”

At this point I want to mention that the company is celebrating a very impressive anniversary this year, one which only a handful of companies in this industry can match-please tell us about it.

“A century of business is certainly a milestone that we do not take lightly. Under the leadership of Fred Lieske, who became President in 1954, followed by his son Jack Lieske in 1981, then the appointment of Alan Seymour in 2019, the business was built on a foundation of faith, family, and service. Our customers are truly considered partners, and our employees are CEL family. We have extremely high employee retention, which offers us a continuity in knowledge and customer familiarity that is invaluable in today’s uncertain conditions.”

Scott I am going to play Devil’s advocate for a moment and make a rather provocative statement, isn’t a thermocouple a thermocouple? Now before you get annoyed at me let me rephrase this a bit, how much difference can there be between a thermocouple made by Company X as opposed to one made by Company Z-what sets yours apart from others?

“It is fair to question if a difference exists between manufacturers, especially if a thermocouple is classified as MRO and is not considered critical-to-quality. It is important to realize that the ramifications of a “bad” thermocouple can be catastrophic. A customer selects a supplier based on price, quality, and delivery. These buying criteria are unique to everyone, and as a manufacturer of custom products we must balance the significance of each. For CEL, quality takes precedent over all else, as much of our business requires elevated standards.

We also have a constant eye toward reduction in “Per Heat Cost”—how we extend the service life of our thermocouple while maximizing performance. This is generally achieved through thoughtful collaboration and by carefully listening to our customers’ needs.”

What is a typical order for you Scott? For instance, are your customers buying a few small items from you at a time or is it more typical that a customer will place an order for their thermocouple requirements for the next year? This question leads to another one, are you mainly dealing with end users, captives and commercials or is more of your business with furnace builders and industry suppliers?

“Cleveland Electric Labs sells thousands of line items to a wide range of industries. We support long-term agreements, blanket orders, and spot buys for customers. Our relationships are not overly selective or targeted, as diversification across industries is something we value, especially in today’s market. CEL targets end users, captive and commercial heat treat, and furnace builders. Our business model supports a direct relationship as much as possible, reducing the risk of misinformation and increasing our ability to give the customer exactly what they want—from performance and certification to packaging, product identification, serialization and more.”

Has the technology behind thermocouples changed much over the years? This of course leads to the next question which is; do you see any changes on the horizon when it comes to measuring temperatures in furnaces? Anything exciting which you can share with us?

“The technology behind thermocouples is nearly 200 years old, with CEL existing for over half of that timespan. The general purpose of simply achieving a temperature reading has elevated to the adherence to strict quality standards, both internally and industry/customer mandated. There is a constant effort to raise temperatures, increase longevity, reduce diameter, and improve accuracy. The industry is trending, as it should, towards value-added relationships. We believe that there are many suppliers that can give a customer what they ask for. We make it our business to give them what they need. We make the effort to understand our customers business as if it is our own.”

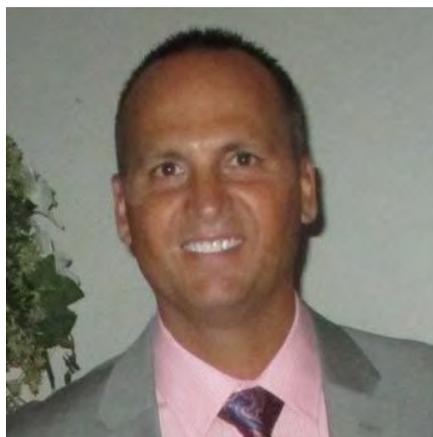
I owe you a bit of an apology here Scott, I didn’t ask the most important question of all; what is your background and how did you end up as VP of Sales for Cleveland Electric Laboratories?

“The short answer: family. I grew up with Cleveland Electric Labs. My father, Ron Puhalsky, was with CEL for over forty years. I spent time as a teenager at CEL, learning the product before going to college. I worked as a financial analyst for a short time before I realized that I did not want a desk job, and I was fortunate to have General Electric in Cleveland offer me a position in sales, managing a distribution channel with Grainger. Both companies taught me a lot, but I eventually moved into medical sales. Opportunities for advancement in that field required relocation, and that was not attractive to my young family. I joined the sales team at CEL again in 2007. CEL was good for my father and has been great for my family as well.”

Our final question has to do with the state of the industry. This have been a very upsetting and disappointing year for just about everyone and we all have been forced to change the way we do business. What changes have you made to sell, market, and produce your products?

“This year has been a challenge for both employers and employees alike. All of us have been tasked with navigating constant uncertainty and the toll that takes has been significant. For CEL, 2019 was a record year, and the first quarter of 2020 was even better. The economy was strong and our customers were challenged to keep up with demand. Investments were made in new employees, furnaces, buildings, and the like. No industry was fully prepared for this, but we are doing our best to overcome each challenge as it comes. We are finding new business and working to create diversification without moving too far from our core. We have reduced lead times, increased inventory, and stayed strong. We are optimistic about our business and our industry, as well as our next century of service.”

Scott I very much appreciate the time and I look forward to the time when we can get together in person again, shake hands and do things the way we use to.





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Solar Atmospheres Successfully Vacuum Hardens Large H13 Liner

Nov 2, 2020

“Solar Atmospheres of Western PA successfully vacuum hardened one of the largest aluminum extrusion liners ever produced by Lake Park Tool and



Machine located in Youngstown Ohio. The massive H13 liner measured over 100” OAL and weighed a total of 16,000 pounds. The liner was turned on Lake Park’s new large capacity lathe with 34” max diameter and 200” max length.

This H13 liner arrived at Solar Atmospheres of Western PA only one month after the fastest cooling large vacuum furnace in the industry was completed and ready to run. This recently built Solar Manufacturing 10 bar vacuum furnace is equipped with a newly designed hot zone measuring 48” wide X 108” OAL. Additionally, the furnace has a 600 HP blower motor for increased cooling power. The critical cooling rate, to obtain optimum properties for H13 hot worked tool steel, was achieved as evidenced

in the as-quenched hardness of HRC 54-55. The part was then double tempered to the customer's specification of HRC 46 to 48.

Bob Hill, President of Solar Atmospheres in Western PA stated, " this large rapid cooling vacuum furnace provides us continued diversification to our vacuum heat treating repertoire and capabilities. We're proud of this partnership with Lake Park Tool and Machine and to assist our customers in vacuum heat treating one of the largest air hardening dies that I have personally heat treated over my 40 year career."

Ignoring Heat Treatment Safety Has Lethal Consequences!

Nov 2, 2020



Last Thursday, October 28th we had a news item about heat treatment safety in general, with a specific example in which case ignoring safety guidelines lead directly to the death of two individuals. The article prompted a number of responses, two of which we are including today below the original note. These two deaths occurred because Lock Out Tag Out (LOTO) and Confined Space Entry Policies were not followed.

"Original Story October 28th, 2020; It can be easy to forget that heat treating can be a dangerous industry but examples abound of tragedies that have occurred either though equipment malfunctions, carelessness, mistakes or a combination of all of these. Recently we were approached by a captive heat treater who operates a number of vacuum furnaces-he was relatively new to the industry and he was asking about safety around his department and what should be considered. This prompted a discussion about the potential dangers of inert gases and suffocation and we used an example which occurred in North America a number of years back. We have deliberately removed the location, make of furnace and the company involved-our intent is to remind heat treaters that safety always need to be considered in our industry. What you see below is the OSHA report on the accident.

"At 9:30 a.m. on May 17, 2001, an accident occurred at the employer's facility. At the time of the accident, Employee #1, a maintenance worker, was working to repair a hydraulic leak on the inside of a XXXX Vacuum Furnace. This furnace opens to the side and has a quench oil tank, 6-feet in diameter by 9-foot deep, on the inside which is used to cool metal parts once they have been heat treated under vacuum. Once the parts have been placed in the quenching tank by the parts elevator, the furnace is backfilled with an inert gas, either argon or nitrogen, to replace the vacuum from the system. The oil from this

tank was drained three days before the accident in order to service the hydraulic lines and the motor located at the bottom of the quench oil tank. While Employee #1 was working, he collapsed into the empty quench oil tank. Employee #2, the maintenance worker's supervisor, who was in the area called for help and climbed into the furnace to attempt to render aid to Employee #1. Employees in the area who heard the call for help came to the furnace and saw Employee #1 lying on the elevator yolk and Employee #2 slumped next to him. At the time of the accident, the electrical panel for the furnace was energized and the argon and nitrogen valves on the pipes for the inert gases to Furnace Number 9 were open.

There is a solenoid valve in-line on each of these pipes which controls gas release for the treatment cycle. It is not clear why or which gas was delivered to the furnace. However, witnesses at the site stated that the selector switch on the operation panel was selected for argon. Employee #1 and Employee #2 were not wearing a harness or retrieval lines. The fire department retrieved the two employees, who were pronounced dead at the hospital. The coroner's report lists the cause of death for both employees as suffocation."

"Ulrich Schwahn, Plant Manager bei Bodycote Wärmebehandlung GmbH; It is painful to read and yet, I am grateful when Information regarding accidents is being shared so that everyone interested can learn from it. I am member of a German specialist group (FA08 at the AWT) for safety in heat treat environments. We publish safety guide lines not only of a technical nature but also by pointing out what employees carrying out specific tasks need to know. Our next publication will detail areas to cover when no employees are present at the heat treat shop, like on weekends.

Earlier this year the DGUV (comparable to OSHA and Workers Compensation) published a book for safety in the heat treat sector, written by us in German and based on European laws. We are convinced that this is a comprehensive and easy to read information made for a practical application rather than having to study abstract laws governing multiple industries. We were able to convince the DGUV to produce an English translation of this safety guide line which should be available soon. This will be a free resource for everyone interested in this subject. These accidents are specifically what we want to prevent from happening." "John Hubbard, Chairman at Thermal Process Holdings; Thanks for sharing Gord. Stories like this NEED to be shared so as to potentially prevent other fatalities. Use Lock Out Tag Out (LOTO) and Confined Space Entry policies - 100% of the time. BTW: this was in Tarzana, California."



People in the News in the Heat Treatment Industry

Nov 2, 2020



We see that *Angela Fleming* recently became President of *Hudapack Metal Treating of Illinois, Inc.*, in Glendale Heights, IL, USA. Hudapack was originally a three location commercial heat treater in Wisconsin and Illinois, USA owned and run by Earl Pack and Gary Huss, before Thermal Process Holdings purchased the two Wisconsin facilities back in 2018. *Hudapack Metal Treating of Illinois, Inc.* is owned and run by Earl Pack and concentrates on mesh belt austempering.



In Poland we see that *Mr. Jędrzej Malinowski* of furnace builder SECO/WARWICK was recently named **Sales Manager, Vacuum Furnaces Team**. Jędrzej has been with the company for a number of years in several different positions.

*“Hubbard-Hall Inc. welcomes **Fernando Carminholi** as Business Development Manager. Carminholi will focus on developing new business opportunities for Hubbard-Hall’s Aquaease® Infinity line of sustainable cleaners, which is designed to work with Arbortech Membrane Technology. The system reduces total cleaning costs by 35% while reclaiming 95% of production cleaners to allow customers to clean with less cost, complexity, and chemical consumption. Carminholi brings with him over 20 years of*



experience managing sales territories, supporting local distributors, and overseeing global accounts. This includes his work in metal finishing, electroplating, functional and decorative, metal pre-treatment, and industrial parts cleaning.”



Andrew Yazotchanka worked with furnace manufacturing giant Ipsen for quite a number of years in Sales Positions both in the USA as well as in Germany and Russia. He parted ways with the company earlier this year and is now looking for another sales position within the industry. He can be reached at Andrew.yazot@gmail.com



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