SEPTEMBER ISSUE 2019

HEAT TREAT NEWSLETTER

Everything to do with heat treating

Meapforni, Italy

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CONTENTS

INTRODUCTION

"The Monty" September, 2019. As a Canadian I tend to have a real dislike of the arrival of September as it means the end of summer and the beginning of a long period of rain, cold and snow. However on the other side of the coin the fall brings the arrival of heat treat trade shows which we always look forward to. Granted some people might not share our enthusiasm for trade shows but if you truly like heat treating there is no better way to gauge the mood of the industry, meet customers, and potential customers and one of our favorites-sharing a beer with competitors. This fall brings shows in Moscow, Russia in September, Detroit, USA in October and Cologne, Germany the week after, we will be at all 3 of these and look forward to seeing you there. As always we look forward to your thoughts and comments.

We sincerely hope you enjoy this issue, Gord, Jordan and Dale Montgomery.

75th HeatTreatmentCongress 22 – 24 October 2019, Cologne, Germany

Aug 29, 2019

HK 2019

- *500 congress visitors*
- *3000 fair visitors*
- *180 exhibitors*
- *13000 m2 exhibition space*
- *Event website: www.hk-awt.de*

The event is the largest annual European forum on topics relating to heat treatment and materials technology. Each year, around 3000 specialists from hardening shops, the industrial furnace construction sector, suppliers, testing device manufacturers and employees from the automotive and steel industries visit the event to exchange knowledge about the latest products, future trends and sector information. The Heat Treatment Congress is the traditional event for the sector, informing participants about new developments and processes in materials technology, with a special focus on heat treatment processes. New App HK 2019; As of now the new HK app is available free of charge at the App Store and Google-Play-Store! Directly here the updated app for Android and iOS can be downloaded from the stores, giving all visitors on-site access from their mobile phone or tablet.

iOS: https://apps.apple.com/pl/app/härtereikongress-2019/id1454493976?l=en

Android: https://play.google.com/store/apps/details?id=de.hkawt.hk2019

The organizer AWT; AWT, a large German network including 870 company and personal members and 18 materials technology committees, is sure to provide quality lectures and a well organized fair. The form of the event, as a congress with an adjoining exhibition, also has the advantage that employees from all departments of a firm can take part in the event: management, research and

development, quality management, engineering practice and sales. This ensures high-quality conversations with customers, including in the exhibition.

Congress highlights HK 2019; The conference will start with the basic seminar for professionals on the topic of 'Case hardening – process and systems technology', run by Dr Herwig Altena. The program features two absolute highlights on Wednesday morning: The lecture by Dr Stefan Hock on HK's significance & changes and the materials-science challenges of the future, and the plenary address by communications expert Isabel Garcia on the topic of 'Thinking cleverly – communicating cleverly'. The congress event will be translated simultaneously German/English vice versa.Link program: https://www.hk-awt.de/vortragsprogramm-hk-2019/

News from Online marketplace; ECM Technologies – New Multi chamber & modular installations (english version).

Some of the news is only available in German. Many exhibitors are already enjoying the features of the new HK website and posting their industry news, product presentations and job advertisements. You too can use this information platform; it's accessible to all website visitors. https://www.hk-awt.de/marketplace

The exhibition HK 2019; Very few exhibition spaces are still available for booking. A current hall plan with free booth spaces marked can be found at https://www.hk-awt.de/hallenplan-hk-2019. In the exclusive Newcomer area, first-time exhibitors can once again showcase their company for a total cost of EUR 3350. The premium-design 'HK deluxe booths' are also available again this year. Exhibitors can book a 'hassle-free package' that includes everything from booth fit-out, to admission tickets and parking passes.

Location. Koelnmesse, Entrance West, Messeplatz 1, 50679 Cologne, Germany

Ticket shop and prices: https://www.hk-awt.de/ticketshop-1/

Free access for students in congress and trade fair!

Free access for personal AWT-members in the exhibition!

Austausch. Wissen. Technik.

AWT

Has Anybody Seen This Furnace?

Aug 29, 2019

We have now run across this furnace several times. It is a big Abar Ipsen horizontal vacuum furnace 66/72 built in 2000 and used in an aerospace facility in the Carolinas in the US. We have nothing to do with the selling of this furnace but it is certainly becoming famous because of the marketing campaign behind it.

Hydro Plant In Poland Installs Nitrex System

Aug 29, 2019

We found the last sentence of this news item quite interesting; "*Today, the company operates over twenty Nitrex nitriding systems in seventeen countries including Argentina, Austria, Belgium, Brazil, China, France, Germany, Hungary, Italy, Mexico, Poland, Portugal, Romania, Slovakia, Spain, UK, and USA."*Quite something to have a customer who has bought over 20 systems from you over 20 years-we can probably very safely say that they really like the product.

"The Hydro plant in Trzcianka, Poland uses Nitreg® controlled nitriding to address the need for improved process performance and more accurate control of nitriding results. Hydro is the world's leading supplier of value-added aluminum profiles solutions. The Nitrex N-EXT 812 nitriding system replaces a decommissioned nitrider that was phased out several years ago due to extrusion die failures and inconsistent metallurgical results. The delivered solution includes Nitreg® technology that helps to optimize parameters for maximum efficiency and quality, increasing die strength and extrusion throughput, while reducing the possibility of potential die failures.

Moreover, Nitreg® contributes to cost savings from reduced consumption of process gases and energy savings from shorter process times. The N-EXT type furnace has overall chamber dimensions of 31.5" diameter by 47.25" high (800 x 1200 mm) with a capacity to nitride a 2200 lbs (1000 kg) load. Since the start of operations with the new nitriding installation, treated samples are periodically assessed by an external QA service to check and validate the nitride quality, specification compliance, and reliability of the Nitreg® process. As part of this testing program, Nitreg® results are consistently in compliance with Hydro's quality standard.

The extrusions business of Hydro Extruded Solutions manufactures extruded aluminum profiles and fully fabricated components for applications ranging from residential to industrial and commercial. Since 1999, Nitrex Metal has been building a lifelong customer relationship with Hydro. Today, the company operates over twenty Nitrex nitriding systems in seventeen countries including Argentina,

Austria, Belgium, Brazil, China, France, Germany, Hungary, Italy, Mexico, Poland, Portugal, Romania, Slovakia, Spain, UK, and USA."

Ipsen Fills Workforce Gap to Increase Field Service Presence

Aug 29, 2019

"Ipsen USA announces its next Corporate Academy class for training Field Service Engineers, part of a fast-track development strategy to continue increasing technical service capacity in the field. "We realize the importance of supporting our customers for decades after they purchase new equipment," said Bert Landis, Director of Service and Special Projects. "We listened to our customer's needs and moved into action." This strategy provides a solution to drive the success of heat-treating in the rapidly growing industrial manufacturing space. Participants get 26 weeks of comprehensive classroom knowledge, hands-on troubleshooting experience and on-the-job field training. Ipsen's expectation is that participants leave the program with expertise in servicing and maintaining furnace equipment. "As the industry's leader in field support for not only Ipsen equipment but all equipment brands, we understand the significance of having a robust pool of qualified specialists ready to engage with customers," said Patrick McKenna, President and CEO. Ipsen continues to grow this program, building a network of service technicians nationwide. The next class will begin January 2020."

Wisconsin Oven Press Release

Aug 29, 2019

"Wisconsin Oven Corporation announced the shipment of one natural gas fired conveyor oven to the automation industry and will be used to cure a resin formed mat. This conveyor oven has sufficient capacity to handle up to a 104" wide x 32" long mat weighing up to 0.19kg. The industrial conveyor oven has a maximum oven operating temperature of 500°F and work chamber dimensions of 10'6" wide x 12'6" long x 6'0" high. The oven has a guaranteed temperature uniformity of ±15°F at the set point of 400°F."

25 Most Influential People In The North American Heat Treating Industry

Aug 28, 2019

Yesterday we had a news item entitled *"**25 Most Influential People in The North American Heat Treating Industry – Looking Back**"*. It would appear that we were not as clear on this list as we should have been and this caused some real confusion. The list we posted yesterday was one that we put together back in 2009 and the purpose of the news item was to see where these people now are and what they are up to. As an example several people asked why ***John Hubbard*** of Bodycote fame was not on the list yesterday-simple in 2009 he was retired. Another person asked why we had a deceased person *(Jeff Pritchard)* on the list of the most influential-well in 2009 he was very much alive. So to cut a long story short the list we had yesterday was from 2009 but we are putting together our updated 2019 list. Please let us know who you would suggest for our **2019** list of the *"25 Most Influential People in the North American Heat Treating Industry"*. Your suggestions should be sent to Jordan Montgomery jordan@themonty.com and we will post the updated list the week of September 9th/2019.

Vacuum Process Technology (Number 2); An overview of the Technology presented by David Pye of Pye Metallurgical International Consulting

Aug 28, 2019

Trends and developments in vacuum furnace technology

An overview of the technology

New technologies seem to center around a paradox; on the one hand they are welcomed as better methods to attain much improved and better results, and an enhanced quality of life. Yet on the other hand some industries resist and decry the new process technological methods. Amid the rapid revolution of material science, yet there are those who swear by the new technologies and who will invest every source possible in that technology to make their operations more productive, quality – oriented and more importantly, profitable.

Vacuum furnace processing technology has a tremendous potential, it has reached what one can consider maturity in relation to other international trends. It is a

technology that will assist material scientists and their industrial associates to move into the third millennium. But first there are a few problems to address.

Observations of the vacuum processing technology

The main processes today that are using vacuum technology for metallurgical enhancement of their products are;

- *Low-pressure carburizing (also known as the vacuum carburizing)*
- *Vacuum plasma carburizing.*
- *Plasma nitriding (also known as low pressure nitriding, pulsed Plasma nitriding, ion nitriding). Each one is using the technology of low pressure (vacuum) However, one has to be careful at the low-pressure selection for these processes.*
- *Chemical vapor deposition (also known as C V D). This is a deposition type process which can be integrated into a plasma nitriding system, whereby the nitriding is the initial procedure (which is a thermochemical diffusion technology and on completion and still in the same furnace, one can then continue with the deposition procedure for CVD).*
- *Physical vapor deposition known as PVD*

Typical applications of these processes are for high wear (such as drills, Hobbs, milling cutters, and corrosive environments. The aerospace industry has seen fit to use these procedures for high-strength, lightweight materials, which embrace the use of additional metals such as titanium to achieve longer life than is normally associated with the more conventional furnace processes.

Pursuit of better materials.

Low pressure conditions, or vacuum technology can be used easily on the more exotic materials as well as the lower grade materials to enhance the operational quality.

One can add compounds or elements to change and improve molecular structures and Metallurgical operational results. A typical example could be the use of carbon diffusion in the case of case hardening.

Observing the aircraft and armaments industries for example, where heat treatment plays both a significant and vital role in assisting manufacturers to achieve specifications and to ensure that their products meet with guaranteed acceptable degrees of safety, reliability, and durability.

The general industrial prognosis is that heat treatment (total Metallurgical enhancements) will become an increasingly critical aspect in the pursuit of higher and better materials technologies.

Likewise, the heat treater's role and status will also increase in importance. The automotive industry is another sector in which we can expect (and now beginning to see) a significant even illusionary process in the field of heat treatment and surface modification.

There is still a great challenge to accomplish lighter weight materials of the vehicles, while retaining and an improvement in their operational strength.

What does the future have in store in searching for the Holy Grail of materials technology and processing?

The current generation of automobiles on now featuring higher percentages of ceramics deposition and or a more effective use of carbon the enforce carbon fibers. The basic car design which encompasses high wear and the need for improved performance, while still retaining most of the basic shapes of the automobiles.

We may be close to witnessing the death of steel as we have known it as well as a decline in the use of conventional metallurgical enhancement technologies. What we are beginning to see is the birth of new processing technologies, new materials and new applications. Central to this, it is my belief that this will bring vacuum processing technology into the forefront of metallurgical heat treatment.

I also foresee even with conventional heat treatment of processing technologyoperations, a transition into a range of vacuum related processes and moving into the workshops of the contract heat treater with the specialized metallurgical processing and metal surface treatment knowledge.

Even if the in-house heat treatment operations of finding it increasingly difficult each day to:

- *Recruit specialized labor*
- *some tendency not to invest in high capital processing equipment.*
- *The ability to maintain the equipment both mechanically and electronically (simply because of the PC/PLC process control combinations, and in some cases, to shut down the equipment for routine and preventative maintenance.*

It is believed that within the next 10 years, more of the commercial heat treaters will develop themselves in the field of vacuum heat treatment processing such as hardening/tempering and as the need develops, for a cleaner more consistently heat-treated product.

In addition to this the right to foresees that commercial heat treatment companies will develop rapidly into the field of vacuum brazing on a contract basis. This will embrace the brazing industry with specialized materials that demand absolute clean processing conditions for both ferrous and nonferrous materials (particularly aluminum materials for brazing), Sintering.

As far as surface treatments are concerned, using vacuum technologies (with the exception of plasma nitriding), it is believed that the larger companies involved in strategic products will tend to explore the benefits of the vacuum related surface modification procedures such as chemical vapor deposition, physical vapor deposition, plasma assisted vapor deposition, vacuum carburizing, vacuum carbonitriding and ion implantation.

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25 Most Influential People In The North American Heat Treating Industry – Looking Back

Aug 27, 2019

Between the years 1999 and 2011 “The Monty” several times put together a list of the 25 most influential people in the North American Heat Treating Industry-both captive and commercial heat treatment we will add. Somehow or other we got out of the habit and had forgotten about this until the other day when a reader suggested we re-visit this topic. This particular list was published in 2009 and out of idle curiosity we had a look to see how it had changed. While some individuals we have lost touch with, for the majority we are pleased to see they are still going strong (current status is in red).

Pete Batche, Bosch LLC*. So why Pete? Since 2005 the heat treating standard for automotive components has been CQI-9 which covers most aspects of the heat treating process. The standard was developed by a team from the automotive industry, one of which was an individual by the name of Pete Batche (Pete is the Senior Quality Engineer at the Robert Bosch Company in Michigan, USA). While we recognize that Pete is just one part of the CQI-9 team his name kept popping up.* Pete is still going strong and is currently Quality Manager / Metallurgist at Emerald Steel in Michigan and still heavily involved with CQI-9.

Bill Bernard, Surface Combustion*, (new Furnaces). When introduced in the last century Surface Combustion’s, “Allcase” batch IQ furnaces completely changed the direction of heat treating. As owner and President of the company Bill has had a direct impact on the industry.* While we have not heard from Bill for some time we can say that his son Bill (B.J.) Bernard is now President and CEO of the company and doing a very good job from everything we have heard.

Mr. Howard Boyer, Editor of the ASM Metals Handbooks and the Heat Treaters Guide*, the bible of the heat treating industry around the world.* Now Howard we have completely lost touch with.

Ingo Cremer, Cremer Furnace Company*. This name is not one that many heat treaters might recognize unless you are in the powdered metal business. Ingo is founder of Cremer Furnace Company which makes new sintering furnaces which many in the industry regard as extremely innovative. In addition he is President of EPMA and has*

made substantial contributions to Powdered Metal heat treating development. Ingo is another individual who we have not heard from in years.

Roger Fabian, Bodycote International*. Roger received more votes than anybody else on our list. A quick background says he has been in the heat treating industry since 1962 been president of MTI, now past President of ASM and was instrumental in the development of CHTE (Center for Heat Treating Excellence). His list of heat treating credentials is truly impressive.* Roger retired from the industry a number of years ago although perhaps we should say partly retired as he is an Independent Management Consulting Professional.

Jeff Gwinnell, Bluewater Thermal*. Jeff is CEO of commercial heat treater Bluewater Thermal the largest US based commercial heat treater. Since his arrival at Bluewater he has made substantial changes to the company mainly in the form of management. Look for further changes at Bluewater under the direction of Jeff.* Jeff's stay in the industry was relatively short and after a brief stint as CEO of Bluewater he completely left heat treating.

Stephen Harris, Bodycote International*. As CEO of the largest commercial heat treater in North America (although based in the UK) Stephen decisions can have an enormous effect on the industry. Whether it is adding plants, closing plants, deciding on the direction of new equipment purchases or taking over captive heat treating operations all will affect the shape of heat treating in North America.* Stephen Harris is still going strong and doing an outstanding job running the largest commercial heat treat company in the world.

Mr. Daniel Herring, (The Heat Treat Doctor) Herring Group*. The only consultant in our group, Dan's opinions have helped shape the course of heat treating for a number of companies.* Dan was planning on partly retiring and going back to school some 2 or 3 years ago but we have seen no sign of him slowing down at all.

Bill Jones, CEO of Solar Atmospheres, Souderton, PA*. (Commercial vacuum heat treating) and Solar Manufacturing (new vacuum furnaces). Bill is a true innovator whose research into vacuum heat treating furnaces has had a very definite impact on vacuum heat treating. My personal opinion is that there are very few in the vacuum industry that can rival Bill's knowledge.* In an uncertain world it is always nice that some things never change and one is Bill Jones of Solar. He continues to be innovation and push the envelope when it comes to vacuum heat treating.

Zia Karim *has from an aerospace heat treating perspective played a major role in the development and institutions of Nadcap. At Nadcap he has held the longest position as staff engineer (not to mention at one time he was the only one global wise) forging alliances with Boeing and Aerospace primes to bring them on board. As NADCAP has had such an impact on the industry it is only fitting that Zia is mentioned.* Zia Karim for some time appeared to be a rising star in the heat treating industry but at some point the star crashed and burned. We have not run across him for many years now.

The Keough Family. Bill and Chip. *Very unfortunately Bob Keough the founder of AFC-Holcroft passed away this past year however the legacy he leaves lives in his two sons Chip as President of Applied Process (commercial salt heat treating) and Bill as President of AFC-Holcroft (new furnaces). Applied Process is the largest commercial salt heat treater in North America, AFC-Holcroft one of the largest builders of new furnaces.* It is rather a shame but both Bill and Chip have left the industry after selling their companies. We miss working with them.

Mr. Michel Korwin, President of Nitrex Metal Inc., Montreal, Quebec*. Michel is probably more responsible than any other individual in North America for the growth of Gas Nitriding. In addition his successful efforts to form a controls group, UPC will have a definite impact on the industry.* Perhaps Michel has slowed down a bit but we still see him at various trade shows and he continues to have an impact on the industry.

Janusz Kowalewski, Seco Warwick, Meadville, PA*. Janusz has proven to be an innovator who has taken Seco Warwick (new furnaces) into new directions.* Janusz parted ways with Seco a number of years back but remains busy and active in the industry as part of Ipsen.

Scott MacKenzie, Houghton International. *Scott is Technical Consultant of Houghton International, one of the largest manufacturers of quench products in the world. Scott is in turn one of their technical experts who is regularly invited to lecture. While Scott's name would not have jumped into my mind immediately several people suggested his name. Scott is truly a staple of the heat treatment industry and can be found at various trade shows all over the world.*

Doug Matson, Nadcap Heat Treat Task Group Chair. This is not an individual we are familiar with however as part of the Nadcap group Doug would have enormous influence when it comes to aerospace heat treating. As one individual said "The buck

basically stops with him when it comes to heat treating and Boeing". Doug now has over 40 years in the industry and is currently Quality & Special Processing Specialist at Boeing.

Mr. George Pfaffmann- Ajax Tocco- Induction Heat Treating. It surprised us the number of Induction "guys" that were suggested for our list. George's name came up on such a regular basis that his inclusion was a very easy decision. George Pfaffmann soldiers on as V.P. Technology at AjaxTOCCO.

Murli Prasad, General Motors. *While virtually all the names on this list are familiar to us I have to confess the name Murli Prasad is not familiar to me. Be that as it may several individuals suggested him as being part of the GM auditing team for heat treating.* Murli parted ways with General Motors a number of years back and is now President/Consultant, Global Materials & Finishing Solutions.

Jeff Pritchard, Vac Aero. *Jeff Pritchard is CEO of Vac Aero, builder of new vacuum furnaces and one of the largest commercial heat treaters in North America when it comes to aerospace heat treating. Founded by Ross Pritchard (who is now retired) Jeff has taken over the company and grown it into new areas such as operations in Poland and India.* Unfortunately Jeff passed away at the relatively young age of 53 from cancer. He left behind a healthy growing company.

Ben Rassieur, CEO Paulo Products*. No way can we ignore the President of the largest privately owned heat treat group in North America.* Paulo remains the largest privately owned heat treat group in North America and Ben remains CEO of the company. Paulo has seen tremendous growth over the past few years and continues to invest in new technologies.

Dr. Valery Rudnev, Inductoheat, Madison Heights, Michigan*. A name we are very familiar with and which a number of people mentioned as a real innovator in the Induction heating industry.* The good Doctor is Director of Science & Technology of Inductoheat in Michigan and he is extremely active in the Induction heating industry all around the world.

Gary Sharp, Owner and President of Advanced Heat Treat Corp. in Waterloo, Iowa. *Many years ago when Ion Nitriding was introduced to the North American heat treating market the technology got off to a very rocky start and languished for many years in the wilderness of heat treating. Gary saw an opportunity and has grown Advanced into*

the largest commercial Ion Nitrider in North America with the effect that it is now after many years seen as an excellent technology in certain applications. Gary has not slowed down in the slightest and continues to grow the company which we consistently rate as one of the largest commercial heat treaters in North America.

Geoffrey Somary, Ipsen Inc. *While Geoffrey quite recently stepped into the shoes of CEO of Ipsen Inc. in North America he has been with the company for some time (albeit part of the time at VFS which is now part of Ipsen). A number of readers suggested Geoffrey's name for the list of the basis that he is making changes at the company and that it is one of the largest new furnace builders in North America.* Geoffrey's star continues to shine and he is now at the pinnacle of Ipsen worldwide.

Steve Stormzand (Bosch/DTC)*. A pioneer in plasma nitriding and HPGQ. A name we are not familiar with but several individuals suggested Steve as having brought about changes in the industry because of his interest in Plasma (Ion) Nitriding and High Pressure gas quenching.* Steve Stormzand continues in the industry and is now Director Facilities Management at Robert Bosch Tool Corporation in Charleston, SC.

Bill Thompson, Super Systems. *While Bill did not invent the oxygen probe his effectiveness in bringing it to market with Marathon Monitors and Super Systems has meant it is very unusual to see a furnace without an oxygen probe and changed how all consequently changed how heat treaters in North America control their furnaces. While Bill is not active on a day to day basis at Super Systems, his son Steve has stepped into his shoes.* Bill has now completely retired from the industry and is enjoying retirement. His son Steve has done a tremendous job of growing Super Systems.

Dr. George Totten, G.E. Totten & Associates, LLC. *Dr. Totten was on our list in 2007 and remains on our list in 2009. Over the years he has provided very extensive knowledge about quenching, both from his background with Union Carbide Corporation and now as an independent consultant in Seattle, Washington.* Dr. Totten remains very active in the industry and has now been with G.E. Totten & Associates, LLC for almost 18 years.

The Monty Heat Treat News

Aug 26, 2019

Are you exhibiting at the ***"HartereiKongress 2019"*** in Cologne, Germany this fall? ***"HartereiKongress 2019"*** being held October 22nd to the 24th in Cologne is the premier heat treating event in Germany for 2019 and your customers need to know that you will be in attendance. ***"The Monty Heat Treat News"*** can help get that message out with a very special offer. For almost a quarter of a century ***"The Monty Heat Treat News"*** has been publishing our monthly newsletter which goes to thousands of captive and commercial heat treaters around the globe. As a special for the show we are offering full page ads for $500.00 USD-half of our usual price of $1,000.00 (examples of our newsletters can be found at https://themonty.com/previous-newsletters/). We have spots available in both our September 1 and October 1 newsletters as well as some banner ad availability on our website https://themonty.com/

We are proud to say that with over 8,000 subscribers to our newsletter, almost 6,000 LinkedIn followers and over 20,000 visitors to our website each and every month ***"The Monty Heat Treat News"*** is the most cost effective and productive forum in the world for getting your message out to the worldwide heat treating industry!

Please let us know your questions. Jordan Montgomery jordan@themonty.com

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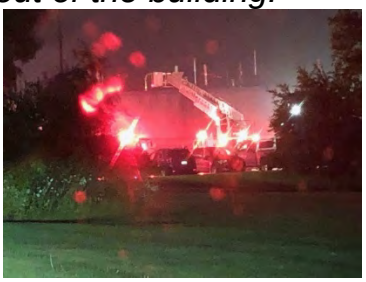
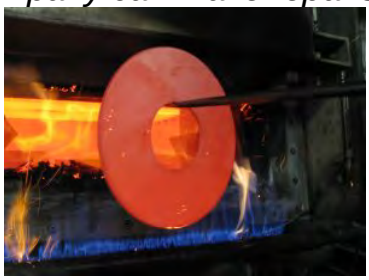
Monday Morning Briefing

Aug 26, 2019

While we have absolutely no hard data to back this up our impression has always been that the majority of fires in heat treat departments start in furnace ducting- such was the case at captive heat treater ***Acument Global*** in Michigan, USA this past week; "*First responders were sent to a fire at Acument Global Technologies, located at 4160 E. Baldwin Road in Grand Blanc Township. Crews arrived on the scene early Tuesday morning, Aug. 20. Police on the scene said one of the ventilation stacks caught fire, however, its fire suppression system did activate. Employees were evacuated out of the building."*



Well if you didn't believe us about most fires starting in ducting, this might convince you: *"No one was injured in a fire that happened at 11:34 a.m. Friday at* ***Styberg Engineering*** *in Racine, WI, USA. The fire started from heat treat processing in the northeast corner of the building, according to a press release by the Racine Fire Department. Fire and rescue crews responded to a report of a "fire in a pipe." When they arrived on the scene, employees directed them to the fire. They had managed to keep the fire in the heat treat ventilation system and evacuated the area. Firefighters inspected and extinguished the remaining fire on the roof. This shut down the system until the company can make repairs."*



If you still need convincing here are two more examples, both were also last week. Michigan Metal Coating we are not familiar with but ALD we know quite well as one of the most impressive commercial shops we have visited and also one of

the largest in North America (https://themonty.com/largest-commercial-heat-treats/). *"Local firefighters responded to two fires simultaneously Wednesday night in the Port Huron Industrial Park, but Port Huron Fire Chief Corey Nicholson said they're likely unrelated. Sometime around 6:15 p.m., Nicholson said Port Huron firefighters responded to what was initially an alarm for a general smoke investigation at* ***Michigan Metal Coating****, 2015 Dove St. when crews soon noticed a fire nearby at* ***ALD Thermal Treatment****, 2656 24th St. By 7:30 p.m., both fires were out. A Port Huron firefighter showing signs of heat exhaustion was transported to McLaren Port Huron for evaluation, Nicholson said. Nicholson said they believe the ALD incident was caused by the failure of a component in an exhaust unit, spurring some component and roofing material to catch fire. That scene wrapped up shortly after 6:30 p.m. The other fire at Michigan Metal Coating, he said, is believed to have been caused by the build up of manufacturer by-product in the facility's ductwork."*

HK2019-75 the big German heat treat exhibition in Cologne, Germany is rapidly approaching (October 22-24th to be exact) and it looks to be almost sold out for exhibitors as you can see on this floorplan; https://www.hk-awt.de/hallenplan-hk-2019/ By the way if you look at the list of exhibitors you will find that the majority are European suppliers with a growing presence of Asian and North American companies. Furnace manufacturer ***Ipsen*** in Rockford, IL must be doing well these days-every time we turn around we hear about another new hire. The most recent is a fellow by the name of ***Phil Teeter*** who just joined the company as Electrical Solutions Manager which we believe is basically technical sales. Interestingly enough while Phil appears to have a lot of experience it also appears that he is new to the heat treating industry. Speaking of Ipsen it looks like a fellow by the name of ***Akihiro Horita*** recently was promoted to Product Marketing Manager for the company.

WG Montgomery Ltd., ***(The Monty)*** has now been involved in the worldwide heat treating industry for exactly 50 years and over this period we have accumulated a substantial number of photographs of various heat treats around the world-we always need to remind ourselves to share them. This photo actually has a very

tragic story behind it. It was taken in Venezuela back in 2006 and in the background you can clearly see a 6 bar vacuum furnace. This furnace was moved to another location and reinstalled, however 1 year later something caused the pressure in the furnace to build up blowing the door off the front of the furnace and killing two people. It was a terrible tragedy and it demonstrates yet again that safety always has to be front and centre in the heat treatment industry.

And to round things out we have this photo which we took 2 years back in Johannesburg, South Africa. What you are looking at is ***Harchris Heat Treatment*** one of the largest commercial heat treaters in the country, processing what is for them a fairly typical part. And that concludes our Monday Morning Briefing for August 26, 2019.

Trends and Developments In Vacuum Furnace Technology Presented By David Pye

Aug 23, 2019

Trends and developments in vacuum furnace technology

For many years vacuum processing technology was considered to be the 'Cinderella' of metallurgical processing technology, having had its humble beginnings in the aerospace industry, and initially used for stress relieving, annealing and normalizing of aircraft materials. The technology of vacuum has been subsequently used for the heat treatment of more exotic materials and now has found its place in the field of tool steel heat treatment and brazing process technology. The commercialization of vacuum processing technology began in the early 1940s without the realization of its potential value for the future.

The technology tended to 'limp along' in its growth arena thus recognizing that it was (for those who would invest in that technology). The writer believed that vacuum processing technology was in effect, Pandora's box which began to open very slowly. As the lid of the so-called box began to open, it began to motivate furnace manufacturers and heat treaters alike, to see of the potential opportunities to be 'the vehicle'.

Vacuum processing technology began to really gain recognition in the late 1980s when experimentation to develop for example, tool steel heat treatment. This was accomplished simply by redesign of the basic vacuum furnace is to high pressure gas quenching making full use of nitrogen as the cooling medium. However, it was somewhat limited in its overpressure. During the early 1990s further development work was seriously considered to take the maximum overpressure for quenching (20 bar over pressure) using now, nitrogen blended with helium. This meant that the manipulation of the ratio of helium with nitrogen, one can now blend the nitrogen helium gas mix that will best address the appropriate cool down rate from the austenitizing temperature in order to create martensite.

In the late 1990s, further investigatory work was conducted to enable process's such as carburizing, carbonitriding and to give to heat treaters the ability to raise the carburizing process temperature to almost 1700°F which means that one will

accomplish a very short process time for the carbon to diffuse into the surface of the steel.

With the conventional integral quench furnaces, one is limited by the type of refractory insulation material, in order to reduce the cold face temperature (external furnace casing). The visible evidence of new technology in the field of vacuum processing has made a great stride in so much as it has now opened many doors for thermal processing as well as an improvement in quality assurance to the end user.

Vacuum processing technology is the vehicle that is now carrying;

- Thermo-chemical diffusion techniques such as nitriding, carbo-nitriding, Ferritic Nitrocarburizing, Carbo-nitriding carburizing.
- Thermo-chemical deposition techniques
- Ion implantation.

Vacuum processing technology is an exciting method that leads us into some very dramatic and exciting engineering concept changes, but on the other hand, it started the opening of 'Pandora's Box.'

By that statement I am meaning that it is exposing a skills shortage. And as the writer has witnessed many different countries there is no such thing as a labor shortage. What there is, is a skills shortage in critical in many of the technical fields. The metallurgical processing discipline is one of the industries that is faced with the skills shortage problem. Which means that there is an international shortage of skilled heat treatment technicians to allow vacuum processing technology to become the vanguard of both technology and competence.

In today's international world, a great deal is known about vacuum processing technology, but not too much is known by the majority. That means the shop floor technicians who have the ability to 'make or break' the component that they are treating. The writer believes that the key to this lack of processing knowledge on the shop floor can easily be uplifted for the heat treatment technician.

Vacuum processing technology is the key to many new process techniques for industrial purposes. Along with all of the above, new materials are developing for most engineering industries such as;

- **Aerospace**. The writer wrote some time ago about the Moon to Mars mission and it set the writer to thinking the length of time it will take for the crew transporter from the moon and on to Mars will be a journey that has never been undertaken before by mankind. The new materials that have been developed and are being developed, the heat treatment is the key to protecting the astronauts on an approximate 10-month journey to Mars, as well has providing a safe environment for the astronauts when they reach the planet Mars. Just how long the astronauts will remain on the Mars surface is not yet known (or not yet been published) and then there is the journey back to the moon which would be again another 10 months.
- **Defense**. With the many conflicts that are occurring on both land and sea and airthroughout the world, new materials are being developed as well as the new processing techniques. The writer means in this area, weapons of personal defense, weapons with extended ranges to be remotely controlled and delivered, all are going to require new materials and new process techniques. Once again this will necessitate for the process technicians and understanding of the materials and what treatment must be given to extend the life of the weapons. This, the writer believes is where there will be a dramatic need for the heat treatment technician on the shop floor, as it is he (that can make or break the product.

Heat Treat Exhibition Scam

Aug 23, 2019

Have you received this bogus e-mail yet? Every year like clockwork attendees to the various North American heat treat exhibitions are deluged with e-mails similar to the one below advertising a contact list of all the attendees to the upcoming show. A friend of ours actually paid their money for the list and in return got crap. We have received 4 today, all written exactly the same but each with a different name and not one with a company name or contact info beyond an e-mail address. Don't get fooled.

*"Would you be interested in acquiring the Pre-registered Attendees Database of **ASM Heat Treating Society Conference and Exposition 2019 ?** and there will be a cost associated with the Database. **Attendees:** CEO/President/Gen'l Management, Technician/Operator, Project Manager, Operator, Instructor and more… **Data Contains:** Contact Name, Title, Company Name, Size, Physical Address, Opt-In Email address, Phone & Fax numbers etc. Please let me know your thoughts, So that I can send you the Number of Contacts available and the Pricing for it. **Awaiting Response,** Ashley Emery Marketing Executive."*

Jones Metal Products, West Lafayette, Ohio, USA-New Owner

Aug 22, 2019

From West Lafayette, Ohio, USA we have this news item about captive/commercial heat treater Jones Metal Products having a new owner. As it happens we are quite familiar with this company and in 2018 we had a note about the company entitled; ***"Jones Metal Products-Do Captives Make Good Commercial Heat Treaters?"*** which can be found below the announcement about the new owner.

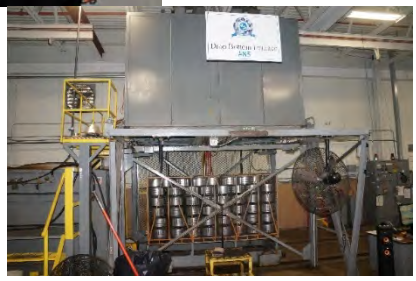
"WEST LAFAYETEE – Dan Erb feels that Jones Metal Products of West Lafayette is on a good business path and he intends to keep it there as he adds owner to his titles of President and Chief Executive Office of the company. It was announced Monday that Marion Sutton, chairman of the board, would be retiring and the company had sold to Erb, who came in as CEO and President in 2002. He started out in 1996 as president of Jones Zylon, which is now a separate entity and was not part of the Jones Metal sale. Sutton has not set a hard date for her retirement and said she will still be around the office here and there.

Sutton is the third generation of her family to own the metal forming company started in 1923 by her grandfather, Frank Jones. It then passed to her father, Edward Mulligan. Sutton became chairman of the board in 2000. As Sutton explored retirement, she and the board were thrilled to find Erb was interested in purchasing the company and she knows it will be in good hands. "That was a huge consideration," Sutton said on Erb's knowledge and experience with the firm. Erb is not anticipating any immediate changes. Customers and employees should see little difference, he said. The company has 56 workers with all living in the local area. Jones Metal Products manufactures parts for many industries such as aerospace, defense, medical equipment and lighting. It specializes in hydroforming, fluid cell forming, aluminum and vacuum heat treating, deep draw stamping and fabricating. Erb believes they weathered the Great Recession well due to investing in new equipment and skills training for its people and he sees doing more of that is what will keep them at the forefront of the industry."

"August 2018; Jones Metal Products-Do Captives Make Good Commercial Heat Treaters? Located in West Lafayette, Ohio metal forming company Jones Metal

Products Company is celebrating their 95th year in business. The company is now under the direction of Marion Sutton, the third generation of family leadership. Doing primarily aerospace work the firm has been doing vacuum and aluminum heat treating in house for a number of years before they ventured into the commercial heat treating business. Generally in-house heat treaters do NOT make good commercial heat treaters for a number of reasons (the now long gone Magna Powertrain facility in Syracuse, NY was an extreme example. Running high volume, low cost annealing work for outside customers through large pushers designed for heat treating high end automotive gears proved to be not a good idea). Anyway it would appear that Jones is an example of a manufacturer successfully doing commercial heat treating.

Over the years the company had invested in vacuum and aluminum drop bottom capacity entirely for their own products. At some point in time Jones realized that there was a need for aluminum heat treating services in their own backyard, Ohio, Kentucky and Indiana. The end result is that the firm now does about $500,000 per year in commercial heat treating (both vacuum and aluminum) a number which is growing rapidly. Our personal feeling is that one of the main reasons that the company has seen such success at commercial heat treating are their approvals which include AS/ISO, NADCAP and ITAR Registration. Whatever the reasons its interesting to see a company branching out based upon their own internal strengths."



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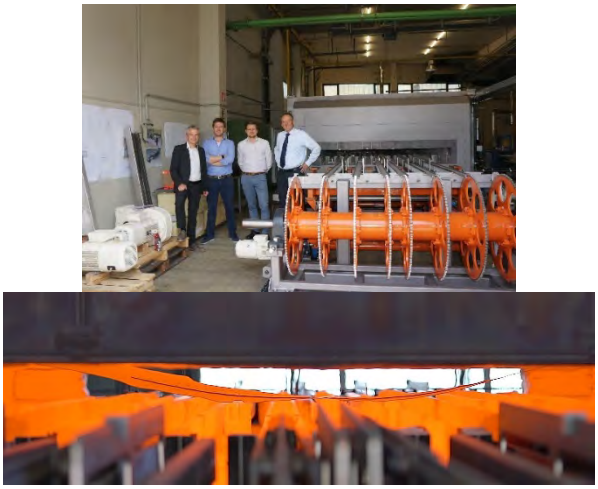
Aichelin Heat Treatment Systems/”heatXpress” Furnace

Aug 22, 2019

A year ago we visited Aichelin in Austria for a tour of their facility and one of the items that the company was very proud of was a relatively new product for them something called “heatXpress”. This is a step chain conveyor furnace with press hardening designed for hot forming of car body parts. While strictly speaking we would not call it a heat treat furnace it was quite an interesting product. We mention this today because Aichelin has been doing a great deal of testing in house on some complex parts with the results being unveiled at a trade show in Shanghai this week we believe. One of the photos below shows the test system at the Aichelin facility in Austria.



Premier/BeaverMatic Ships 2 Spray/Dunk Washers

Aug 22, 2019

"Premier/BeaverMatic Spray/Dunk Washers were recently manufactured and shipped from Premier's new 40,000 Ft² manufacturing facility in Farmington Hills, MI. The repeat customer is an international aerospace firm, this facility is in southeastern US. The Spray/Dunk Washers are designed to clean 1,250 lbs of heat-treated material, using both a full immersion oscillating dunk cycle, propeller agitation; and also using a separate high-pressure, with solution, spray cycle."

Bodycote Syracuse, NY, USA Has A New Home

Aug 21, 2019

Back in 2016 the worlds largest commercial heat treater acquired privately owned Syracuse Heat Treating in Syracuse, NY in what was an excellent fit for both companies. July 2017 the facility suffered a devastating fire as you can read about in this press release; *"Bodycote experienced a fire at its Syracuse, NY location on Friday, July 6. There were no injuries but the facility has been rendered unserviceable. Bodycote will continue to provide heat treating services for customers from other Bodycote locations in the region via Bodycote's freight logistics network until Syracuse services are reinstated. Questions should be directed to Dan McCurdy, President of Bodycote AGI NAA at dan.mccurdy@bodycote.com."* Since that time the firm has done an incredible job of servicing the existing customers through other locations while they searched for a new location-the search is now concluded. Just recently Bodycote purchased an existing 58,000 square foot industrial manufacturing facility at 8 Dwight Park Drive in the nearby town of Geddes, NY. Presumably now the company will start placing purchase orders for new equipment to replace what was lost in the fire, we are assuming batch IQ furnaces and vacuums.

Bodycote

What On Earth Is This?

Aug 21, 2019

Recently we did an appraisal of some operating heat treat furnaces which included a number of vacuum furnaces. Amongst the items we looked at was this furnace, one which still has us scratching our heads. At first glance it appeared pretty standard, an older VFS vacuum furnace-really nothing out of the ordinary until we looked at the chamber itself which in big letters says "AGF". Now AGF "American

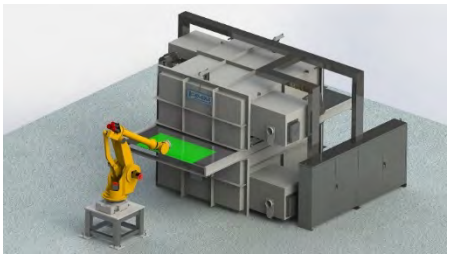
Gas Furnace Company" we are familiar with having seen a number of rotary retort furnaces the company has built over the years (although we believe the company is gone with anything left now belonging to Pemberton Fabricators). We have never heard of AGF building a vacuum furnace or even a chamber so where this system originated from is anybody's guess.

Can-Eng To Supply Rapid Heating Furnace

Aug 21, 2019

"Can-Eng Furnaces International Limited was recently awarded a contract from a research organization for the supply of a Rapid Heating Furnace to be used for Light Weight Hot Stamping & Formed Aluminum Automotive Component product development. This organization will integrate the aluminum sheet heating furnace with existing equipment to support both Automotive Manufacturers and Tier 1 Suppliers throughout North America for the development of new safety critical light weight structural components.

Can-Eng was chosen for this project as it provided significant light weight, thin walled automotive structural component development experience. The result of this experience and collaboration provides the customer with a unique rapid heating furnace system which offers significant reduction in floor space requirements, flexibility for processing a wide range of product sizes and flexible operating temperatures required for various stamped and formed products. The system will be fully integrated with flexible robotic handling and material handling automation.



Can-Eng Furnaces International is a global provider and leader of state-of-the-art thermal processing systems. Headquartered in Niagara Falls, ON, Canada, Can-Eng is an ISO 9001:2015 certified company. For further information please contact Can-Eng at tdonofrio@can-eng.com or furnaces@can-eng.com"

Michael Cousin/Diablo Furnaces, LLC

Aug 20, 2019

Looks like Michael Cousin very recently started with furnace manufacturer Diablo Furnaces, LLC., in Machesney Park, Illinois, USA as Director of Technology. Michael has had a long distinguished history in the heat treating industry having worked at companies such as AFC-Holcroft and most recently as Senior Technical Manager-Atmosphere Products for Ipsen. Diablo Furnaces is a relatively new player in the industry as you can see from the press release below dated June 14, 2017. Since 2017 we have had several press releases about the company, the most recent one just a few months ago when Bill Gornicki of ALD Vacuum Systems left the company to become CEO of Diablo. We have yet to see one of their furnaces in the field but we understand the company had a pretty full order book.

"MACHESNEY PARK, ILLINOIS – June 14, 2017 – A company that built a niche servicing and refurbishing million dollar machines in the gear industry launched a spinoff company to build a new line of heat treating furnaces for those same customers. The new operation, Diablo Furnaces, saved five employees from the unemployment lines and Diablo is looking to add more. Machine Tool Builders was founded in 1995 to rebuild and re-control – add new controls to modernize machinery – large machines that make gears or work on gears. The company does this work for large national conglomerates such as Boeing and Caterpillar but also for local firms including Forest City Gear and Rockford Toolcraft. MTB eventually

diversified into selling foreign brands as well, such as Germany-based Burri Grinding and Dressing Machines, Switzerland's Donner+Pfister and HERA Hobbing Machines from South Korea.

Several years ago, MTB saw an opportunity to break into a related industry. When a gear is finished it has to be baked in a furnace to make it harder. Without the heat treating, the soft metal would wear down in a day. Machine Tool Builders began servicing and refurbishing heat treating furnaces. Many of those furnaces were built by a decades-old Rockford, Illinois firm. When that company closed suddenly and its assets sold to a Michigan company, MTB added key personnel from that firm and began using that institutional knowledge to design and build new furnaces under the name Diablo Furnaces. Diablo builds internal quench, temper/draw, box and car bottom furnaces that are custom built for each customer, based on material, temperature range, volume and available floor space. Diablo launched in February with five employees and a goal to do $6 million in sales this year. The company was 50 percent to that goal by the end of April. Diablo now needs more workers to keep up with market demand."

Monday Morning Briefing

Aug 19, 2019

For today August 18, 2019 we are going to start out with an updated news item from Germany. Bach in March of this year we mentioned that ***Jens Baumann & Edgar Falkowski*** in Germany had parted ways with controls company UPC (the UPC ad can be found on the right side of this page). As it turns out the two started their own controls company ***Millivolt GmbH*** also in Germany. Jens and Edgar are friendly, knowledgeable fellows and we wish them the best of luck however we question whether there is a need for another controls company in an already crowded market. *"March 2019; One of the world's largest and best known suppliers of controls for the heat treat industry, United Process Controls has seen a couple of personnel changes in Europe; "United Process Controls GmbH and Messrs Edgar Falkowski (previously Director Engineering) and Jens Baumann (previously Director Sales) parted company on 25 February 2019. As current contact person in place of Mr. Falkowski in the Engineering Division please contact our Ms. Soldani, phone +49 7161 94888-38, e-mail; Emily.soldani@group-upc.com. Our existing team will continue to work with you in a professional and uninterrupted manner; the replacement of both positions is already in progress."* In May of this year we had a news item from Sweden-specifically it was about a company by the name of ***Epiroc*** making a very large investment in a brand new, state of the art captive heat treat department. We can now share a bit more information with you; there will be two completely different technologies at this location when the expansion is finished. The first is a brand new ***Vacuum Carburizing Line*** from a European supplier, the second is an ***ADI*** (Austemper Ductile Iron) furnace from a North American supplier. *"May 2019;Epiroc has held a groundbreaking ceremony for its new heat treatment plant for rock drills at one of its global manufacturing hubs in Örebro, Sweden. With heat treatment an essential part of rock drill manufacturing, the top-modern plant – to be built through an expansion of the current workshop building – will further boost rock drill quality and performance, according to Epiroc. It will also lower customers' total cost of ownership and enable higher production volumes, the company added. Helena Hedblom, Epiroc's Senior Executive Vice President Mining and Infrastructure, said: "The investment is a key step toward ensuring that this first-class manufacturing site remains as productive and*

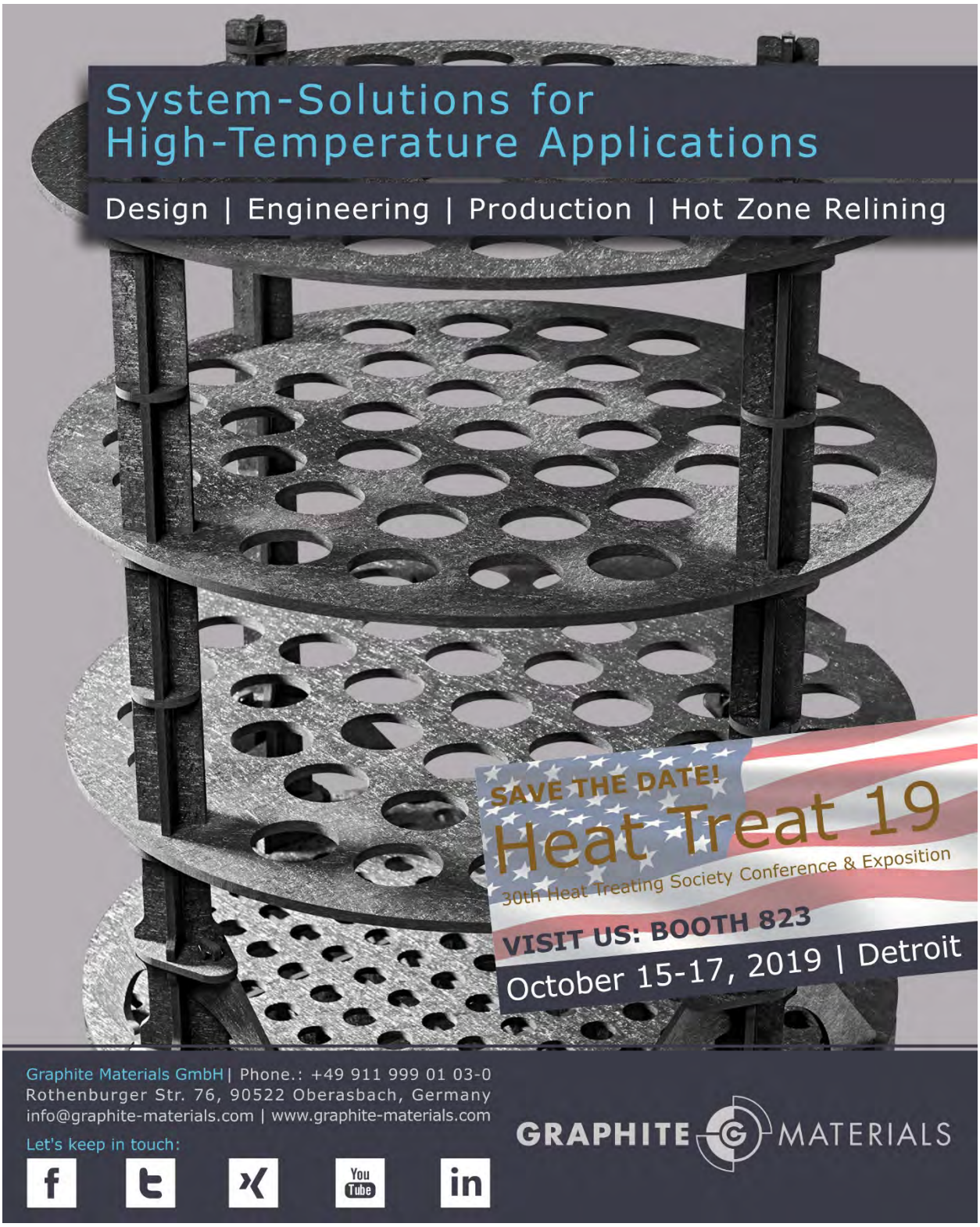
competitive as possible for the long term." Production at the 1,400 m² heat treatment plant will be able to run 24 hours a day thanks to automation. It is expected to be up and running by late-2020. Energy efficiency is a key focus for the design of the plant, with, for example, residual heat recycled internally to heat buildings."

In the US we see that things are "hoping" with companies making substantial investments in more equipment-needless to say we only care about the heat treat investments. For instance commercial heat treater ***American Heat Treating*** up in Connecticut is making a very large investment in more equipment, give us a few weeks and we can give you all the details. Several heat treat news sources mentioned how a company by the name of ***Mueller*** is planning on building a new foundry in Illinois; *"Mueller Water Products Inc. plans to build a new, state-of-the-art foundry in Decatur, Ill. The facility will be one of the largest finished-goods brass foundries in the world. It will increase Mueller's production capacity to meet current and future demands. Construction of the foundry, which is expected to employ up to 250, will begin in fall 2019. According to Mueller, the Decatur foundry is part of a multi-year project that will provide operational efficiencies that will directly benefit its customers, employees and the local community."* What the other news sources did not say *(because they weren't aware of it)* was that the company has recently been making some investments in heat treating equipment for their other plants. For instance their location in Michigan recently bought a large box furnace. Commercial heat treater ***Thermal Metal Treating*** in Aberdeen, North Carolina is another company investing in more equipment, specifically a continuous heat treat line. We visited the plant earlier this year and we have to say they are some of the nicest people we have met.

Recently we updated our list of the ***Largest Commercial Heat Treaters in North America***, however every time we update the list we get more suggestions about other companies that should possibly make the list. Two which were suggested to us this past week and that are definite possibilities are the ***Stack***group of companies in the US Northwest and ***Continental Heat Treating*** in California. In the case of Stack Metallurgical based in Portland, Oregon we would agree that yes

they are one of the largest in North America with 3 locations and a fourth dedicated to “HIPPING” being built. Continental, owned by Mr. Jim Stull is a company which we don’t know a great deal about except we believe they have a total of 3 locations around the LA area. ***Aalberts*** (the second largest commercial heat treater in Europe) recently made the news because of their acquisition of salt specialist ***Applied Process*** in the US, an acquisition which pushed them onto our list of the largest commercial heat treaters in North America. If you want to know more about the company they recently announced their financial results which can be found at *https://aalberts.com/*. We will warn you though that because heat treating is only a portion of what the company does it might be tricky to track down how their individual heat treats are doing. We are pleased to introduce our most recent advertiser, ***“Nakal”*** the largest furnace builder in Russia, a company which we plan on visiting in a few weeks when we attend the upcoming heat treat exhibition in Moscow. Their ad can be found on the right hand side of this page.

We haven’t had much news from ***India*** recently so here are a couple of small items. ***Shubhan Singh*** was recently promoted to Engineer-Heat Treatment & Metallurgy at ***Hi-Tech Gears Ltd.*** Hi-Tech Gears with headquarters in Guragon, India is a supplier of transmission components and a very large captive heat treater with a mixture of sealed quench, fluidized bed, induction and continuous furnaces. Far and away the largest commercial heat treater and furnace manufacturer in India are our good friends at ***Dowa Hightemp***. The company has multiple commercial heat treats around the country and seems to keep adding more locations. On the furnace manufacturing side of things the company recently announced that in the past couple of years they have provided 3 pusher type CGC furnace lines with press quenching and robotics included to a Swedish-Italian facility in India. And that concludes our Monday Morning Briefing.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Distortion and its possible causes

Aug 19, 2019

The heat treatment of steel is necessary in order to manipulate the mechanical strength and metallurgy of the steel the manipulation of physical characteristics of the steel is necessary for prior machining and for the successful performance of the finished machined product.

Distortion is what every heat treatment practitioner dreads. Yet it is an aspect of the heat treatment process that cannot be avoided, particularly when austenitizing and quenching. It will happen, and nothing can stop it. However, steps can be taken to reduce the distortion but it cannot be eliminated. Distortion can be divided into three groups with each one either individually, or collectively contributing to the final result of distortion.

- Size change (meaning diamond shows stability)
- phase change (caused as a result of the application of heat above the A1 line and A3 line (or the ACM line).
- Residual stress initially caused at either rolling, forging, fabrication and machining.

All of the above can and will contribute to the occurrence of distortion.

Size change. Size change will occur as a direct result of the phase change occurrence due to the application of heat to the steel

Phase change. Phase changes will occur as a direct result of the application of heat to the steel which is necessary to change the structure from a body centered cubic lattice structure (ferrite)(BCC) to a Face Centered Cubic lattice structure (Austenite)(FCC) to a Body Centered to Tetragonal lattice structure (Martensite) (BCT) (if rapid cooling is employed).

Each of these phases has its own volumetric size and will change as the steel chemistry changes from steel grade to steel grade. Thus, a size change will occur. This further assumes, that all of the transformation products from the formed austenite to the freshly formed martensite is totally and absolutely complete. Variations in the rapid cooling rate will create the potential for residual or retained austenite.

Retained austenite is not stable. This means that it will progressively transform

from the residual austenite to untempered martensite. This means that there will be both a progressive dimensional change and hardness value increase.

Induced residual stress

Induced residual stress occurs as a direct result of;

- Rolling
- Forging
- Fabrication
- Machining

The above will all contribute to the distortion, which will occur at the final heat treatment. The induced stress can only be removed by the application of heat. Heat is applied when the final heat treatment procedure is commenced, thus stress relieving will occur.

Grain size deformation as a result of Rolling, a similar effect occurs with forging.

Grain size changes as a result of temperature and over soaking with time. The stress relieving will occur as the steel is being raised up to its appropriate austenitizing temperature. So, the steel is already distorted when it achieves the austenitizing temperature. Good heat treatment (normalizing after forging where appropriate) will contribute to a reduction in the distortion, but not the elimination of the distortion.

Milacron LLC Updates Furnace Controls

Aug 16, 2019

This is the second time we have mentioned captive heat treater Milacron LLC., in Ohio in our news section. The first was back in 2012 when the company replaced their Nitrogen/Methanol system with a new Endothermic generator.

"Super Systems, Inc. recently completed major upgrades to the heat treating assets at Milacron LLC in Mt. Orab, OH. The end goal of a modern controls and SCADA infrastructure led the Milacron team to SSi knowing that they had the resources and skills to tackle a job as large as this one. Included in the scope of work were new control cabinets, atmosphere flow panels, SCADA software and a new ammonia dissociator. Equipment addressed as part of the upgrade were (2) pit nitriders, (2) pit tempers, (1) pit carburizer, (1) integral quench furnace, (1) batch temper, (1) oil quench and the new ammonia dissociator with controls. All furnaces are capable of running recipes to automate processes creating an easy to use interface for operators and centrally controlled and operated using the SuperDATA SCADA package providing proof of process and quick access to real-time and historical process and load data. "We were very happy to be the chosen provider of the heat treat automation project with Milacron" explains Bob Fincken, National Sales Manager with Super Systems. "Our products and services were a perfect fit for the heat treat department needs addressing gas flow control with our eFlo product line, recipe controls with our 9205 and 9215 products, data acquisition with SuperDATA and all the installation and project management carried out by our Field Engineering Team" he continues. Jeff Bissantz, Project Engineer, who led the Milacron team said, "We are Very Happy we chose Super Systems over the competition. The Quality and Workmanship sets them apart from others in the Industry."

Super Systems Inc., based in Cincinnati, Ohio, has been developing and manufacturing products for the thermal processing industry since 1995. SSi's products include probes, analyzers, flow meters, controllers, software solutions and engineered systems. With over 100 years of combined experience, SSi continues to satisfy industry demands with innovative technology, enabling

customers to be more efficient and to produce higher quality products. For more information on SSi's capabilities, visit www.supersystems.com.
Milacron is a global leader in the manufacture, distribution, and service of highly engineered and customized systems within the plastic technology and processing industry. Milacron is the only global company with a full-line product portfolio that includes hot runner systems, injection molding, mold components and extrusion equipment plus a wide market range of advanced fluid technologies. For more about Milacron visit www.milacron.com."

Isabelle Parkes August 15/2019

Aug 16, 2019

Please excuse our indulgence but we have to mention that Isabelle Parkes was born at 2:15 AM this morning to Caitlin (Montgomery) Parkes and Andrew Parkes. Caitlin is the daughter of Dale and Gord Montgomery and brother of Jordan Montgomery. Long time readers of "The Monty" will recall that Caitlin worked at "The Monty" for a period of time. Mother and daughter are happy and healthy.

Kamax, Leon, Mexico Opens For Business

Aug 15, 2019

Earlier this year we mentioned how Kamax a German manufacturer of high strength fasteners for the automotive industry was setting up their first facility in Latin America-Leon, Mexico to be exact. Well just last week the facility opened for business (a local press release is below). As always this caught our attention as the company does a great deal of heat treating in house, all of it or the vast majority in continuous furnaces. In the case of the plant in Mexico this meant the company brought a surplus mesh belt furnace from a facility in Europe. In one of the photos below taken during the inauguration you can actually see the furnace in the background. The company also has a number of continuous furnaces at their locations in Michigan, USA and has for some time been considering adding more heat treating capacity.

"León.- Kamax, a company of German origin, officially opened its facilities yesterday at the Colinas León Industrial Park, thus becoming the first plant it has in Latin America and the twelfth worldwide. According to César González, director of operations, the objective of the company is to triple the production lines and increase the extension of the land within the next five years, 45 million dollars have been invested and 215 jobs will be generated. Kamax is a specialist in high strength fasteners for the GM, Volkswagen, Audi, Boss and Ford brands. Its products are directed to the North American market and also exports some to Germany and Russia, through its customers, the manager said. Currently, it has 45 employees, however the commitment made to the Government is to reach 215 jobs in five years."

Largest North American Commercial Heat Treaters-Back to the Drawing Board

Aug 15, 2019

Very recently we updated our list of the largest commercial heat treaters in North America however based upon readers suggestions it is back to the drawing board. While we received several suggestions the most obvious one we missed is Thermal Process Holdings about whom we have this to say; "*Thermal Process Holdings was formed by Calvert Street Capital Partners and John Hubbard (former CEO of Bodycote, PLC) to pursue a buy-and-build strategy in the thermal processing industry. The team has a stated goal to build a diversified, professionally-managed thermal processing business generating over $100 million of revenue. TPH owns and operates: P & L Heat Treating in Youngstown, Ohio, Diamond Heat Treat, based in Rockford, IL; Certified Heat Treating, based in Springfield, OH; and Hudapack Metal Treating, based in Elkhorn and Franklin, Wisconsin.* https://themonty.com/largest-commercial-heat-treats/

The Monty Heat Treat News

Aug 14, 2019

Are you exhibiting at the ***ASM Heat Treat Show*** in Detroit this fall? The ASM show being held October 15th to the 17th in Detroit, Michigan is the premier heat treating event in North America for 2019 and your customers need to know that you will be in attendance. ***"The Monty Heat Treat News"*** can help get that message out with a very special offer. For almost a quarter of a century ***"The Monty Heat Treat News"*** has been publishing our monthly newsletter which goes to thousands of captive and commercial heat treaters around the globe. As a special for the show we are offering full page ads for $500.00 USD- half of our usual price of $1,000.00 (examples of our newsletters can be found at https://themonty.com/previous-newsletters/). We

have spots available in both our September 1 and October 1 newsletters as well as some banner ad availability on our website *https://themonty.com/*

We are proud to say that with over 8,000 subscribers to our newsletter, almost 6,000 LinkedIn followers and over 20,000 visitors to our website each and every month ***"The Monty Heat Treat News"*** is the most cost effective and productive forum in the world for getting your message out to the worldwide heat treating industry!

Please let us know your questions. Jordan Montgomery *jordan@themonty.com*

Mr. Slawomir Wozniak, President CEO of SECO/WARWICK Interview

Aug 14, 2019

We are very pleased to be able to offer you an interview with Mr. Slawomir Wozniak who very recently became President & CEO of furnace creator SECO/WARWICK. His photo and interview can be found on both our home page *https://themonty.com/* and on our interview page *https://themonty.com/project/mr-slawomir-wozniak-president-ceo-of-seco-warwick/*

Inventory Clearance! Batch IQ Line Including Furnace, Charge Car and Washer $60,000 USD

Aug 14, 2019

Item#IQ438 Holcroft Batch IQ Furnace Line; Holcroft Batch IQ Furnace Line.Model GP2500. Serial Number S/N #CJ-4233. Installed new in 1980. Gas fired, working dimensions of 30″ X 48″ X 30″ and a capacity of 2500 pounds. Furnace was operational until shut down on 11/30/17 when plant closed. Also included is a double ended charge car (Holcroft) to handle loads of 30″ X 48″and a Holcroft Spray/Dunk washer with heating system 30″ X 48″ X 30″. Complete, in very good condition and ready to go. Asking Price $60,000 USD

Texas chiller manufacturer places order with SECO/WARWICK to commission large Active Only® CAB Line

Aug 14, 2019

"The largest indexing CAB furnace in North America is being relocated to Cold Shot Chillers in Houston TX to conduct in-house furnace brazing of the company's heat exchangers. *US department of SECO/WARWICK Group has been selected to relocate a very large CAB line for a customer who purchased it with the intention of brazing their own heat exchangers. Built by SECO/WARWICK for another Houston OEM in 2005, the CAB line will be a first for Cold Shot Chillers, as they have not previously conducted furnace brazing in house. The Indexing CAB furnace has an overall load size of 48" wide x 100'' long. The entire line, which measures 96 feet, includes a wet sprayfluxer with blow off, load table, dry off (dehydration) oven, entrance/purge chamber, convection furnace, atmosphere air cooling chamber, final air-blast cooling chamber and final unloading table. In addition, there is a power panel, a control panel and an atmosphere scrubber. The controlled atmosphere brazing (CAB) process heats a product to brazing temperatures while maintaining uniform temperatures within the product in an oxygen-free nitrogen atmosphere. The SECO/WARWICK design allows OEMs and aftermarket specialists the flexibility to produce a wide variety of sizes and*

types of heat exchangers on a daily basis. The Indexing solution allows a variety of parts to be brazed with no changes to the menus or furnace settings. The engineering team at SECO/WARWICK has the knowledge and experience to manage fleets of heat treating equipment in a planned and professional manner regardless of the equipment manufacturer. The solutions offered by the Group are universal because they are based on best practices and its manufacturing team is available through their global network facilities (USA, Europe, India and China)."

Mr. Slawomir Wozniak, President CEO of SECO/WARWICK Interview

Aug 13, 2019

We are very pleased to be able to offer you an interview with Mr. Slawomir Wozniak who very recently became President & CEO of furnace creator SECO/WARWICK. His photo and interview can be found on both our home page https://themonty.com/ and on our interview page https://themonty.com/project/mr-slawomir-wozniak-president-ceo-of-seco-warwick/

Woodward Inc. Upgrades Furnace Controls to UPC

Aug 13, 2019

"Oak Creek, WI, USA – August 12, 2019 – United Process Controls, (UPC) recently upgraded the vacuum furnace controls and automation platform for Woodward Inc., a US provider of fuel and control systems for aircraft engines. The new generation controls provide streamlined reporting for NADCAP compliance as well as seamless integration with the company's enterprise planning (ERP) system.

The control upgrades were undertaken at the company's Illinois facility and completed in a two-step approach. First, three vacuum furnaces – two Abar Ipsen and a VFS – received a full control system replacement based on UPC Protherm

710 controllers. The scope of work also included new digital heating zone trims for temperature uniformity, and multiple PID sets to minimize overshoot and meet tight tolerance requirements. Once the updated controls were installed, the second step was implementation of the Protherm 9800 SCADA and connectivity to the Protherm 710 controllers for real-time visibility of production data, including connectivity to the company's ERP system. In the latter case, the ERP interacts with Protherm 9800, managing the process recipes and feeding data to the Protherm 9800 to align the right recipe with the part or job lot entering the receiving furnace. This setup provides a redundant check and requires the operator to validate the part number or job lot number via the Protherm 9800 interface before a recipe can be deployed.

In addition to complying with NADCAP, the enhanced controls also meet AMS 2750E specification for thermocouple tracking. Since thermocouples have a limited life span, Woodward had to closely monitor how often each unit was used and manually record data. Now, the Protherm 710 controller tracks the thermocouple, its serial number and usage history, identifies when a thermocouple needs to be replaced based on running hours, days in service and temperatures reached, and alerts the operator when it's time to change the thermocouple. The Protherm controls also give added benefits such as monitoring and diagnostics for easier troubleshooting. Woodward also took advantage of the Quality Management module available with the Protherm 9800 to centralize metallurgical laboratory reports.

On top of these investments, UPC also equipped a number of new air-drying ovens with Protherm 470 programmable controllers with onboard input and output capabilities. Future upgrades of furnace controls and automation are planned at Woodward, and UPC will be a part of that, supplying Protherm series and Atmosphere Engineering series process controllers and connecting them into the SCADA platform.

Jason Walls, UPC Engineer responsible for the Woodward project preparations and start up, mentioned "The workplace at Woodward is top notch. Their commitment to ongoing improvements is an excellent example of a manufacturer understanding the potential of new technology to drive better overall equipment

effectiveness, to maximize furnace availability, and to deliver well-engineered, quality products. UPC process controls and control systems add more automation and real-time visibility of production, which will ensure that furnaces continue to operate at maximum efficiency for years to come and at the same time uphold Woodward's high quality standards of its operations and products."

ABOUT UNITED PROCESS CONTROLS

United Process Controls Inc. (UPC), www.group-upc.com, is a world leader in industrial process control and automation in the heat treatment and combustion markets. Operating eight sales and manufacturing facilities in seven countries with approximately 130 employees, UPC is commitment to servicing the thermal processing industry, helping both furnace OEMs and equipment end users make their business more profitable. Our brands include Atmosphere Engineering, Furnace Control Corp., Marathon Monitors, Waukee Engineering and Process-Electronic, and cover an extensive product range of probes, analyzers, process controllers, flow controllers, gas compressors, gas mixers/gas blending systems, flow control systems, as well as production software. In addition to offering a complete selection of process control hardware and software, we are also specialists in engineering complete control solutions for a variety of processes (carburizing, nitriding, nitrocarburizing, and vacuum) from a single furnace installation to large-scale production.

CONTACT

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Nitriding Of Gears – By David Pye

Aug 13, 2019

Introduction

Gears have nitrided for many years, yet the subject of nitriding of gears is still very controversial, and continues to be so. The process of nitriding is in reality, process technology. Meaning that it is becoming very a favored thermal process technique due to the low process temperature required and no quenching. However, this does not mean any distortion.

Requirements for both design and metallurgy to consider before steel selection and nitriding

When considering the process of nitriding of gears, the thermal treatment of gears requires a very careful selection of the choice of steel in relation to the gear application such as;

Pye Metallurgical nitride training note

- Core hardness requirement
- Surface hardness requirement
- Case depth requirement
- Gear operating condition

Acknowledgement to Industrial Heating magazine

When making the choice for the steel for a gear to be nitrided, it will be necessary to consider at the initial design stage of the gear, the working environmental

conditions that the gear will operate under. Some design considerations would be as follows:

- Tooth Pitch
- Tooth design loading
- Fatigue bending performance
- Case depth requirement
- Operating temperature
- Lubrication
- Gear type (helical, spiral bevel, spur gear, pinion driveshaft
- Core hardness required
- Core tensile strength
- Allowable surface growth
- Grinding tolerance
- Surface metallurgy (Compound layer, type of case to be formed in relation to the steel chemistry)

Steel mill test certificate

The steel mill test certificate must be confirmed and proved before manufacturing the particular gear. It is not always necessary to check the analysis of alloys, but very important to check the mechanical properties listed on the mill test certificate.

Traditional method off surface treatment of gears

Traditionally gear types have been carburized, quenched and tempered in today's manufacturing environment. This necessitates high-temperature processing conditions, for the diffusion of carbon into the steel surface. This must be followed by austenitizing and quenching. The obvious net result is the potential for distortion. The distortion aspect will also be influenced by the machining conditions prior to the carburizing. The distortion will be influenced by;

- Process temperature selection
- Time at the process temperature for the carburizing procedure
- Grain growth
- Potential for grain boundary oxidation
- Potential for retained austenite

- Preheat treatment conditions if applied, such as normalize and anneal
- If forged, what are the start and finish temperatures of the forge procedure
- Pre-machining residual stresses

Considerations and methods for the nitride processing of gears

The process of nitriding on the other hand can be accomplished by any of the following nitride process methods;

- Gas nitriding
- Salt bath nitriding
- Low Pressure nitriding
- Plasma nitriding

These processes offer to the engineer, the ability to pre-treat the steel in order to develop the required core hardness and tensile strength. The appropriate core hardness is necessary to support the formed metallurgical case when the gear is nitrided. During the nitride process (and provided that the nitride process temperature is approximately 50° F below the steels core tempering temperature) the core hardness is not affected. There is absolutely no opportunity for grain boundary oxidation during the nitride procedure, nor is there any opportunity for retained austenite conditions, simply because the nitride process temperature is well below any transformation temperatures

The thermal processing industry has become energy consciousness and demands the optimum use of whatever chosen energy utilization is selected.

The loading of the furnace (for whatever process method is chosen) necessitates that the optimum loading is utilized so as to maximize both the thermal energy and the appropriate process gas consumption.

One needs also to consider the available surface area of work to be nitrided

The furnace loading needs very serious consideration in relation to the nitride process method process method chosen. It may be surprising for the reader to learn that the two most effective methods of thermal heat transfer and loading density of nitriding system are:

- Fluidized bed nitriding
- Salt bath

These two methods of thermal energy transfer from the heat source to the work load are very thermally efficient because of energy conductivity and heat transfer.

Pye Metallurgical International Consulting Training notes

There are exciting developments taking place with the fluidized bed method of nitriding which enables the user to not only nitride, but to diffuse other elements such as aluminum (which is a nitride former) into the surface of the steel and thus increasing the surface hardness. (It must be said at this point, that it is not always a good thing to achieve very high hardness values on gears, simply because if thing here is subject to impact starting, the pressure the gear tooth may well begin to fracture and chip, thus causing serious premature failure)

The selection of the steel for gear manufacture comes down to core hardness conditions and support of the formed case. Some nitriding steels contain aluminium up to 1% in the analysis of the steel. This group of steels does not lend itself to the manufacturer of any type of gear, simply because of the aluminum being a strong nitride former which will result in extremely high surface hardness values.

Potential for Distortion

The other strong consideration for the use of the nitriding process for gear heat treatment is that there is no phase change that takes place in the steel while being heat-treated during the nitriding process.(Providing one nitrides at a selected nitride process temperature which is below that of the steels final tempering temperature).

Because of the diffusion of nitrogen into the surface of the steel, some growth will take place. Once the process cycle has been completed the system is simply cooled down, and no quench is involved.

Further, this means that distortion is not an issue as a result of quenching such as takes place during the carburizing heat treatment cycle.

It cannot be said that no distortion occurs during the nitriding cycle no matter which method has been chosen. Growth will occur as a result of nitrogen diffusion into the steel. However, the amount of growth will be dependent on the case depth selected.

Distortion will occur. The amount of distortion that will occur will still depend on the induced residual stress caused by machining practices of high feed and speeds.

Conclusion

The writer feels very strongly that nitriding has a tremendous growth potential because of the reduction of potential distortion due to low process temperature processing conditions.

Due to the potential of minimal growth occurrence, gear teeth can be machined to an under-size tolerance, and grown into size because of the surface growth that will occur during the nitriding process. A lapping tolerance can be left on the gear to accommodate the final required surface finish.

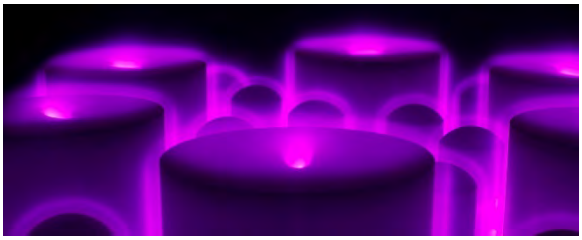
Sincerely, David Pye

Largest North American Commercial Heat Treats August 2019

Aug 12, 2019

With the recent acquisition of Applied Process by Aalberts Industries of the Netherlands it became necessary to update our list of the largest commercial heat treaters in North America. While were at it we took the opportunity to add one new entry to our list and also make a couple of other changes. The updated list can be found at *https://themonty.com/largest-commercial-heat-treats/* We will mention that it is now almost 20 years since "*The Monty*" put together our first list of the largest commercial heat treaters in North America. This is roughly the 6th update to our original ranking and like most things it gets better with age. It's a difficult task ranking what are largely privately held companies with little desire to share sales figures however after all these years we are quite proud of the accuracy of this list. (note; we are not going to guarantee 100% but, in our conceit, we feel it is possible). The basic criteria:

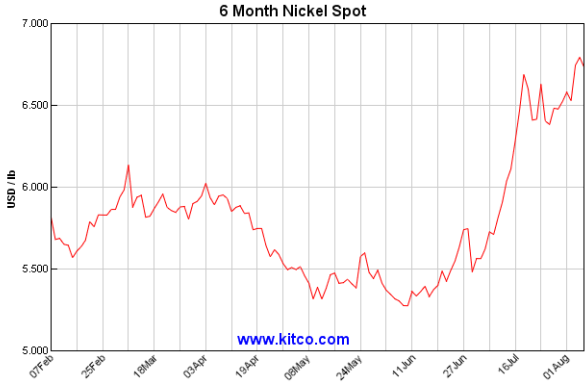
-this ranking is based upon sales figures for 2018
-sales would include plants in the USA, Canada and Mexico (although Bodycote's figures do not include their operations in Mexico)
-we are only considering companies whose core business is commercial heat treating. As an example, our understanding is that Commercial Steel Treating in Madison Heights, Michigan and their associated companies such as Curtis Metal Treating have sales in the area of $100 million USD per year. However, most of their sales are finishing as opposed to heat treating and for that reason we have excluded them.
-as a publicly traded company we have no issue sharing Bodycote's sales figures, however we have refrained with all the others on this list.
-while we started off with a "Top 10" list it grew to a "Top 14" list as you can see. The reason being that some of these companies are so close in size that it is difficult to include one and exclude another.
-as always we appreciate comments and corrections and indeed look forward to them



Are Alloy Prices Going Up?

Aug 12, 2019

As we all know the main factor when it comes to alloy costs is nickel, which means when nickel goes up the cost of baskets, base trays, radiant tubes and everything else goes up. While it hasn't gone through the roof you can see in this graph that nickel is edging up which means alloys costs will be edging up also.



Exactatherm Awarded Nadcap Merit Status

Aug 12, 2019

Located in Canada commercial heat treater Exactatherm was one of the first in North America to achieve Nadcap accreditation;

"Exactatherm, Mississauga, Ontario, announces that it has been awarded Nadcap Merit status for heat treatment, which means that, instead of having its next Nadcap audit in twelve months, it has been granted an accreditation that lasts until April 30th, 2021. "Congratulations to all the staff at Exactatherm, not only for obtaining Nadcap accreditation again, but for maintaining Merit status," says Dr Peter C. Lidster, President, Exactatherm Ltd. "This enables Exactatherm to continue to supply the aerospace industry, including Boeing, Safran, Airbus U.T.C., with world-recognized excellence in heat treatment services." Exactatherm has held Nadcap accreditation since 2006. Having demonstrated its ongoing commitment to quality by satisfying customer requirements and industry specifications, the Nadcap Task Group has determined that

Exactatherm has earned special recognition. "A less frequent audit schedule means a reduction in audit costs and associated pressures," says Michael J. Hayward, Executive Vice President and Chief Operating Officer at the Performance Review Institute. "It also demonstrates the trust that the aerospace industry has in Exactatherm, based on its past performance in Nadcap audits."

Upcoming Heat Treatment Exhibitions

Aug 9, 2019

Typically most heat treatment exhibitions are held in the fall and 2019 is no exception with 3 major shows worth mentioning. Chronologically the first is ***"13th Heat Treatment – 2019"*** an annual event being held in Moscow Russia September 17-19. The event bills itself as the only exhibition of thermal equipment and technologies in Russia and has been held for the past 13 years. A list of the exhibitors shows roughly half of the exhibitors are Russian suppliers, followed by European companies with a smattering of Chinese companies. What makes this show quite interesting this year is that IFHTSE (the International Federation for Heat Treaters and Surface Engineering) will be holding a Congress during the show which should be a major draw for the exhibit. While "The Monty" will be in attendance and providing photos this is the first time we will be attending which mean we can't comment on size or effectiveness of the show. http://www.htexporus.com/

"Heat Treat 2019" is the largest North American show of the year and our personal favorite. This is how the organizers, ASM describe this event which is the 30th; *"Heat Treat 2019, the biennial show from the ASM Heat Treating Society, is considered the premier, can't-miss event for heat treating professionals in North America. This year's conference and expo will feature an exciting mix of new technology, exhibits, technical programming and networking events geared toward the heat treating industry."* The event this year covers 3 days October 15-17th and is being held in Detroit, Michigan in conjunction with Motion + Power Technology Expo 2019 (formerly Gear Expo). Again "The Monty" will be at this event and providing live coverage. *https://www.asminternational.org/web/heat-treat-2019*

“HartereiKongress 19” in Cologne, Germany is a really top notch event and well worth attending. The organizers have this to say; *“HartereiKongress is the largest industry meeting for the heat treatment industry in Europe. As a symposium with the top-class program and a renowned trade fair, the HartereiKongress combines knowledge and practice in a unique way. It will cover topics like materials for lightweight construction, intelligent process control, innovations in the field of heat treatment, materials technology, manufacturing or process engineering, partial component heat treatment, and functional layers.”* This 3 day event is being held October 22-24th and while the exhibitors have in the past largely been European suppliers it has been changing over the years and the event is becoming more international. We have always found this to be a very interesting event and we will as usual be in attendance this year. *https://10times.com/hartereikongress* Their banner ad can be found on the right hand side of this page.

Delta H Installs Furnace at Kunsan Air Force Base

Aug 9, 2019

Well this is rather a cool picture isn’t it? *“GUNSAN, SOUTH KOREA—DELTA H commissioned a Dual Chamber Aerospace Heat Treating (DCAHTTM) furnace system to the United States Air Force while visiting Kunsan Air Base in South Korea. These highly specialized furnaces provide crucial heat treating capacity for military aircraft while adhering to the strict calibration and record standards of the Armed Forces. DELTA H Chief Technology Officer and Founder Richard Conway was there when the innovative technology was presented. “As a USAF veteran, there are few things more gratifying than personally delivering to our warfighters the absolute best and most practical technology possible for heat treating aircraft parts,” Richard shares. DELTA H’s DCAHT furnaces are designed exclusively to comply with the strict aerospace / military pyrometry standards AMS2750E and*

USAF/NAVAIR Technical Order 1-1A-9. They are also built in accordance with the aviation industry's uncompromising expectations for reliability and performance. With this exclusive technology, all aviation-grade metals such as aluminum, stainless steel, titanium and ferrous alloys can be rapidly heat treated in a single system. This minimizes critical downtime for mission-critical aircraft. Conway states, "Heat treating is vital to the mission of any airfield. When you look at any aircraft, it is not difficult to imagine all the metal parts – and every single one has been processed with heat in some form or another in order to have the necessary properties required." Nine Airmen stationed at Kunsan Air Base received certificates of training for Heat Treating Operation. Three outstanding servicemen were also qualified as trainers, and are now authorized to teach future operators how to effectively use the system. "Kunsan AB stands fearlessly in the face of a powerful and serious threat," Conway said. "Our warfighters deserve nothing less than the best and we are honored and humbled to be among their technology providers."

Solar Atmospheres Donated Vacuum Furnace to Lehigh University

Aug 9, 2019

"*Solar Atmospheres, in conjunction with the William and Myrtle Jones Foundation, has donated and installed a laboratory furnace for Lehigh University's Rossin College of Engineering and Applied Science. The furnace, The Mentor®, was designed and built by Solar Manufacturing. With SolarVac® Polaris control system, a hot zone capable of holding up to 250 pounds and a maximum temperature of 2800°F, the furnace was installed by Solar in Lehigh University's Whitaker Lab, along with the necessary Solar-built transformer and water cooling system, specifically designed for the installation. After a tour of Lehigh University in early 2019, Solar founder and CEO William R. Jones was struck by an idea to benefit Lehigh, their students, and Solar. "Bill was thoroughly impressed during his tour of the metallurgical labs," says Tim Steber, Regional Sales Manager for Solar Atmospheres. "He saw an opportunity to advance Lehigh's capabilities and launch them into another area." "The need for a pre-production size vacuum furnace for heat treating of additive manufactured printed parts and other metallurgical heat treating became apparent for Lehigh University and their teaching and experimental research," Jones states. "As a result, Solar Atmospheres, Inc. has donated a Mentor® vacuum furnace to Lehigh University."*

European Transmission Manufacturer Expands Vacuum Carburizing System

Aug 8, 2019

"In December 2016, Euroricambi, a manufacturer of transmission components based near Bologna, Italy, decided to invest in its own heat treatment line. Euroricambi's products serve the global aftermarket for commercial vehicle and bus transmissions. Previously, the heat treatment was carried out at local contract heat treaters using conventional, atmospheric furnace technology. The decision to

invest in vacuum heat treatment technology in-house was the intention to reduce dependence on external service providers and to improve quality, i.e. surface-oxidation-free, clean and low-distorted transmission components after heat treatment. Due to the requirements described above and the request to treat the entire, very broad product range of Euroricambi in one system, the company opted for ModulTherm® technology from ALD Vacuum Technologies GmbH in Hanau. At the end of 2017, a ModulTherm® system with 3 treatment chambers, a high-pressure gas quenching chamber and a vacuum oil bath was delivered. The fully automatic system consists additionally of a washing-machine, several tempering furnaces which are also used for pre-oxidation, cooling stations and an external transport system, which connects the components of the ModulTherm system with the peripheral system components. The system enables high process flexibility. Solid gear components such as shafts, spur gears and bevel gears are carburized in the plant and hardened directly in the oil bath. Other gear components are again carburized and hardened in the gas quenching chamber using up to 20 bar Nitrogen with particularly low distortion. Components with a high risk of distortion, such as synchronizer rings which cannot be hardened freely, are carburized in the system, cooled in the gas quenching chamber with low gas pressure or low gas velocity and then reheated in an induction system and hardened in a quenching fixture. The outstanding optical quality of the components quenched under vacuum in an oil bath was a particularly positive surprise. The used oil is a special development, which was designed in cooperation between Euroricambi and a local supplier and delivers excellent quenching results. After the plant has proven itself in daily production and being fully utilised, Euroricambi brought forward the planned expansion of the plant and decided to invest in 5 more treatment chambers at the end of 2018. Due to the foresighted configuration of the basic plant in the planning phase of the first delivery step, the current capacity expansion of the plant can be handled with the least possible effort and disturbance of the ongoing production operation. In the final expansion stage with 8 treatment chambers, the plant will have a heat treatment capacity of approx. 40,000 kg daily from October 2019, based on a case hardening depth of 0.8+0.4 mm."


Alfred Hutwagner, Principal Heat Treat Engineer at JTEKT North America

Aug 8, 2019

Al Hutwagner with almost 25 years heat treating experience at companies such as Bodycote, Bluewater, American Heat Treating and Aremac Heat Treating just became the principal Heat Treat Engineer at JTEKT North America Corporation in Greenville, SC, USA. We haven't see Al in a number of years but he always struck us as a very friendly competent fellow. JTEKT is a bearing manufacturer who incorporates in house heat treating at many or most of their facilities.

Lindberg/MPH Ships Four Chamber Stamping Furnace

Aug 7, 2019

"Lindberg/MPH announced the shipment of an Electrically Heated Four Chamber Hot Stamping Furnace to the Gestamp Research and Development facility located in Auburn Hills, MI. Gestamp is an international corporation that designs, develops, and manufactures metal automotive components. This hot stamping furnace features one stack of three high heat chambers and one low heat chamber. The maximum temperature rating of the high heat chambers is 1050°C and the low heat chamber is 540°C. Each furnace chamber was designed with load space dimensions of 36" W x 30" D x 8" H. The furnace is integrated at the Gestamp facility with a robotic transfer system and hydraulic hot stamping press. The four chambers operate independently with the top chamber designated for aluminum treatment. This type of hot stamping system allows the customer the flexibility to treat different steels simultaneously and takes up a much smaller footprint than a

continuous system. Click here to view a video of the integrated hot stamp furnace at the Gestamp facility."

Centorr Vacuum Ships Sintering Furnace

Aug 7, 2019

"Centorr Vacuum Industries, headquartered in Nashua, New Hampshire, USA, has shipped its new Sintervac AM furnace for the debinding and sintering of additively manufactured parts to a leading company in the Additive Manufacturing market. The company is an established supplier of sfurnaces to the global Metal Injection Moulding industry. The new furnace, which the company states is designed around its 2 ft3 furnace design, is rated for operation to 1600°C. Centorr's graphite furnace design reportedly includes graphite tube and block elements created for long service life, with a four-sided hot zone and integral graphite retort for temperature uniformity. According to Centorr, the retort also compartmentalises the residual offgassing from binder-jet materials used during part production, allowing them to be caught in the dual trapping system. The graphite insulation design provides long-term service even in the presence of process off-gassing and residual binder contamination. The company explains that the Sweepgas® debinding system allows for effective 'sweeping' away of the process contaminants, and furnace control is operated via the PLC/Programmable Controllers with Centorr's custom-designed HMI visualisation interface. The Sintervac AM design is available in sizes of 2, 4.5, 9, 12, and 16 ft3 volumes."

Bluewater Thermal, Kitchener, Canada

Aug 6, 2019

Bluewater Thermal based in SC has consistently made our list of the largest commercial heat treaters in North America for many years now *https://themonty.com/largest-commercial-heat-treats/* The company has 12 locations in North America including 1 in Kitchener, Ontario, Canada which was owned by the Beingessner family for many years and which was at one time the largest commercial heat treater in Canada. It is not the size it once was but remains an impressive facility as you can see in the photo below. Their name comes up today as our understanding is that Bluewater is putting a great deal of thought into the future of this location within the Bluewater organization.

Monday Morning Briefing

Aug 5, 2019

We are going to start this weeks ***"Monday Morning Briefing"*** with people news starting with ***John Carroll***. For almost 6 years John was Plant Manager at commercial heat treater ***Metals Technology Corp.***, in Carol Stream Illinois before he recently parted ways with the company. It appears that he has left the heat treating industry and is now General Manager at a company by the name of Arnold Magnetic Technologies in Marengo, Illinois. We move on to ***Joe Saliba***. Joe spent roughly 14 years at furnace builder ***Can Eng*** in Niagara Falls, Canada before moving to a furnace builder by the name of ONEX in Erie, PA, USA. We didn't realize until recently that Joe made another move and earlier this year became Business Development Manager for Mexican furnace builder ***Nutec Bickley*** a company which we have a very high opinion of. While he is working for Nutec he is working out of Canada.

How about ***Sue Harrod***? Sue worked for furnace builder ***Beavermatic*** for over 20 years until ending up as COO of furnace builder ***Diablo Furnaces*** in the Chicago area *(we will add that in 2015 Beavermatic was acquired by Premier Furnace in Michigan who continue to market furnaces under the Beavermatic name, as a matter of fact the company is just preparing to supervise an installation in the US Northeast but we digress).* Sue recently parted ways with Diablo and is now Senior Buyer at a company by the name of "A Great Place" again the Chicago area. We move on to ***Tim Wilson*** who is entering the heat treating industry with a company by the name of ***Duraloy Technologies***, in PA a company which provides alloy components to the industry. *"Duraloy Technologies is pleased to announce Tim Wilson has joined our organization. Tim will be responsible for business development and technical support. His background in working with Petrochemical and Steel customers in coatings for their various processes and furnaces is well suited to enable Duraloy to continue to excel in service to these two primary industries."*

From people news we move to a press release about ***Quaker Chemical*** and ***Houghton International*** (fluids for the meatal working industry) combining. We searched for a photo to go with this and came up with a picture of ***Scott MacKenzie*** of Houghton who we always think of as the "face of Houghton".

"Quaker Chemical Corporation and Houghton International have combined to create Quaker Houghton (NYSE: KWR), the global leader in industrial process fluids to the primary metals and metalworking markets. Along with the new name, the company revealed a new logo and brand representing the combined companies. The company will continue to be listed on the New York Stock Exchange and trade under the "KWR" ticker symbol. The combined $1.6 billion revenue company employs 4,000 associates serving 15,000 customers worldwide. Quaker was founded in 1918 and Houghton in 1865. "We are rooted in companies commonly acknowledged as authorities in industrial fluids and valued experts in customer processes," said Michael F.

Barry, Chairman, Chief Executive Officer, and President of the new company.

Mr. Barry, who previously served Quaker Chemical in similar capacities, went on to say, "Our similar cultures and values, combined with the talent and resources we bring to Quaker Houghton, create exciting opportunities to deliver innovative solutions that will help our customers' operations run even more efficiently and effectively." The company's combined breadth of product and service offerings can be found in end-markets such as aerospace, aluminum, automotive, machinery, can manufacturing, industrial parts manufacturing, mining, offshore, steel, and tube and pipe industries. With its expanded products and services portfolio, the company expects that cross-selling opportunities will facilitate continued above-market growth.

Specific products the company offers include metal cutting and forming fluids, corrosion protection fluids, specialty hydraulic fluids, and steel and aluminum rolling oils. In addition, legacy-Houghton customers will benefit from Quaker's strength in specialty greases, high-pressure die casting, mining specialties,

surface treatment and bio-based lubricants, while legacy-Quaker customers will now have access to Houghton's heat treatment quenchants, offshore hydraulic fluids, metal finishing products, and a broader metal removal fluids portfolio. "Our foundation will be the same customer-intimate operating model that has been key to the success of our customers," Mr. Barry said. "Moving forward together, we will draw upon our rich history and shared expertise to enhance our product and service offerings and continue to deliver value-added service expertise to our customers."

Furnace builder ***SECO/WARWICK*** recently landed an order in the US for a ***Nitrocarburizing line*** although we aren't sure who the end customer is;*"SECO/VACUUM, a SECO/WARWICK Group company, inks an order for a high-volume nitrocarburizing line serving a major car maker via a tier one supplier. The horizontal retort furnace is well known for its precision nitriding capability and productivity. The furnaces will allow the customer to produce, in North America, a significant number of parts used by automotive suppliers, and will be integral to a larger investment in the firm's component manufacturing operations. In addition to ferritic nitrocarburizing, the furnaces can also provide clean, stress relief processing. Lower operating costs, attractive return-on-investment (ROI), precise control of case depth, and high-volume processing are trademarks of SECO/WARWICK Group furnaces and automated handling systems. "Ferritic nitrocarburizing (FNC) is a form of gas nitriding and SECO/VACUUM offers many standard sizes and options suitable for both small commercial heat treaters as well as large automotive suppliers," said Piotr Zawistowski, Managing Director of SECO/VACUUM Technologies. FNC is gaining much popularity due to the resulting wear and anti-corrosion properties offered, including coupling with post-process high-temperature oxidation."* ***Advanced Heat Treat Corporation*** out in Iowa has been making some large investments recently

which we have been announcing. We have this photo of the addition to the Burton street facility in Waterloo, Iowa.

In Quebec, Canada we see an auction coming up which will most likely include some heat treating equipment. Located in Richmond, Quebec the company was formerly known as ***Groupe Trudo*** but now goes under the name Ontario Drive & Gear Ltd., or ODG Groupe Trudo. The heat treating equipment will probably include a small electric batch IQ furnace which came out of a Timken Bearing facility in New Hampshire-nothing fancy but probably a buyer will surface. And to round things out we have this photo of our friend ***Cihan Balaban*** in ***Turkey***. If you want to know anything about the heat treating industry in Turkey, Cihan is the man to talk to; *"Cihan Balaban, founding partner and general manager of Fornax, was the guest of the industrial agenda program Endustri Radyo this week."*

Commercial Heat Treat Shops For Sale

Aug 2, 2019

The sale of Applied Process to Aalberts Industries earlier this week demonstrated yet again that there is a strong demand in the market for commercial heat treat companies-although this is no surprise to anybody in the business. That being said we are aware of 3 others currently on the market. One is a reasonably large one located in Canada, the second is a small operation in the Rocky Mountain region with sales of under $1 million USD per year and the third is in the US Northeast again with sales under $1 million USD. We confidently predict that the two small

operations in the US will find buyers this year-if you would like more details let us know.

Largest North American Commercial Heat Treaters

Aug 1, 2019

Earlier this week we had this very interesting news item; *"It would appear that Netherlands based conglomerate **Aalberts N.V.** has acquired commercial heat treater **Applied Process**, one of the largest commercial heat treaters in North America. Aalberts, through their **"Hauck"** division is the second largest commercial heat treater in Europe as ranked by **"The Monty"** https://themonty.com/largest-european-commercial-heat-treaters-february-2019/"* In the official press release about the acquisition it was stated that Applied had annual sales of $26 million USD. When you combine this with sales at their ***Accurate Brazing*** facilities in NH, USA and SC, USA you quickly come to the conclusion that Aalberts has now become a substantial player in the North American commercial heat treating industry, so much so that we are going to have to update our list of the largest commercials in North America https://themonty.com/largest-commercial-heat-treats/ Our rough guess would be that they would rank as 9th largest-between FPM and ALD. By the way the rumor mill has been working overtime on this acquisition saying that Aalberts made an extremely aggressive offer for the Applied Process operations.

Complete Metallurgical Lab Available

Aug 1, 2019

We have come across a complete metallurgical lab which is available for sale. Located in the USA this is part of a captive heat treating operation which closed down recently. Included in the offering are a New Age Model Identron an ATM Brilliant 250 Precision Saw. An ATM Opal – 460 Mounting Press, a Hardness tester, microscopes and various other items. Some of these items can be viewed

at *https://themonty.com/lab-equipment/* -for a full listing please contact *jordan@themonty.com*

Wall Colmonoy Announces Fall Brazing School October 22-24, 2019

Aug 1, 2019

"Preserving the tradition originated by the late Robert Peaslee, a brazing pioneer who invented the first nickel-based brazing filler metal, Wall Colmonoy offers a fall session of Modern Furnace Brazing School on October 22-24, 2019 at Wall Colmonoy's Aerobraze Brazing Engineering Center in Cincinnati, Ohio. Engineers, technicians, quality managers, production managers, and others will participate in "hands-on" practical applications while learning about brazing technology from the industry's leading brazing engineers. For over 60 years, Wall Colmonoy engineers have been gaining practical experience on actual problems in brazing plants around the world. This three-day seminar offers knowledge and practical application on:

- *Brazing Design*
- *Metallurgical Aspects / Brazing Operation*
- *Brazing Atmosphere and Furnace Equipment*
- *Brazing Material Selection and Applications*
- *Quality Control*

Modern Furnace Brazing School instructors are:

- *Lydia Lee, BSE, M. Eng, MBA, Director of Brazing Engineering Center, Alloy Products Group, USA*
- *Russ Wilcox, BME, MBA, Technical Sales Manager, Alloy Products Group, USA*
- *Ron Yarnall, Sales Manager, Aerobraze Engineered Technologies, USA*

For seminar details and registration information, contact Jim Nicoll, Marketing Associate,at E. brazingschool@wallcolmonoy.com, T. 248.585.6400, ext. 233 or visit www.wallcolmonoy.com/brazing-school/"

USED EQUIPMENT

Want to get true market value for your used heat treating equipment?

themonty.com is the only way to do this! Unlike used equipment dealers we work on a commission basis meaning no high overheads, no buy and resells, no high expenses which means that you as a seller get what your equipment is worth-not what a used equipment dealer will pay you for it.

Not sure what your equipment is worth or how salable it is?

Let us know and we can give you a **free appraisal** and an honest answer about market conditions – **no BS**. Before listing we will require a signed copy of the "**Terms and Conditions**".

Please email Jordan at **jordan@themonty.com** all pertinent information including asking price (which we strongly recommend) age, condition and if possible photos. When selling please keep in mind that we do NOT ask for an exclusive sales agreement – ***if we don't sell it we don't get paid – PERIOD***. You can't lose by listing with **themonty.com** we sell your equipment or we don't get paid-period.

**WE HAVE ATTEMPTED TO DESCRIBE ALL EQUIPMENT ACCURATELY FROM THE INFORMATION WE HAVE AVAILABLE.
ANY MISTAKES ARE UNINTENTIONAL. WE DO NOT GUARANTEE THE ACCURACY OF THE INFORMATION, NOR CAN WE GUARANTEE THE PERFORMANCE OF THE EQUIPMENT OR SUITABILITY TO YOUR APPLICATION. THE EQUIPMENT IS SOLD AS-IS, WHERE-IS. WE STRONGLY ENCOURAGE YOUR PERSONAL INSPECTION OF THE EQUIPMENT BEFORE PURCHASE.**

BATCH IQ FURNACES

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#IQ468 Surface Combustion "Super 36 Allcase" Furnaces (2 available)

"Proelectric" 36″ X 48″ X 30″ High Surface Combustion batch IQ furnaces (2 available). Serial numbers BC-42068-1A and BC-42068-1B. Electrically heated with a maximum operating temperature of 1900F. Top cool, state of the art SSI touch screen controls and SSI oxygen probes. Quench oil filters and rear handlers. Both built in 1983. Currently running on endothermic atmosphere. Very good condition, complete and currently installed. Shut down very recently. **Asking $69,000 USD Each**

https://themonty.com/project/itemiq468-surface-combustion-super-36-allcase-furnaces-2-available/

Item#IQ467 Surface Combustion "Super 30" Allcase Line

Manufactured by Surface Combustion this is a complete line consisting of a Batch IQ furnace, charge car, temper and washer. Working dimensions of 30″ X 48″ X 30″. Batch IQ furnace S/N BX-41206-1. Electrically heated with top cool and updated SSI controls. Built approximately 1980. Set up for endo atmosphere with ammonia addition. Line is complete, installed and ready to go. Shut down approximately 5 months ago. Excellent condition. Please ask for complete details.

Charge Car. Manufactured by Surface Combustion this is a model SEDP-ER 30 48 Charge car suitable for a 30″ X 48″ batch IQ furnace. Extended reach. Installed but not currently in operation. Complete and ready to go.

Temper. Manufactured by Surface Combustion in 1972 this is an electrically heated temper with working dimensions of 30″ X 48″ X 30″. Serial Number BC-

39686. Maximum operating temperature of 1250F. Currently installed but not in use. Complete and in good condition.
Washer. Manufactured by Surface Combustion this is a dunk/spray washer with working dimensions of 30″ X 48″ X 30″. Model WWD 30-48-30, Serial number BC 42072-1. Electrically heated with a maximum operating temperature of 180F. Installed but not in use. Excellent condition.

Asking $79,000 USD For Everything

https://themonty.com/project/itemiq467-surface-combustion-super-30-allcase-line/

Item#IQ465 Surface Combustion “Super 36” Batch IQ Furnace

Manufactured by Surface Combustion in 2001 this is a gas fired batch IQ furnace with working dimensions of 36″ X 48″ X 36″ and a weight capacity of 3500 pounds. Set up for endo atmosphere. Pneumatically actuated quench elevator , top cool, furnace fan and updated SSI touch pad controls. Currently installed but not in use. Very good condition.

Asking Price $160,000 USD

https://themonty.com/project/surface-combustion-super-36-batch-iq-furnace/

Item#IQ463 Ipsen T-7 Batch IQ Furnace

Ipsen Model: T7-1000-DGM Batch IQ Furnace. Serial #52044. Type: Straight Through Atmosphere Integral Quench Furnace
Processes: Carburizing, Neutral Hardening and Carbonitriding
Heat Input: Natural Gas-Fired (12 Silicon Carbide Radiant Tubes)
Work Zone: 30”W x 48”D x 20”H
Max. Temp: 1850°F (Typically operated at 1750°F)
Max. Load Wt.: 1350 lb at 1550F
Quenchant Heating and Cooling: Yes (SBS Oil Cooler)
Loading/Unloading: Ipsen “T7 Trans. Loader” powered Front-end Loader and Roller Unload Table

Pit Required: None
Carbon Control: SSI Gold Probe
Controls: Super Systems, Inc. 9120 touch screen, with SSI Series 7 & 7SL controllers, Digital data logging (currently tied into plant-wide SSI Super Data system)
Insulation Type: Brick-lined
Condition: Refurbished by Unitherm, Converted to Eclipse Recuperative Burners (still under warranty)
Included: Any available spare parts, Ammonia Tank.
Footprint: 8'-6" Wide x 27' Long x ~14-1/2' High
Alloy: Grids and baskets may be available

Asking Price $59,000 USD

https://themonty.com/project/itemvf350-ipsen-t-7-batch-iq-furnace/

Item#IQB461 Surface Combustion Batch IQ

Surface Combustion Batch IQ Furnace. Standard Surface Combustion Integral Quench Furnace with single quench cylinder and rear handler. This furnace has "Trident" type radiant tubes with Eclipse burners and Eclipse recuperation. Natural gas fired 1,000,000 BTU's. Serial Number BX-35790-1. Max operating temperature 1750°F with a voltage of 460/3/60. Working dimensions of 30″W x 20″H x 48″L. Approximate external dimensions 10'w x 10'h x 15'l. Controls: Mounted and wired in a free standing panel includes a current SSi control system with PLC and computer. Very good condition and available immediately.

Asking Price $65,000 USD

https://themonty.com/project/itemb461-surface-combustion-batch-iq/

Item#IQB445 Surface Combustion Batch IQ's (3 Available)

Surface combustion gas fired batch IQ furnaces model "Super 36". Working dimensions of 36" wide X 48" deep X 32" high. Late 1980's vintage. Casemate controls, SBS quench oil filter. Set up for endo atmosphere with ammonia addition. Furnaces were in operation until February 27th 2018, now in indoor storage in the Detroit, Michigan area. Complete and in good operating condition. Alloy and brickwork in reasonably good condition.

Asking Price $99,000 USD Each Loaded On A Truck

https://themonty.com/project/itemb445-surface-combustion-batch-iqs-3-available/

Item#IQ442 SOLO Quenching Machine

SOLO Quenching Machine 209-30/30 6981 – 1150 °C. Built by Solo of Switzerland this is a SOLO 209-30/30 model. This furnace was manufactured in 1991. Quenching machine for self-hardening and oil quenching. Composition: quenching Bell Furnace, nitrogen quenching unit, tempering furnace, oil quenching unit, controller / programmer, operator panel, temperature controller, hydraulic control. Dedicated for austenitizing, annealing, tempering, oil quenching, quenching under nitrogen. Max. temperature: 1150°C. Main voltage: 3 x 400 V – 50 Hz. Power input: 10 kW. Effective load dimensions: Diameter 300 mm*Height 300 mm. Max. loading weight: 20 kg. Protective gas: N2 or mixture N2 to max. 5 % H2. Overall dimensions: Height 2200mm, width 2070mm, depth 2250m. Possibility of mounting and commissioning by the manufacturer (SOLO). Located in France. Good condition. All manuals included.

For Pricing Please Contact Jordan@themonty.com

https://themonty.com/project/itemb442-solo-quenching-machine/

Item#IQ441 GM Batch IQ Furnace

GM Batch IQ with Top Cool.Manufacturer: GM. Type: Integral Quench Furnace with Top Cool. Heated: Natural Gas – 1.2 M BTU's/Hour. Max. Temperature: 1450-1875 deg. Voltage: 460/3/60. Work Area: 36″W x 36″H x 48″L.Controls: All

mounted in two freestanding panels next to the furnace Includes motor starters relays, pushbuttons, signal lights etc. Honeywell indicating controller and overtempt. Honeywell circular chart recorder for recording temperature. Carbon control system.
Description: Furnace has (4) “U” shaped radiant tubes mounted vertically, (2) on each side wall. Heated by recuperated burners. Alloy roller rail hearth, alloy circulating fan, dual quench cylinders, top cool chamber and heated quench tank. Brick lined with fiber roof. Rear handler system, 1998 vintage. Installed, complete and operational. Condition: Very Good. Availability: Immediate.

Asking Price $150,000 USD

https://themonty.com/project/itemb441-gm-batch-iq-furnace/

Item#IQ439 Surface Combustion Batch IQ Furnace

Surface Combustion “Allcase” batch IQ furnace with working dimensions of 36″. X 48″ X 30″ high. Natural gas heating, 1 MBTU’s/Hour. Maximum operating temperature of 1750F, voltage 460/3/60. External Dimensions: 10’W x 12’H x 15’L. Controls: All mounted in a panel attached to the furnace includes motor starters relays, pushbuttons, signal lights etc. Honeywell digital strip chart recorder for recording temperature, indicating controller and overtemp. Partlow controls for oil heating/cooling. Description: Surface Combustion Allcase Furnace with (6) “U” shaped radiant tubes mounted vertically 3 on each side wall. Fiber lined. Alloy roller rail hearth, alloy circulating fan, dual quench cylinders, top cool chamber and heated quench tank. Furnace has some missing components (temperature controls, pressure switches, ignition transformers, regulator) which will be replaced prior to shipment. Condition: Very Good.

Asking Price $80,000 USD

https://themonty.com/project/itemb439-surface-combustion-batch-iq-furnace/

Item#IQ438 Holcroft Batch IQ Furnace Line

Holcroft Batch IQ Furnace Line.Model GP2500. Serial Number S/N #CJ-4233. Installed new in 1980. Gas fired, working dimensions of 30″ X 48″ X 30″ and a capacity of 2500 pounds. Furnace was operational until shut down on 11/30/17 when plant closed. Also included is a double ended charge car (Holcroft) to handle loads of 30″ X 48″and a Holcroft Spray/Dunk washer with heating system 30″ X 48″ X 30″. Complete, in very good condition and ready to go.

Asking Price $60,000 USD

https://themonty.com/project/itemb438-holcroft-batch-iq-furnace-line/

Item#IQ398 Sauder Batch IQ Line

Sauder Batch IQ Line. Serial Number 881978-83. Electrically heated 480/3/60/150kW total load. Maximum operating temperature of 1850F. Working dimensions of 24” Wide X 24” high X 36” long. Controls; Mounted and wired in an enclosure attached to the right hand side of the furnace includes a Marathon 10 Pro digital temperature controller, Marathon Carbpro digital carbon controller, Barber Colman analog high limit and a Honeywell digital strip chart recorder. Three power meters are face mounted to the same enclosure which monitor power in each zone of the furnace. A Halmar “SCR” power controller controls power to the heating elements. Two (2) Allen Bradley PLC controllers are mounted in the same enclosure. Standard In/Out Integral Quench Furnace w/Top Cool. This line consists of IQ furnace with top cool, heated quench tank, charge car, dunk & spray washer, temper furnace, SBS oil cooler, scissors table, atmosphere flow panel and several spare parts. Very good condition. Asking $125,000 USD for the complete line. Shipping Dimensions:
Temper Oven: 72″W x 11’H x 72″L
Washer: 80″W x 10’3″H x 120″L
Furnace: 109″W x 11’H x 96″L
Quench: 106″ x 10’H x 72″
Top Cool: Skid – 5′ x 5′ x 6’H

Charge Car: 78″W x 60″H x 86″L

Misc. skids, flow panel, SBS, spare parts

Asking Price $125,000 USD

https://themonty.com/project/itemb398-sauder-batch-iq-line/

BATCH FURNACES

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#B473 Pit Carburizing Furnaces (2 available)

Manufactured by Surface Combustion these are gas fired units with an operating temperature of 1750 F. SSI controls. Working dimensions of 48" X 72". Endo atmosphere with recirculating fan in the bottom. Currently installed but not in use. Excellent condition.

Asking $150,000 USD Each Loaded On A Truck

https://themonty.com/project/itemb473-pit-carburizing-furnaces-2-available/

Item#B472 Ionitech's Plasma Nitriding Cold-Wall furnace

Ionitech's Plasma nitriding Cold-Wall furnace ION-75CWI, with 2 Chambers and one control. The furnace is capable of Plasma Nitriding, Plasma nitrocarburising, and Post-oxidation, processing big and small parts and tools. The furnace has been used for 4 years at Ionitech's facility and has been taken care of perfectly – it is good as new. It still works daily. It has been retrofited to work with our absolutely user-friednly touchscreen control panel. The process is really easy to control. Ionitech gives full time support as maintenance and technology after purchase. Working dimensions of Chamber 1 are Ø 1000 mm x 1100 mm and max weight of tool for processing 1500 kg. Chamber 2 – Ø 750 mm x 2000 mm and and max weight of tool for processing 1500 kg. Purchase can be done with only one chamber. Located in Europe.

For Pricing Please Contact Jordan@themonty.com

https://themonty.com/project/itemb472-ionitechs-plasma-nitriding-cold-wall-furnace/

Item#B471 Lindberg Pit Nitrider

Lindberg Pit Nitrider. Lindberg Cyclone “Pit Nitriding” furnace with removable fan assembly & retort. There are twelve (12) bolt locks which seal the fan assembly to the gasket on the retort. Fan assembly sets on a steel stand when not in use. Alloy retort sets sets in a steel support when not in use. Electrically heated with a voltage of 230/3/60/105 kW. Model # 3896-E12 and serial # 14030. Max operating temperature is 1250°F. Working dimensions of 36″ diameter x 84″ deep with external dimensions of 5’w x 9’4″H x 7’l – Furnace Only. Controls mounted and wired in a free standing panel includes all necessary controls for proper operation.

For Pricing Please Contact Jordan@themonty.com
https://themonty.com/project/itemb471-lindberg-pit-nitrider/

Item#B452 AHT Fluidized Bed Furnace

Applied Heat Technologies (AHT) fluidized bed furnace. Treatment chamber is 300 mm diameter x 900 mm deep (roughly 12 in diameter x 36 in deep.) Maximum temperature is 1050 °C (1922°F). Maximum load is rated at 50 kg at 1000 °C (110 lb at 1832 °F) and 90 kg at 570 °C (198 lb at 1058 °F.) Mark® fluid bed furnace controller software. Silicon carbide heating elements, 25 kW, configured in delta. Piping is set to accept nitrogen, argon, hydrogen chloride (HCl), and hydrogen gasses. Inert material is P120 grit aluminum oxide (Al2O3) powder. The fluidized bed is designed to deposit vanadium carbide (and other carbides with correct chemistry) onto steel. The fluidized bed system comes with a propane burner, HCl detection system, and scrubber system. The system also has a hood and quench bed that came with it but these have not been used and it cannot be verified that they work. The fluidized bed system with scrubber is currently operational but is not being used. Almost new heating elements with one spare included.**Asking Price $99,000 USD**

https://themonty.com/project/itemb452-aht-fluidized-bed-furnace/

Item#B448 Kleenair Products Tip Up Style Furnaces

Tip Up Furnaces (3 available). Manufactured by Kleenair Products these “Tip Up” style furnaces have working dimensions of 60” wide X 60” high X 72” long. Natural gas heating-1200CFH. Maximum temperature 1500F & 2000F. 460/6/60 electrical. External dimensions of 8’W x 10’6″H (closed) x 14’L Each, 13’6″H when open. Controls: Temperature controls are missing. There is one (1) control cabinet which houses the flame relay modules, motor starters etc. and is common to all three (3) furnaces. Description: Currently available are two (2) 1500°F furnaces and one (1) 2000°F furnace. There is also one (1) loader and one (1) quench tank. Furnaces are ceramic fiber lined with Eclipse “TJ” direct fired burners. Burners fire from top rear and bottom front under the refractory piers. Dual hydraulic cylinders open/close the furnace cover. One (1) common hydraulic power unit for all three (3) furnaces. We will separate the line to sell individually or as a whole. We can provide hydraulic power units for each furnace. Very good condition.

Asking Price $55,000 USD Each

or

$150,000 USD For All Three

https://themonty.com/project/itemb448-kleenair-products-tip-up-style-furnaces/

Item#B436 Lindberg Pit Gas Nitrider

36″ x 60” pit gas nitrider (Lindberg Homo Nitrider – electric) built in late ‘70’s, c/w with Super Systems Gas Nitriding Control system built in 2012. System was operational up until decommissioning last year, when it was replaced with new equipment. Price includes fixtures shown in pictures.

Asking Price $50,000 USD

https://themonty.com/project/itemb436-lindberg-pit-gas-nitrider/

Item#B426 Plateg Plasma Nitriding Unit

Manufactured by Plateg this is a Plateg Puls Plasma Nitriding unit. Type; Hot Wall Plasma Nitriding Furnace (Tandem). Built in 1997, the programmer was replaced in 2017. Working dimensions of 1000 mm diameter X 1250 mm high. Load capacity 1000 kg. Installed power 95 kW, 400 V, 50 Hz, 160 A. Located in Turkey.

Asking Price $98,000 Euro

https://themonty.com/project/itemb426-plateg-plasma-nitriding-unit/

Item#B415 J.L.Becker Car Bottom

J.L. Becker Car Bottom. Working Dimensions are 96″ wide x 180″ Long x 66″High with a Maximum Temperature of 1,800 Deg. F. Natural Gas fired with 4.3 Million Btu's. Serial Number: J 2060. Double Ended Car Bottom with Air Operated Doors to accommodate Dual – Full Length Motorized Cars. Each Car is 108″ wide x 200″ long with Castable Refractory Floor Insulation – Sand Sealed. The Furnace is Fiber/Refractory Lined with 8 Tempest Burners (4) per side wall, firing opposite and opposed. The Exhaust Flues are floor level mounted for excellent temperature uniformity. Temperature Controls : Free Standing Panel Honeywell Digital Controls and Honeywell Tru-line Circular Chart Recorder.

Asking Price $95,000 USD

https://themonty.com/project/itemb415-j-l-becker-car-bottom/

Box Furnaces

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#BOX468 eSierraTherm Elevator Hearth Box Furnace

Model; LTCC-16-24-4A. Voltage; 240V 3Ph 109A 60Hz. Maximum operating temperature of 1050 degrees C. Working dimensions of 16" high x 24" wide x 24" deep.

General Application Parameters:

- Maximum Temperature Rating: 1050° C
- Atmosphere System: Designed for air atmosphere.
- Heating Method: Ceramic fiber block with imbedded resistive wire heating elements.
- Batch processing: bottom load elevator

Rated to 1050 °C, this SierraTherm Series features an energy efficient, ultra clean, low mass refractory heating chamber. All models include the MicroTherm Windows based user interface with 20 segment temperature and gas flow programming. Temperature cycling can be programmed using starting and ending temperature, rise and cooling rates, and time duration. Multiple vertical heated zones, as well as power trimming to all four element panels (left, right, front, back) provide for precise temperature stability and control throughout the process chamber. A sophisticated atmosphere inlet and exhaust system features four independently adjustable gas inlets and corresponding exhaust ports to efficiently extract burn-off effluents throughout the process chamber. Excellent condition.

Asking Price $59,500 USD

https://themonty.com/project/itembox468-esierratherm-elevator-hearth-box-furnace/

Item#467 L & L Special Furnace Box Furnace

Model MDL.FB777-FA11-01-G394-480R39H96, Serial Number H496LN. Electrically heated 480/3/60/150 kW/187 Amps. Maximum operating temperature of 1800F. Working dimensions of 72″W x 72″H x 72″L (7’Cube Inside), outside dimensions of 9’W x 12’5″H x 8’L. Controls; Mounted and wired in a free standing NEMA 1 enclosure with fused disconnect on the left hand side of the furnace. Honeywell UDC digital temperature controls for control and high limit. Strip chart recorder and process timer is also included. SCR provides consistent power to the heating elements. A cooling blower with filter helps with cooling the enclosure. Furnace is lined with ceramic fiber on all sides, top, and bottom between the castable piers. The door is a double hinged right hand swing type door with four (4) hand wheel clamps for a tight seal. The furnace hearth consists of 4 rows of castable spaced evenly for forklift loading. Hearth capacity is 10,000 pounds. Alloy based nickel chrome coiled heating elements are located on both side walls, rear wall and door which provides uniform heating. There is a 2 HP roof mounted fan in this furnace. Door limit switch cuts power to the heating elements and fan when the door is open. Very good condition.

Asking Price $47,500 USD

https://themonty.com/project/item467-l-l-special-furnace-box-furnace/

Item#BOX466 Grieve Top Loading Furnace

Model# PT-3642, Serial# 140. Manufactured by Grieve this is a top loading furnace with working dimensions of 36” Wide X 42” Deep X 36” Long and a capacity of 31.5 cubic feet. Electrically heated 460/3/60 @ 70 KW, 2,000 F maximum operating temperature. Description; Manually operated counter balance door, brick lined, helical coil Kanthal heating elements on all four sides, gasketed cover fully self contained. Temperature Controls; Honeywell “Dial a Troll” control with “Dial a Pak” Overtemp. Built in 1982. Very good condition.

Asking Price $14,500 USD

https://themonty.com/project/itembox466-grieve-top-loading-furnace/

Item#BOX465 Electra Box Furnace

Electra Box Furnace. Floor model high temperature box style furnace with a manually operated vertical lift door with counterweight for easy operation. A door limit switch cuts power to the elements when the door is opened. The furnace is refractory lined and has a silicon carbide hearth plate supported on brick piers. Twenty four silicon carbide elements mounted horizontally across the furnace chamber, 12 elements over the top and 12 under the hearth for good uniform heating. Electrically heated with a max operating temperature of 3000°F. Model # 6724 and serial # 1184. Voltage of 460/3/60/16 kW. Working dimensions of 8″W x 6″H x 30″L and external dimensions of 44″W x 90″H x 70″L. Controls are located on the right hand side at the rear of the furnace. There is a Barber Colman model 560 digital controller, a Barber Colman 560 high limit and a Barber Colman strip chart recorder. Also on the rear of the unit in a protected area is a Robicon SCR to control the elements and a high limit contactor. A voltage reduction transformer is mounted on the framework under the furnace chamber.

Asking Price $8,500 USD

https://themonty.com/project/itemb465-electra-box-furnace/

Item#BOX464 Lindberg Box Furnace

Lindberg Box Furnace. Pneumatically operated vertical lift door with convenient foot pedal operator. The door slides up and down on the sloped front breast plate. A flame curtain is mounted directly under the door. A limit switch activates a solenoid to start the flame curtain to burn off any escaping atmosphere. The interior is refractory lined. Heavy gauge rod style heating elements are located on both side walls, and on the floor under the alloy hearth plate for excellent temperature uniformity. The alloy hearth pan has 2″ high sides to prevent product from falling off the pan. Flow meters attached to the side of the furnace regulate the flow of atmosphere into the furnace. There is an Endothermic gas flow meter and a Natural Gas flow meter. Electrically heated with a max temperature

of 2000°F. Model # RO 122410-A and serial # 19229. Voltage is 480V/3/60/15 kW, 67V. Working dimensions of 12″W x 10″H x 24″L with external dimensions of 54″ wide x 64″ long x 85″ high. Controls are mounted and wired in a separate enclosure. There is a Leeds & Northrup digital temperature controller with display screen and a Leeds & Northrup model 2077 high limit safety. Control switches are flush mounted on the front of the panel. The panel has a Square D flange mounted fused disconnect switch. Honeywell flame safety relay, purge timer relays and control transformer are mounted inside the enclosure A second enclosure with circuit breaker disconnect switch houses the Halmar SCR power controller. A step down transformer is supplied to provide low voltage to the elements.

Asking Price $7,500 USD

https://themonty.com/project/itemb464-lindberg-box-furnace/

Item#BOX463 Lindberg Box Furnace

Lindberg Box Furnace. This furnace has an air operated vertical lift door with foot pedal control. “Rod Overbend” heating elements are located in the hearth and both sidewalls. An Alloy hearth with brick piers supports the work load. The atmosphere system consists of a “Waukee” Nitrogen flowmeter and flame curtain. Atmosphere enter the furnace chamber through the rear wall. Manuals and drawings are included with this furnace. Electrically heated with a max temperature of 2000°F. Model # 11-ROMT243618-20A and serial # 859266. Voltage is 460/3/60/40 kW, 92V Secondary. Working dimensions of 24″W x 18″H x 36″L with external dimensions of 6’W x 9’H x 8’L. Controls Mounted in a free standing panel includes a Honeywell UDC digital temperature controller, Honeywell Dial-a-Trol high limit and a Honeywell strip chart recorder. The step down transformer for the heating elements is mounted in the same enclosure. Power to the heating elements is controlled through a “Halmar” SCR. This electrical enclosure is air conditioned to prevent overheating of the SCR.

Asking Price $14,500 USD

https://themonty.com/project/itemb463-lindberg-box-furnace/

Item#BOX458 Noble Furnaces Box Furnace

Manufactured by Noble Furnaces this is a gas fired box furnace capable of 2,000F. Furnace has a vertical lift front door with a charge car and retort. Furnace has working dimensions of 8’ X 8’ X 6” high (approximate). 330SS retort has working dimensions of 70” diameter X 42” high. Vendor has been processing aerospace parts in an argon atmosphere in the retort, however furnace can be used without the retort. Excellent condition, currently installed and in operation.

Asking Price $80,000 USD

https://themonty.com/project/itemb458-noble-furnaces-box-furnace/

Item#BOX449 Lindberg Atmosphere Box Furnace

Lindberg/MPH air atmosphere box. Model Number: 11-ROMT-243624-20, Job Number: 224745. Chamber Dimensions: 24” W x 36” D x 24” H. Electrically heated 40KW. Max Temp: 2,000°F. Capacity: 1,200 lbs. @ 2,000°F. Elect. Input: 480/3/60. SCCR Rating: 65 KW. F.L.A.: 5 AMPs. Elect. Drawing: 7315-1134-OOA. Largest Motor/Load: 40 KW. Control Panel is included. Manufactured Date: September 2016. Never used this unit is available for immediate delivery with a full warranty.

Asking Price $60,000 USD

https://themonty.com/project/itemb449-lindberg-atmosphere-box-furnace/

Item#BOX437 Ipsen Recirculating Box Furnace

Ipsen Recirculating Box Furnace 38” high x 43” wide x 48” deep. Gas fired, 1,000,000 BTU/hr with a max temperature: 1400 deg.F. Model Number: DL-3036. Serial Number: 60458. Updated controls, Honeywell indicating controller

and overtemp. High temperature tempering furnace. Vertical lift air operated door with overhead air cylinder. Fiber board insulation. Alloy roller rail hearth. Direct fired furnace, but the heating chamber is separate from the work chamber and has a high velocity roof mounted circulating fan. Top mounted package burner. Complete combustion controls and safeties. 460/3/60 power. Test fired prior to shipment.

Asking Price $39,500 USD

https://themonty.com/project/itemb437-ipsen-recirculating-box-furnace/

Item#BOX425 Lindberg Box Furnace

Manufactured by Lindberg. Working dimensions of 42″ high x 48″ wide x 14′-0″ long. Electrically heated 480/3/60, 160 KW. Operating temperature of 2000F. Temperature Controls: Free standing enclosed panel with updated Honeywell controls, including circular chart recorder, SCR controls, back up contactors and step down transformers for the heating elements. Description & Features: Fiber lined. Heated by Nichrome ribbon heating elements on both side walls. Two zones of control. Air cylinder operated door. Includes motor driven load/unload system. 8000 pound capacity. Originally installed at Boeing. Condition: Good. Vendor will repair the back wall, replace all broken element hanger modules and provide and install serviceable heating elements.

Asking Price $85,000 USD

https://themonty.com/project/itemb425-lindberg-box-furnace/

Item#BOX397 Drever Atmosphere Box Furnaces

“Lift-Off” Atmosphere Box Furnaces (2 available). Manufactured by Drever. Effective working dimensions of 10’6″ Wide x 35′ Long x 6′ High. Gas fired-12,000,000 BTU/Hr. Max. Operating temperature of 1450F. Description; Ceramic Fiber Lined, Vertical Rising Atmosphere “Lift-Off” Furnace complete with (26) U-

Shaped Radiant Tubes, North American Burner System, (4) Top-Mounted Alloy Circulating Fans, (4) Zones of Control, Stationary Hearth, “Knife-Edge” Atmosphere Seal, and Hydraulic Lifting Cylinders on each end of furnace. Furnace is capable of 100,000 lb. loads. Instrumentation; Free-Standing Control Panel with Honeywell PLC Digital Temperature Controller, and Honeywell Flame Safety System. Very good condition. Overall dimensions of 15’11” Wide x 41′ Long x 13’6″ High. Approximate weight 70,000 pounds. Units each can hold up to 100,000# loads and were used prior for tempering/normalizing wire rod and bar stock. Both of these have top mounted recirculating fans and are “atmosphere capable”, good for FNC work.

Asking Price $325,000 USD Each

https://themonty.com/project/itemb397-drever-atmosphere-box-furnaces/

Item#BOX374 R&G Services Atmosphere Box Furnace

Atmosphere Box Furnace. Manufacturer: R&G Services, Inc. Inside Dimensions: 18″ high x 32″ wide x 36″ deep. Heated: Electric, 230/3/60, 60 KW. Temperature: 2100 deg. F Model Number: EB-183236 Serial Number: 77021 Temperature Controls: Updated indicating controller and overtemp. Description & Features: Air operated vertical rising door. Slanted face plate. Brick lined with silicon carbide hearth. Heated by heavy Nichrome ribbon heating elements. Atmosphere inlet and burn-off. Flame curtain with controls and safeties. Condition: Very good. Furnace will be cleaned & painted, repaired as necessary, checked out & test fired prior to shipment.

Asking Price $18,000 USD

https://themonty.com/project/itemb374-rg-services-atmosphere-box-furnace/

CONTINUOUS FURNACES

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#C346 Lindberg High Temperature Mesh Belt Brazing Furnace

Lindberg mesh belt furnace line with a maximum operating temperature of 1100C. Belt width 12" with a heated length of 72"-7 zones of control. Cooling length of 36" with a total overall furnace length of 20'. Maximum load height is 1.5" at full belt width, 2" maximum height at centre of belt. Control cabinet 40" wide X 74" high. Inconel muffle and belt. Gas safety system for explosive atmosphere is not functional, currently using a non-explosive atmosphere of H2/N2 for AgCu brazing. Currently in use. Very good condition and absolutely complete.

Asking Price $39,500 USD

https://themonty.com/project/itemc346/

Item#C345 BTU-TCA Series Belt Conveyor Furnace

Specifications:

BTU-TCA Series Belt Conveyor Furnace
Metallic muffle
120" heating chamber
4" clearance above the belt
18" wide belt
10 Zones
1100 degC. Max.
24" each..loading and unloading tables
OAL: 29.0 Ft
Microprocessor controls
76 KW, 440/3/60

Overtemp. protection

Water cooling sections

N2 curtains front and back with burn-offs

Protective atmosphere: DA with N2 purge

$50,000.00 USD Loaded on your truck

$42,000.00 USD Where is/as is

https://themonty.com/project/itemc345-btu-tca-series-belt-conveyor-furnace/

Item#C343 48” Diameter Rotary Hearth Furnace

Manufactured by “Erco” this is a model “Erco FRH 48” rotary hearth furnace. Electrically heated 480 volt, 3 phase 60 cycle. 48” diameter with a single 15”X 12” high door. Appears to be in good condition. Ceramic motorized hearth, brick lined heat chamber with heavy gauge NiChrome ribbon elements, fibre lined lift off roof, air operated foot pedal, 6.5” think brick lined door.

Asking Price $12,500 USD

https://themonty.com/project/48-diameter-rotary-hearth-furnace/

Item#C342 Two CM High Temperature Pusher Furnaces

Each system includes …Common frame with power and control components. Heavy gage welded construction. Atmosphere containment doors with protective atmosphere flushing. “Moly” elements wound a ceramic tube muffle. Alumina brick insulation. Water jacketed cooling section. Microprocessor temperature controller. Phase angle fired SCR control units. Overtemperature protection controller. Type “C” thermocouples.

Model 345-48-3Z. 4” opening x 5” wide x 48” long heating chamber, 3 zones. 54 KW, 480/3/60. Hydrogen/Nitrogen atmosphere with safety system. Max. temperature rating: 1700 deg.C.

Asking Price: $23,450.00

Model 366-48-1Z. 6” opening x 6” wide x 48” long heating chamber, single zone. 45 KW, 480/3/60. Hydrogen/Nitrogen atmosphere with safety system. Max. temperature rating: 1700 deg.C.

Asking Price: $22,550.00

https://themonty.com/project/itemc342-two-cm-high-temperature-pusher-furnaces/

Item#C341 CI Hayes Mesh Belt Furnace

Used CIHayes Conveyor Type Muffle Furnace. Super Solitaire 27. NH3 & Nitrogen Inlet Flowmeters. Combustible atmosphere system with N2 purge. Inconel Muffle with internal hearth plates. Furnace (6) Nichrome Ribbon Elements. AD150 (6) Nichrome Ribbon Elements 314SS Mesh Belt rated 3# per linear foot loading @ 2000F. Type: Model LAC-MB-030627-AD. Hot Zone: 27”Long Heated Length, 6”wide Mesh Belt, 3”Work Height. Overall Dim.: Approx 2-1/2’ Wide x 5’ High x 20’ Long. Max Temp.: 2100F (1150C) Continuous at 2000 deg.F Elec Utilities: Furnace 18kw, Contactor Power Switching, Wired 240/3/60. AD150 15kw, Contactor Power Switching, Wired 240/3/60 Controls: Honeywell Temp Control & Honeywell Overtemp Control, Both. Furnace and 150 CFH Ammonia Dissociator. Rear mounted Belt Drive with Indexing Control. Digital speed readout 0-20ipm. Extended Front Entrance Tunnel with Nitrogen Curtains and Burn-off Stack.

Asking Price 18,000 USD Loaded On A Truck

https://themonty.com/project/itemc341-ci-hayes-mesh-belt-furnace/

Item#C339 Can Eng Mesh Belt Furnace

Operating temp. to 2050 F. Work zone: 18” wide x 12” high x 132” heated, 33’ stainless steel cooling section. Power: 575 volt, 3 phase. 176 KW. 2 zone temperature control. Brick lined chamber. Silicon carbide heating elements

above and under the belt. Silicon carbide hearth tiles. 2 tap transformers. Approximate overall size: 8’ wide x 7’ high x 60’ long.

Asking Price 14,900 USD

https://themonty.com/project/itemc339-can-eng-mesh-belt-furnace/

Item# C337 Mesh Belt Furnace Line, 4,000 Pounds/Hour

Manufactured by Atmosphere Furnace Company in 1995 this is a complete mesh belt furnace line designed for hardening of fasteners. Gas fired. 4,000 pounds per hour capacity. Line included Metro Scale loading system, hydraulic bin dumper, vibratory shaker and scale, belt width 60”. Oil quench and temper. Line is complete, installed but has not been run recently. Very good condition. More details and photos to come.

Asking Price $250,000 USD

https://themonty.com/project/item-c338-mesh-belt-furnace-line-4000-pounds-hour/

Item#C335 SOLO Compact Belt Furnace

Compact belt furnace 321-7-90 6677 1000°C. Built by Solo of Switzerland this is a SOLO 321-7-90 model. This furnace was manufactured in 1990. Composition: Loading frame, heating part with frame, cooling part with frame, unloading frame, driving system, conveyor belt, NH3 cracker 3m3/h, distribution for treatment and cabinet gas, operator panel. Dedicated for annealing under cracked ammonia, brazing and hardening. Max. temperature of 1000 °C Heated length: 900 mm, cooled length: 1500 mm, channel section: 80 x 40 mm, Main voltage: 3 x 380 V – 50 Hz / TN, power input: 10,5 kW, gas generated: 75% H2 and 25% N2 (NH3), effective height with belt: 30 mm, conveyor belt width: 70 mm, external dimensions: L 5300 mm x l 800 mm x H 1250 mm. Perfect condition, ll manuals included. Located in France.

For Pricing Please Contact Jordan@themonty.com
https://themonty.com/project/itemc335-solo-compact-belt-furnace/

Item#C324 C.I. Hayes Mesh Belt Furnace

LAC Type. Work Zone: 12″ Wide Belt, 12″ High work area, 12′ heat, 12′ cool with 3 zones of temperature control. 1120C maximum temperature (2000F operating temperature). Power: 220V, 75KW, 212Amp, 60Hz , 3Ph. “Air Products” Gas Mixing Panel (N2, H2). Footprint: 9’W x 54’L (90’L Belt), 10’H + ductwork. Extra set of cooling muffles.

Asking Price $49,500 USD
https://themonty.com/project/itemc324-c-i-hayes-mesh-belt-furnace/

Item#C323 Aichelin Cast Link Furnace Line

The line consists of a loading table, cast link belt hardening furnace, oil quench, cross conveyor, post wash and two continuous tempering furnaces. High belt is 24” wide X 300” long with a capacity of 336 Kg/h. Nitrogen/Methanol atmosphere. Electrically heated 300 kW. Operating temperature of 1650F. Quench oil tank holds 7,000 litres. Air/oil quench oil cooler. Post wash has oil skimmer. Both tempering furnaces are electrically heated, 57 kW each. Belt widths 20” X 250” long. Maximum operating temperature of 575F. Installed in 2005 and used for processing automotive bearings. Recently removed from operation and now in indoor storage. Excellent condition.

For Pricing Please Contact Jordan@themonty.com
https://themonty.com/project/itemc323-aichelin-cast-link-furnace-line/

Item#C321 Ipsen Austempering System

Ipsen Model SG500, S/N52822. Shaker hearth style hardening furnace is capable of 500 pounds/hour, 1850F operating temperature, gas fired 800,000

BTU's/hour with an 18" wide tray. Temper has an operating temperature of 800F and a heat input of 300,000 BTU's. Controls on both are Honeywell UDC units. Entire system consists of a magnetic conveyor loading system, Ipsen shaker-feeder-hopper. Mitsibushi variable speed AC drive on salt conveyors, 900 gallon wash tank with 30" conveyor and 280 gallon rust inhibitor tank with 32" conveyor. Currently installed but not in production. System is in reasonable condition but has not been used for some time.

Asking Price $20,000 USD

https://themonty.com/project/itemc321-ipsen-austempering-system/

Item#C314 Wellman Roller Hearth Furnace

Manufactured by Wellman in 1982. Model #AL-81-180 RH, S/N 180. Working dimensions of 60" Wide x 42' Long x 14" High – 4800#/HR. Electric – 480/3/60 – 469 KW (over (4) Zones of Control). Operating temperature of 1650° F. Brick Lined Atmosphere Capable Roller Hearth Furnace complete with (4) Zones of Control, Heating Elements above and below Rolls, Transformers, 25' Slow Cool Chamber (Air Cooled with Fans), and Variable Speed Drive. Free Standing Control Panels with Watlow Digital Controllers ((1) Per Zone), Watlow High Limits, and SCR Power Controls. Overall dimensions; Entrance Chamber: 12'Wide x 14' Long x 10' 6" High. High Heat Chamber: 10' 6" Wide x 30' Long x 10' 6" High. Cooling Zone: 12' Wide x 27' Long x 10' 6" High. Approximate weight 80,000 pounds. Very good condition.

Asking Price $225,000 USD

https://themonty.com/project/itemc314-wellman-roller-hearth-furnace/

Item#C308 AFC Mesh Belt Hardening Furnace

Manufactured by Atmosphere Furnace Company this furnace has working dimensions of 6″ high x 54″ wide x 12′ long (heated section). Gas fired with

radiant tubes. Operating temperature of 1800F. S/N 6948. Temperature Controls: Free standing enclosed panel. Honeywell solid state digital readout indicating controllers, L&N overtemps. L&N strip chart temperature & carbon recorder. Marathon Monitors Carb-Pro carbon control. Description & Features: Fiber lined. Heated by (9)North American 4724-2-E burners firing into recuperated U-tubes. Two zones of control. Rear zone has a roof mounted recirculating fan. Cold belt return. Furnace has a flame curtain and complete combustion controls and safeties. Includes quench tank and conveyer.

Asking Price $75,000 USD

https://themonty.com/project/itemc308-afc-mesh-belt-hardening-furnace/

Item#C301 Rogers Engineering Cast Link Furnace Line

Manufactured by Rogers Engineering 4,000 pounds/hour cast link belt furnace line consisting of a 1750F high heat furnace and 1700F temper furnace. Serial # CC-3977-0 (1997). High Heat Furnace: 48″W Omega Cast Link Belt, 4″ pitch, 3″ sides. Furnace has a 30’L heating section. Four (4) zones of control with three (3) roof mounted in the last three (3) zones. Maximum operating temperature of the hardening furnace is 1750°F. Furnace is radiant tube heated with recuperators. Furnace is currently set up for Endothermic w/Enriching Natural Gas & Air. Total BTU’s for hardeneing furnace is 3,180,000 BTU/HR. Controls; All mounted in a free standing panel includes Allen Bradley PLC w/HMI Touchscreen, Honeywell UDC Digital Temperature Controls, SSi Carbon Controls. Voltage 480/3/60/200kW.
Tempering/Anneal Furnace: 60″W mesh belt with support rollers. Furnace has a 35’L heating section. Four (4) zones of control with four (4) roof mounted fans. Maximum operating temperature is 1700°F. Total BTU’s for the tempering/annealing furnace 3,790,000 BTU/HR. Please note that this furnace has two (2) different modes of operation. Click on ‘PDF” below for more information on the different modes of operation.
The sequence of this furnace is as follows:

– Load parts into pre-wash dump loader
– Pre-Wash, 190°F, Gas Heat
– Parts vibrate onto mesh (soft load) then onto cast link belt.
– High heat cycle
– Quench cycle, 200°F, Gas Heat, 8000 Gallon
– Wash cycle, 190°F, Gas Heat
– Temper cycle
– Oil blackening cycle
Includes:
– 5600 CFH Air Cooled Endothermic Gas Generator
– SBS Air to Oil Heat Exchanger which consists of three (3) 5 H.P. fans.-
Manuals & Drawings
Very good condition, available immediately.

Asking Price $650,000 USD

https://themonty.com/project/itemc301-rogers-engineering-cast-link-furnace-line/

Item#C269 C.I. Hayes Mesh Belt Furnace

Working dimensions of 5″ over belt, 12” wide X 120” of heated length. Electrically heated 230/3/60, operating temperature of 2100F. Model LAC. Temperature controls are new state of the art, control panel with Honeywell sold state digital readout controller and overtemp for each of three zones, includes volt and amp meters. Full alloy muffle in hot zone. 20’ long sealed water jacketed cooling. Globar heating elements over and under the belt. (3) zones of control. (4) argon flowmeters. Dayton AC inverter provides adjustable belt speed. Updated SCR controls. Muffle and belt are new. Very good condition.

Asking Price $29,000 USD

https://themonty.com/project/itemc269-c-i-hayes-mesh-belt-furnace/

DRAW/TEMPER OVENS

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#T370 AFC Holcroft Tempers (2 Available)

Manufactured by AFC-Holcroft in 2013 these are model UBTN-E (Universal Batch Tempering Nitrogen Electrically heated) units. Working dimensions of 36" wide X 48" deep X 36" high with a 4,000 pound capacity. Maximum operating temperature of 1450F. Pneumatically actuated door, roller hearth conveyor on 22 ½" centers, 50 ½" from floor to top of rollers. Touch screen controls were updated by SSI in 2015 and last calibrated in 2016. Atmosphere Engineering electronic flowmeter for nitrogen addition. Installed but not in use. Excellent condition. Originally $115,000 USD.

Asking Price $45,000 USD Each

https://themonty.com/project/itemt370-afc-holcroft-tempers-2-available/

Item#T369 Surface Combustion Temper Super 36

Serial numbers BC-42071-1A and BC-42071-1B. Working dimensions of 36″ wide X 48″ deep X 30″ high. Electrically heated with a maximum operating temperature of 1400F. Shared control panel. Built in 1983. Very good condition. Currently in operation, available September 2019.

Asking Price $35,000 USD Each

https://themonty.com/project/itemt369-surface-combustion-temper-super-36/

Item#T368 Surface Combustion Super 30 Temper

Manufactured by Surface Combustion in 1972 this is an electrically heated temper with working dimensions of 30″ X 48″ X 30″. Serial Number BC-39686. Maximum operating temperature of 1250F. Currently installed but not in use. Complete and in good condition.

Asking Price $29,000 USD

https://themonty.com/project/itemt368-surface-combustion-super-30-temper/

Item#T366 Wisconsin Temper Oven

Wisconsin Oven Model EWN-618-6E, NEW in 2012, 500F, Inside 6’ W x 18’ D x 6’ H, Outside 9’6”W x 19’3”D x 9’11”, 96KW on 480V/3/Approx. 133 Amps, 10HP/8,600CFM recirculating fan, 1HP/9CFM forced exhaust, UL listed control panel, shipping weight 6,500 lbs., uniformity (+/-)10, viewing window, 8 port jack panel, doors front and rear, digital controller, safety disconnect switch, emergency stop button, horizonal airflow, aluminized steel interior, high limit control, adjustable louvers, aluminized steel interior

Asking Price $39,950 USD

https://themonty.com/project/itemt366-wisconsin-temper-oven/

Item#T362 Electric Temper 30” X 48” X 30”

Manufactured by Selas (Pacific Scientific). Model PKMD 100-E, Serial number 662-0585. Working dimensions of 30”X 48” X 30”. Operating temperature of 1450F. 65 KW, 460 Volt, 3 Phase. Very good condition.

Asking Price $19,500 USD

https://themonty.com/project/itemt362-electric-temper-30-x-48-x-30/

Item#T361 Tempers 30” X 48” X 30” (2 available)

Manufactured by Pacific Scientific these have working dimensions of 30” x 48” x 30”. Model PKMD 100-E. Serial numbers 662-0208P and 662-0420. Electrically heated and rated for 1450°F. 65 KW, 460 Volt, 3 Phase. Very good condition

Asking Price $17,500 USD Each

https://themonty.com/project/itemt361-tempers-30-x-48-x-30-2-available/

Item#T360 Wisconsin Oven

Model SBH-222, 650F, inside dimensions 2'W x 2'D x 2'H, horizontal airflow, Allen Bradley Panel View Plus 600, hi-limit, door switch, audible/visual alarm, 240/3 with 12 KW heater, Honeywell chart recorder, 2 shelves.

Asking Price $7,900 USD

https://themonty.com/project/itemt360-wisconsin-oven/

Item#T359 Seco Warwick Vacuum Temper Furnace

Model VTR-5050/48. Serial Number 586/2005. Purchased 3/21/2006. Work Zone Dimensions, 36W X 48D X 24H. Originally qualified for 900°F to 1260°F with +/- 10°F uniformity. Vacuum pump is Stokes Model 212-11, Blower is Stokes Model 310-41. The operating system is Wonderware Intouch. Internal circulation fan. 460 VAC 3 phase. The buyer will be responsible for removal. The furnace will be available for removal in April 2019. It is currently still in operation.

Asking Price $50,000 USD Or Best Offer!

https://themonty.com/project/itemt359-seco-warwick-temper-furnace/

Item#T358 Wisconsin Oven Like New (2 Available)

Wisconsin Oven Model EWN-55-5G8, 800F, 5'W x 50'D x 6'H, overall 9'6" W x 11'D x 11'H, 10HP/7000CFM recirculating fan, combination airflow, adjustable louvers, airflow switch, 600 CFM exhaust, Eclipse 450,000BTU burner, UL listed control panel, Honeywell recorder, Honeywell programmer, digital hi-limit, disconnect switch, vertical rise doors on both ends, insulated floor, exhaust hood. Excellent Condition.

Asking Price $29,500 USD Each

https://themonty.com/project/itemt358-wisconsin-oven-like-new-2-available/

Item#T356 Wisconsin Oven Temper Furnace

Wisconsin Oven Temper Furnace. Recirculating gas fired batch temper with air operated vertical lift doors on each end. Eclipse package burner with roof mounted recirculating fan distributes heated air in a combination air flow pattern. Roller rail hearth with chain guide. Furnace includes two (2) scissor lift tables. Manuals & drawings are included with this furnace. Natural Gas – 1 MBTU's/Hour. Model # SDB-6616-10G and serial # 033899307. Max operating temperature is 1000°F with a voltage of 480/3/60/16 Amps. Working dimensions of 36″W x 36″H x 96″L with external dimensions of 96″W x 13'4″H assembled (10'6″H shipping) x 11'L. Controls mounted and wired in an enclosure with fused disconnect attached to the side of the furnace. Temperature controllers consist of a digital Barber Colman 560 digital for temperature and a Barber Colman digital "Limitrol" 75L high limit. ATC process timer to control heating cycle and Barber Colman digital round chart recorder. Allen Bradley switches for control power, circulation fan, ignition and gas valve reset. Signal lights for control power, air flow, high/low gas pressure, purge, etc. Eclipse package burner with Honeywell flame safety, UV scanner and spark ignition.

For Pricing Please Contact Jordan@themonty.com
https://themonty.com/project/itemt356-wisconsin-oven-temper-furnace/

Item#T352 Pyradia Tempering Oven

Pyradia Oven 48" X 48" X 48". Electrically heated oven manufactured by Pyradia. Model P06P048048048HMTGV, Serial Number 2002-12-15977-1. Working dimensions of 48" X 48" X 48". Operating temperature of 1200F. Recirculating fan. 600 volts, 3 phases, 54KW. Vertical lift Door with double pivots. Convection style, 32,000 CFM. Built in 2004 this oven has been used for a total of 40 hours and should be considered like new.

Asking Price $39,000 USD

https://themonty.com/project/itemt352-pyradia-tempering-oven/

Item#T349 Eclipse Recirculating Box Furnace

Recirculating Box Type Draw Furnace. Manufacturer: Eclipse. Inside Dimensions: 30”high x 42”wide x 96”deep. Heated: Gas fired. Temperature: 1250 deg.F. Model Number: Box Draw. Serial Number: 3424-00773. Temperature Controls: Updated controls, Honeywell indicating controller and overtemp, circular chart recorder. Description & Features: Vertical lift air operated door. Brick lined. Alloy roller rail hearth. Seven adjustable roof baffles. Rear combustion chamber with atmospheric burner and high velocity recirculating fan. Complete combustion controls and safeties. Includes manual load table. Condition: Very Good, Operational.

Asking Price $39,500 USD

https://themonty.com/project/itemt349-eclipse-recirculating-box-furnace/

Item#T342 Precision Quincy Recirculating Walk In Oven

Recirculating Walk In Oven. Manufactured by Precision Quincy. Working dimensions of 72″high x 48″wide x 120″deep. Gas heated, 300,000 BTU’s per hour. Operating temperature of 450F. Model EC-410, S/N 25766. Temperature Controls: Partlow indicating controller and overtemp. Side mounted control cabinet. Double swing open doors, horizontal air flow. Powered exhaust blower, rear mounted combustion and fan chamber. Atmospheric type burner system. Complete combustion controls and safeties. Air flow switch. Oven will be checked out and test fired prior to shipment. Approximate shipping weight 4,310 lbs.

Asking Price $16,500 USD

https://themonty.com/project/itemt352-precision-quincy-recirculating-walk-in-oven/

Item#T341 McLaughlin Services Temper Furnace

Temper Furnace 36” X 48” X 36”. Made by McLaughlin Services. Working dimensions of 36” X 48” X 36”, 5,000 pound capacity. Gas fired 750 cfh @ 2-5 PSI, 750,000 BTUH. Operating temperature 250F to 1400F, +-10F. Electricity; 40 Amps, 480V/3Ph. Compressed Air; 100 psi, Intermittent. Temperature Controls; Super Systems 9130 Temperature Controller with 12” Touchscreen, Super System 7SL 1/16 DIN Limit Controller. Logic Controls; Allen Bradley Micrologix PLC is included for alarming and sequencing.

Asking Price $91,000 USD

https://themonty.com/project/itemt341-mclaughlin-services-temper-furnace/

Item#T340 Safed/Borel Annealing Furnace

Safed/Borel Annealing Furnace built in 1991. The working dimensions consist of: Diameter 400 mm, Height 500 mm. External Dimensions: 1800 mm x 1767 mm x 2412 mm. Maximum Temperature: 650 C with a maximum load capacity of 100 kg (not including baskets). Main voltage is 3 x 400V / 50 Hz, Control voltage is 230V / 24V. This setup includes a Eurotherm programmer, threshold controller, recorder, programmable clock, timing relay, control for water flow, vacuum pump, pressure reducer, and fire engine. Located in France.

For Pricing Please Contact Jordan@themonty.com

https://themonty.com/project/itemt340-safed-borel-annealing-furnace/

Item#T335 Despatch Temper

Batch Oven 37″H X 37″W X 25″D. Batch type recirculating oven manufactured by Despatch, Model V-29-STD. Inside dimensions of 37″ high X 37″ wide X 25″ deep. Electrically heated 480/3/60, 12 KW. Operating temperature of 500F. Serial number 126552. Temperature Controls: Partlow indicating controller and Honeywell overtemp, timer. Double swing open doors. Side mounted recirculating fan. Adjustable horizontal air flow. Provisions for 12 shelves, 4 shelves included. Powered exhaust blower. Oven has been checked out and test fired and is ready for immediate shipment. Excellent condition.

Asking Price $5,500 USD

https://themonty.com/project/itemt335-despatch-temper/

Item#T325 Despatch 3-Station Temper Furnace

Manufactured in 1980 by Despatch Industries, Inc. 3 Independently loaded and operated furnace stations with shared panel. Tops elevate off bases for loading and unloading. Work Zone: 22”W x 40”L x 25”H Each. Hearth Height: Estimated at 36-40” (Can measure for you). Max. Temperature: 850ºF with a Uniformity of +/- 25ºF (Center area of 12”W x 20”L x 10”H meets +/-10ºF). Electrically heated with a power of 490V/3Ph/60Hz. 3 West 4400 Temperature Contrl. & West 6700 Hi-Limit. (We can quote upgrade to new Super Systems, Inc. controls, if desired.). Just rebuilt. New heating elements, new hearth ceramics, New stainless steel side panels, new paint.

Asking Price $20,000 USD

https://themonty.com/project/itemt325-despatch-3-station-temper-furnace/

Item#T320 Pifco Conveyor Oven

Electrically heated 2 zone conveyor oven 480/3/60/144 kW. Maximum operating temperature of 600F. Work area; 72”W x 12”H x 25’L heated length. External dimensions 9’W x 10’H x 40’L – approx.. Controls; Mounted and wired in a free standing panel includes an Allen Bradley PLC with PanelView Plus 1000 touchscreen interface. Power to the heating elements are controlled through two (2) Allen Bradley “SCR” power controllers, one (1) for each zone. An Allen Bradley PowerFlex “VFD” controls oven conveyor belt speed. Standard two (2) zone electrically heated conveyor oven with a wire on edge belt. This oven has a 10’L load end and 8’L unload end with cooling. Access doors with “Brixon” door latches on both sides of oven and one in each heating chamber. Very good condition.

Asking Price $59,000 USD

https://themonty.com/project/itemt320-pifco-conveyor-oven/

Item#T318 Eisenmann Box Tempers (4 Available)

*Large Box Temperin*g Ovens (4 available). Built by Eisenmann in 2002, Model # HN-FNC-002. Working dimensions of 108” Wide x 96” Deep x 64” High. Natural gas fired, 3.2 million BTU’s per hour. Operating temperature of 1200F.
Description; Stainless Steel Lined Recirculating Box Tempering Oven complete with Top-Mounted Alloy Recirculating Fan (20 HP – 13,000 CFM), Rear-Mounted Heater Box with Eclipse Burner System, Alloy Skid Hearth, Forced Cool Down Fan System (7,333 CFM), Vertical Rising Motor Driven Front Door, and Stationary Loading Table.
Instrumentation; Free Standing Control Panel with Eurotherm Digital Set Point Programmable Temperature Controller, High Limit, Chessel Strip Chart Recorder, and Honeywell Flame Safety System.
OVERALL DIMENSIONS: Oven: 13’ Wide x 20’ Long x 17’8” High (includes Door Structure. (Shipping Dimensions: 12’6” Wide x 20’ Long x 10’8” High). Loader:

9’6” Wide x 12” Long x 4’ High. Approximate weight 20,000 pounds. Excellent condition, operational.

Asking Price $72,500 USD

https://themonty.com/project/itemt318-eisenmann-box-tempers-4-available/

Item#T303 Pifco Temper Furnace

S/N 8177 built in 1988. Working dimensions of 126” long x 60” wide x 40” high. Overall dimensions of 13’ x 11’ x 11’ high. Comes with load and unload discharge tables and combustion fan. Maximum operating temperature 950 deg. F. Rated for 250 pound net weight x 37.4in long tray loaded every 15 minutes. Furnace holds three (3) trays. Approximate nineteen (19) minutes to operating temperature. Forty-five minutes in furnace @ 15 minute load cycle. Heated by one gas burner approximate rating 600,000 BTU/hour. Utilities required: 1000 BTU natural gas @ 5PSI, 480v 3Ph 60Hxz. Water 80 deg. F maximum @ 20PSI. Compressed air 60PSIG minimum. Adequate drain for water. Good condition.

Asking Price $20,000 USD

https://themonty.com/project/itemt303-pifco-temper-furnace/

Item#T286 Lindberg Box Temper

Model 11-7212048-G14, S/N 24947. Working dimensions of 72” wide X 120” long X 48” high. Gas fired with a maximum operating temperature of 1200F. Vertical lift-air operated door, brick lined, 5 course refractory hearth, alloy roof baffles, alloy side wall ducts, dual zone burners-roof mounted combustion chambers with dual belt driven fans. Free standing prewired control panel. Good condition.

Asking Price $65,000 USD

https://themonty.com/project/itemt286-lindberg-box-temper/

GENERATORS

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#G201 South Tek Nitrogen Generating System

Manufactured by South Tek Systems of Wilmington, NC., in 2012. Model STS N2-GEN 250S. Output of 2875 SCFH at 99.5% purity. Footprint of 48″ X 50″ X 119″. Shipping weight of 3925 pounds. Installed but not in use. Excellent condition.

Asking Price $30,000 USD

https://themonty.com/project/itemg201-south-tek-nitrogen-generating-system/

Item#G199 2000 CFH Endothermic Generator New 2015

Manufactured by Unitherm Industries in 2015. Model EG 2000, Serial Number 102113-2. 2,000 CFH capacity. Maximum operating temperature 2000F. Natural Gas fired. SSI atmosphere controls includes AC-20, Series 7 Temperature control, 7SL Hi Limit. Installed but not in use. Excellent condition. Last operated December 31/2018.

Asking Price $29,500 USD

https://themonty.com/project/itemg199-2000-cfh-endothermic-generator-new-2015/

Item#G198 Sunbeam Endothermic Generator

3,000 CFH Endothermic Generator. Manufactured by Sunbeam, model # ENG-30, S/N F-377-79. Gas fired, operating temperature of 1900F. Temperature Controls: Upgraded controls. Honeywell digital indicating controller and overtemp. Single alloy retort. Selas compressor. Waukee flowmeters. Air cooled. Package burner. Complete combustion controls and safeties. Good condition.

Asking Price $22,500 USD

https://themonty.com/project/itemg198-sunbeam-endothermic-generator/

Item#G197 Lindberg Ammonia Dissociator

Manufactured by Lindberg. 1,000 CFH. Model Number: 16-1000-HYAM. Serial number 26004. Electrically heated, 460/3/60, 30 KW, 37.6 amps. Operating Temperature: 2000 deg.F. Temperature Controls: Honeywell indicating controller and overtemp. Standard Lindberg design with vertical sealed catalyst chamber. Ceramic fiber insulation. Nichrome heating elements. Air cooled heat exchanger. Includes pressure gauges, SSOV, Waukee DA flowmeter. Includes operating manual and drawings. Very good condition. Unit is complete and guaranteed operational.

Asking Price $11,500 USD

https://themonty.com/project/itemg197-lindberg-ammonia-dissociator/

Item#G196 Surface Combustion Endo Generator

Surface Combustion 5000 CFH Endo Generator. Serial number AC 42332-1A. Maximum temperature 1950F. Barber-Coleman controls with digital recorder and over temp. Air cooled. Shipping dimensions of 8’5” W X 10’1” high X 8’11” long. Very good condition. Included is a new pump.

Asking Price $31,500 USD

https://themonty.com/project/itemg196-surface-combustion-endo-generator/

Item#G178 Sargeant & Wilbur Ammonia Dissociators (4 Available)

Built by Sargeant & Wilbur, 4 electrically heated Ammonia Dissociators. Model GAD3000E. 3,000 CFH capacity. Maximum temperature 1759F. Voltage 480/3/60/60 kW. External dimensions of 5’W x 6’H x 8’L. **Controls:** Mounted and wired in a free standing panel includes the following:
– Yokogawa UT 350 digital control for dissociator undertemp.

– Yokogawa UT 350 digital control for dissociator overtemp.
– Yokogawa UT 350 digital control for dissociator temperature control.
– Two(2)Yokogawa UT 350 digital controls for vaporizer lower/upper zone.
– Yokogawa UT 350 digital control for vaporizer overtemp.
– All necessary signal lights, timers etc.
Mounted in the same control cabinet are three (3) SCR's. Two (2) "Halmar Robicon" and one (1). "Ametek". One is for dissociator heating elements and the other two are for vaporizer lower/upper zone heaters.
Description: Electrically heated Ammonia Dissociator suitable for supplying up to 3000 CFH of atmosphere with a composition of 75% Hydrogen and 25% Nitrogen. This atmosphere is obtained by cracking anhydrous ammonia vapor in a catalyst filled vessel maintained at a temperature of 1700°F to 1850°F. Incoming ammonia pressure is reduced before retort entry. At the outlet of the retort the hot dissociated ammonia passes through a dry cooler where the gas is cooled to near room temperature. It then passes through a flowmeter and on to the consuming device. This dissociator includes a Sargeant & Wilbur Ammonia vaporizer. This dissociator is provided with two (2)catalyst filled heat resisting alloy retorts. The retorts are mounted within the insulated dissociator heating chamber. The heating chamber consists of heavy Mullite T-Slot tiles. Retorts are heated with Sinuous-wound Nichrome Ribbon Heating elements which are mounted in the tile slots. The element tails and studs extend through the rear wall of the dissociator. Elements can be removed throught the rear wall without having to unpack furnace insulation etc. A step-down transformer (480V to 240V 112.5 KVA) is included. Manuals and drawings are also included. Very good condition.

Asking Price $29,500 USD

https://themonty.com/project/itemg178-sargeant-wilbur-ammonia-dissociators-4-available/

Item#G176 Surface Combustion Endo Generator

Manufactured by Surface Combustion. Natural gas heated 675 CFH/HR. Model # RX 35-75-3V. Maximum temperature 1950F. 7500 CFH capacity. Controls are complete, water cooled. SSi atmosphere controls and Atmosphere Engineering “Endo Injector”. Very good condition, ready to go.

Asking Price $75,000 USD

https://themonty.com/project/itemg176-surface-combustion-endo-generator/

Item#G173 Lindberg Endo Generator

4500 CFH, gas fired. Retorts and brickwork are in excellent condition however it requires temperature controls and an air cooler (vendor has partially completed changing from water cooling to air).

Asking Price $17,500 USD

https://themonty.com/project/item173-lindberg-endo-generator/

Item#G169 Gasbarre / Sinterite Endo Generator

3000 CFH, electrically heated 460/3/60/63 Amps/50kW. New in 2006. External dimensions of 106″ wide x 75″ deep x 116″ high. Controls are enclosed in a panel attached to the side of the generator. Honeywell UDC 3200 digital temperature controller and Honeywell UDC 2500 digital high limit safety. Control switches with indicating lights are flush mounted in the enclosure. Flange mounted fused disconnect switch for control power. Separate non fused disconnect for the main power. Waukee flow meters are manifold mounted for incoming and outgoing gases. Flow meters include: Natural Gas 0-1000 CFH, Air 0- 2500 CFH, (3) Mixed Gas 0-1500 CFH and Endo 0- 3500 CFH. Step down transformer for reduced voltage to the heating elements. Electrically heated 3 retort generator. Refractory lined shell with vertically mounted retorts. Total of twelve (12) silicon carbide heating elements, 6 on each side are mounted through the chamber for

good uniform heating of the alloy retorts. The natural gas and air pass through a Waukee “mixor” valve then into the Waukee gas pump. Mixed gas enters the 3 “mixed gas” flow meters, through the Selas fire checks and enters the top of the retorts. The gas travels through the catalyst filled heated retorts and exits at the bottom. The exiting Endothermic gas passes through water cooled chambers then finned cooled air heat exchangers then through the Endothermic flow meter. A pressure regulator is supplied on the exiting gas piping. Good condition.

Asking Price $29,500 USD

https://themonty.com/project/itemg169-gasbarre-sinterite-endo-generator/

INDUCTION HEATING SYSTEMS

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#I184 Pillar Mark 11 100kW 10 kHz Power Supply

Manufacturer: Pillar
Model No. Mark 11
Mfg. Date: 1996
100 kW, 10 kHz
Runs well, in good condition. Was running until recently when uninstalled.

Asking Price $15,000 USD With Shipping Included

https://themonty.com/project/itemi184-pillar-mark-11-100kw-10-khz-power-supply/

Item#I183 Pillar Single Spindle Induction Scanning System

Manufactured by Pillar Induction this is a Model; AB7102-107/MK 11, Serial Number 3815. Voltage; 480V/3/60/266 Amps/222 KVA. Power supply; 200 kW, 3 kHz with a 24″ Scanner. System is skid mounted with a footprint of 8'W x 10'H x 12'L. Controls; Mounted and wired inside an enclosure with fused disconnect includes an Allen Bradley SLC5/04 with touchscreen interface. This system includes a Pillar MK 11 200 kW, 3 kHz power supply, stainless steel DI water system w/plate & frame heat exchanger, 24″ scanner attached to heat station and stainless steel electrically heated quench tank. Very good condition.

Asking Price $75,000 USD

https://themonty.com/project/itemi183-pillar-single-spindle-induction-scanning-system/

Item#I182 2007 Ajax/Tocco 48″ Vertical scanner

2007 Ajax/Tocco 48″ Vertical scanner (42″ max hardening length). Single spindle with a 300# weight capacity
Touchscreen controls with 15″ monitor. Recipe storage for 500 part files. Quality assurance signature monitoring includes: Energy monitor at the coil, quench pressure, flow and temperature 400 KW, 1.1 – 3.0 kHz power supply integrated to the vertical scanner. Both scanner and power supply are in excellent operating condition.

Asking Price $75,000 USD
https://themonty.com/project/itemi182-2007-ajax-tocco-48-vertical-scanner/

Item#I181 Pillar Induction Heat Treat System 50 kW, 50 kHz

This is an automatic Lift and Rotate Machine with a single lift position and TWO heat stations allowing for heating in two different locations in one machine cycle. The two heat stations are controlled by a transfer switch that transfers power from one position to a second position. This is a manual load/unload automatic cycle machine with Allen Bradley controls and Panelview 1000 operator interface. It has an automatic door close/open and light curtain for operator safety. Power Supply is a Pillar MK11 50 kW, 50 kHz IGBT Type. Entire unit is mounted on a common base for easy transport and re-installation. Other details include:

Rotational Drive Speed (Variable): 0- 200 RPM
Integral Quench Reservoir: 100 Gallon
Dimensions (Induction Heater) (L x W x H): 155″ x 120″ x 115″
Weight Estimate: 20,000 Lbs.

Asking Price $49,500 USD
https://themonty.com/project/itemi181-pillar-induction-heat-treat-system-50-kw-50-khz/

Item#I180 Lepel/ Inductoheat SP12-100 kW-30 kHz

Inductoheat /Lepel Induction Power Supply. This is a Lepel/ Inductoheat SP12-100 kW-30 kHz IGBT type induction heating power supply with Integral Heat Station. This is an older version of a currently offered Inductoheat Power Supply. The SP12 power supply is designed to match multi-turn coils (400- 2000 V) that are used for hardening, tempering, tube heating, crystal growing, brazing, wire/strip heating and many other induction heating applications. A wide variety of heating coils can be properly matched with built-in load tuning capacitors and multi-tap output isolation transformer. This has a REMOTE OPERATOR PANEL which can be used to operate the power supply if it is placed away from or oriented away from the heating operation. This is an optional extra cost item when purchased with this power supply. It can be shown operating. There is no warranty but it is sold with the assurance it is in good working order. It will be connected and tested in our facility. Start up and Training service is available at extra cost by an experienced induction heating service engineer. We can also offer repairs and servicing for Induction Power Supplies.

Asking Price $24,500 USD
https://themonty.com/project/itemi180-lepel-inductoheat-sp12-100-kw-30-khz/

Item#I179 Semi-Automatic Pin Hardening System 25kW, 3/10 kHz

Ajax Pachydyne 25kW, 3/10 kHz pin annealing/hardening system. This is a small automatic system for Induction Heat Treating small pins. Includes a power supply with matching heat station and a small fixture for heating and drop quenching small diameter parts. Also includes a small conveyor to drag out the parts from the quench container and water to water cooling and recirculating system and a quick-change coil bus adapter. Good condition.

Asking Price $14,900 USD

https://themonty.com/project/itemi179-semi-automatic-pin-hardening-system-25kw-3-10-khz/

Item#I178 Inductoheat Pick & Place Induction System

Used Inductoheat Automated 100kW, 400 khz pick and place heat treating machine. This machine has been taken out of production due to completion of a contract. It is in good working condition and is still connected to power. It can be run for the buyer prior to shipping. It was used to harden a gear part 45” in dia. Could possibly be retooled for different part processing within the limits of the machine capabilities. This machine includes a SOLID STATE TRANSISTOR (Thermatool) power supply. These are very heavy-duty power supplies which are generally made by Thermatool for tube welding operations that usually run 24/7. This machine includes:

• Input conveyor with gating and part pickoff locator.
• Three arm Pick and Place mechanism that picks one part from the infeed position, one part from the heating position and one part from the cooldown station. All are transferred at the same time.
• Head Position includes placement into the heating coil, air operated part hold down, rotation, heating and quenching. Quick Change Coil Adapter is also included.
• Cooldown/Exit Idle position includes cooling quench flow.
• Exit position with push off onto exit conveyor with reject station
• Auto Lube System • Quench cooling and recirculating system with bag filter
• Water cooling and recirculating system.
• PLC Control with Panelmate interface
• Most Drawings and DVD Manual Included.
• Optional 6 Ton Chiller available.

Asking Price $85,000 USD

https://themonty.com/project/itemi178-inductoheat-pick-place-induction-system/

Item#I177 Ajax 2 Station Spindle Scanners

This is an integrated Ajax 2 Station (single spindle per station) 150 kW, 10 kHz Scanner System. It has a single SCR type power supply with a transfer switch to

send power to station A or B. It has a single shared Quench Recirculating System with bag filter, single shared Water Recirculating System. Each station has a PLC Control and servo control. PLC is A/B SLC 5/03, Pacific Scientific Servos, and Nematron MMI. Also has Quick Change Coild Adapters (would cost about 4-5k today). This was built in 1998 but appears to have been well maintained and contains currently serviceable components.

Asking Price $89,500 USD

https://themonty.com/project/itemi177-ajax-2-station-spindle-scanners/

Item#I174 Ajax Tocco Induction Power Supply & Heat Station

Manufactured by Ajax/Tocco in August 2005. 480V three phase input is rated to be 1.2MW (1200KW). 660V three phase input is rated to be 2.2MW (2200KW). Unit requires three phase input of 480V, 2500A. System is deigned to work at 2.5 kHz in frequency. Requires 65 GPM of cooling. Buyer must have a dedicated transformer at the three phase input for this machine. Buyer must provide their own coils, bus, and water-cooled cables to attach power supply to heat station and heat station to coils. Limited warranty available. Note: Currently set up to work at 480V input voltage. In order to switch to 660V, buyer needs to change the input breaker. Excellent condition.

Asking Price $120,000 USD

https://themonty.com/project/itemi174-ajax-tocco-induction-power-supply-heat-station/

LAB EQUIPMENT

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

ITEM#L23 "True Blue" Rockwell Hardness Testers (2 available)

We have available 2 true blue rockwell hardness testers for sale. both are currently used daily and both calibrated. both capable of testing in many different scales, 10 inch stroke. purchased new approximately 2003. very good condition. new these would be approximately $25,000 each.

Asking $7,000 Canadian each (approximately $5,000 USD)

https://themonty.com/project/iteml23-true-blue-rockwell-hardness-testers-2-available/

Item#L22 ATM Brilliant 250H Wet Saw

Available is an ATM Brilliant 250 H wet saw and ATM pump with wash down and filtration. Saw can accept a 12 inch blade. This unit is operated manually, works well and is in daily use. daily. Vendor has upgraded his lab and this is surplus.

Asking Price $8,000 Canadian (roughly $5,500 USD) or best offer.

https://themonty.com/project/iteml22-atm-brilliant-250h-wet-saw/

Item#L11 Leco Metallagraph

Leco Metallagraph.

Asking Price $8,500 USD

https://themonty.com/project/iteml11-metallagraph/

MISCELLANEOUS HEAT TREAT EQUIPMENT

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#M434 Aqua Vent Furnace Cooling System

Aqua Vent furnace cooling system Model#CSK-200-240-EDP-ST. Along with the cooling system goes a heat exchanger Model# AVR-35-25. The manufacture date is 1-10-2014. Both of the units are in like new condition. The have been stored inside since being taken out of service. New around 22,000 USD.

Asking Price: 8,000 USD

https://themonty.com/project/itemm434-aqua-vent-furnace-cooling-system/

Item#M433 Surface Combustion Charge Car 36×48

Built by Surface Combustion this is a double ended charge car for use with a 36″ X 48″ furnace. Model DEDP 36-48 Charge Car. Serial #BC42070-1. 460V, 3 phase, 60hz. Excellent condition and still in use. Available September 2019.

Asking Price $29,000 USD

https://themonty.com/project/itemm434-surface-combustion-charge-car-36x48/

Item#M432 Super Systems 9200 Control System

For sale Super Systems 9200 control system mounted in free standing panel including multiple spare HMI touch screens and spare power supplies

Asking Price $19,000 USD

https://themonty.com/project/itemm432-super-systems-9200-control-system/

Item#M431 Eclipse Singe Ended Recuperative Burners (20 available)

We have 20 Eclipse single ended recuperative burners and 20 65 inch long silicon carbide inner and outer tubes for sale. Also 20 Honeywell flame relays and all solenoids and gas and air valves also 20 ignition transformers. This system is still installed. New in 1998 and used very little. We can provide removal and packaging. We prefer not to separate. Burners and tubes are currently mounted vertically but can be installed and operated horizontally. These burners are good for any atmosphere furnace such as belts or batch or pits.

Best Offer

https://themonty.com/project/itemm431-eclipse-singe-ended-recuperative-burners-20-available/

Item#M429 Whaley Products Refrigerant Water Cooling Tower

Model # SA20D-3-2PT. Capacity: 20 Tons. Dual Compressors/240,00 BTU/Hr. Flow Rate:48 GPM. Insulated Poly Tank: 100 Gals. Inlet/Outlet Pipe Size: 1-1/2”. Fan Output:16,600 CFM. Supply Pump: 3 HP. Circulating Pump: 1 HP. OAD: 29” L x 68” W x 84” H. Purchased 4/2015 In Very Good Condition, Has Seen little Use.

Asking Price $9,800 USD

https://themonty.com/project/itemm429-whaley-products-refrigerant-water-cooling-tower/

Item#M427 Used Houghton MAR-TEMP Oil 355

Mar-Temp 355 is a high performance accelerated hot quenching oil suitable for use at temperatures of up to 375°F (190°C). It is based upon solvent-refined mineral oils and contains a specialty formulated additive package which provides accelerated quenching characteristics and excellent oxidation resistance and

thermal stability. Mar-Temp 355 has a high flash point and will provide long life under arduous operation conditions.

Features & Benefits

- Short vapor phase and fast maximum cooling rate for optimum hardness and physical properties
- Premium hot quenching (martempering) oil providing maximum distortion control of quenched components eliminating the need for rework due to distortion
- Excellent oxidation and thermal stability: Resists formation of sludge and breakdown of oil in use to ensure maximum oil life

22,000 Liters are available immediately and 16,000 Liters in a month or two.

Asking Price $1.25 USD Per Litre (Located In Canada)
https://themonty.com/project/itemm427-used-houghton-mar-temp-oil-355/

Item#M426 Midbrook Belt Washer

Midbrook hurricane 5024, stainless steel conveyor through feed type 4-stage parts washer, s/n 44674 (2004), 24″ x 24″ opening, wash/rinse/rinse/blow off/dry stages, allen-bradley panelview 1000 control, stainless steel metal mesh belt conveyor, demagnetizer, 24″ wide plastic infeed and outfeed power belt conveyors. Comes with over 50′ of automated feed conveyor. Currently installed without power.

Asking Price $89,000 USD
https://themonty.com/project/itemm426-midbrook-belt-washer/

Item#M425 Kolene Salt Bath Nitriding Line (gas)

Manufactured by Kolene this was purchased new in 1995 by the vendor. This is gas fired with pot dimensions of 42″ diameter X 6’ deep. Was typically producing 1,000 pounds per hour but capable of more. Line includes the following;

- 3 overhead transfer cranes
- Air scrubbing unit

- Bronco continuous belt blasting unit, large very effective machine with 36” belt and 8 multi directional blasting motors (vendor will sell this separately)
- 3 vibratory polishers
- Many fixtures
- Used salt*
- New salt*
- Extra pot (weld repaired)

System is installed and was in operation until late 2018. Complete and in good condition.

Asking Price $365,000 USD For Everything

https://themonty.com/project/itemm425-kolene-salt-bath-nitriding-line-gas/

Item#M421 Berg Chiller

Brand: Sterling. Model: GPAC-20 (2014 mfg. year). Capacity: 5 ton. Voltage: 460V/3/60. In good condition.

Asking Price $8,000 USD

https://themonty.com/project/itemm421-berg-chiller/

Item#M417 Soluble Oil Dunk Tank

Working dimensions of 30″ X 48″ X 30″. Tank has a capacity of 2500 pounds. Includes chart recorder, cooler, recirculation pump, and controls. This could easily be modified or used to water quench aluminum. Good condition.

Asking Price $8,000 USD

https://themonty.com/project/itemm417-soluble-oil-dunk-tank/

Item#M416 Wheelabrator

Wheelabrator 6′ Diameter.6″ Diameter table blast wheelabrator. 30 HP belt drive. Installed and in use until March 2018. Recently reconditioned with rebuilt auger.

Brand New wheel and wheel housing. Good controls with pneumatic operated control and timer to shut down wheel and notify operator when cycle is complete. Very reliable machine in excellent condition. Table is mounted on the door with full access for overhead crane.

Asking Price $75,000 USD

https://themonty.com/project/itemm416-wheelabrator/

Item#M414 Vacuum Residual Gas Analyzer (3 Available)

Pfeiffer Vacuum PrismaPlus QMG220 Compact Mass Spectrometer, Mass Range 1-200 amu, Catalog # PT M06 211 111, Residual Gas Analyzer. Unused these were new in Dec. 2015 and are still in original factory packaging. Warranty expired, but still factory supported. Each set consists of the following;

1. 1 Each, Quadrupole electronics QME220, P/N PTM28612
2. 1 Each, Quadrupole analyzer QMA200, P/N PTM25253
3. 1 Set, QMS220, Accessories & Spare Parts
4. 1 Each, SP 220, (033-0038 43202) Power Supply 90-264VAC, 2.1mm R/A (24 V Output)
5. 1 Each, 45-0007 43024 UTP-Patch-Cable, 3m, Crossed, Red
6. 1 Each, B4564309YX Inficon Mains Cable (USA) LNPE, AWG 18, 2.5m
7. 1 Each, 45-0006 UTP-Patch-Cable, 3m, 1:1, grey 43024
8. 1 Each, PT882400-T Quadera-software, Version 4.61 12/10/2015 for Windows 7 or XP (32-bit Pro)
9. 2 Each, PrismaPlus QMG220 Operating Instructions (1-English & 1-German)
10. 1 Each, Test Reports and Configuration
11. 1 Each, PT R 26 002 Compact Full Range Vacuum Gauge PKR 251, DN 40 CF F
12. 1 Each, PT 448 250-T Sensor Cable

Asking Price $8,800 USD Shipping Included

https://themonty.com/project/itemm414-vacuum-residual-gas-analyzer-3-available/

Item#M411 SBS Quench Oil Coolers (2 Available)

Air to oil quench oil coolers manufactured by SBS Corporation. 480V/6/60. External dimensions of 6′ wide X 5′ high X 21′ long. This unit has three (3) NEMA type disconnect switches mounted on side of unit. Standard "SBS Quench Air" air cooled heat exchanger with removable tube manifold, propeller fans for moving air across the tube bundle, flanged inlet & outlets, three (3) NEMA type disconnect switches mounted on the side of the heat exchanger. This unit has a removable top that has louvers for directing the air horizontally instead of vertically. Good condition.

Asking Price $13,500 USD Each

https://themonty.com/project/itemm411-sbs-quench-oil-coolers-2-available/

Item#M380 Bronco Wheelabrator

Model# SLC500. 36" Mesh Belt –VFD drive. 8 – 20hp Blasting Wheels – VFD drive. Media separator, Torrit dust collector. Some spare parts are also included. Well maintained and works well. Footprint – 30' long, 16' high, aprox. 12' wide. (Includes loading at the facility)

Asking Price $20,000 USD

https://themonty.com/project/itemm380-bronco-wheelabrator/

VACUUMS FURNACES

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#VF359 Stokes 412 Vacuum Pump and Stokes 612 Booster

We have available a fully reconditioned Stokes Model 615-1 booster pump, Lot 78506-37, S/N 88878S00599 and a reconditioned Stokes 412 Vacuum pump. Both units have been serviced regularly and are completely rebuilt.

Asking Price $15,000 USD For Both

https://themonty.com/project/itemvf359-stokes-412-vacuum-pump-and-stokes-612-booster/

Item#VF358 Abar Ipsen 10-Bar Vacuum Furnace

Manufacturer: Abar Ipsen
Type: 10-Bar Vacuum Furnace, Internal Quench
Furnace Model: H-66x48
Date: 1994
Work Zone Size: 48"W x 50"L x 48"H
Max. Temperature: 2300F (operated 900F-2220F)
Temperature Uniformity: +/-15F
Hot Zone: All Metal
Control Thermocouple: Type S
Process: Used for Steels and Titanium
Cooling Gas: Argon and Nitrogen
Quench: 10 Bar Quench with Internal Cooling Fan
Blower motor: Recent rebuild/upgrade to VFD, 350HP
Typical vacuum level: 10^{-6} Torr with 2 micron leak rate reported
Diffusion Pump: Varian 35"
Mechanical Pump: Stokes 412J-14

Vacuum Booster Pump: Edwards 900-615-MHRR 09/16
Furnace Footprint: 21'W; 22'L door closed; 27'L door open; +10'L Loader and Rails
Panel Footprint: 8'W x 3'L x 7'H
Included: Loader, (2) ea. Serpentine Load Support Grids
Description: Metal shielded hot zone, needs new elements and shield repairs, or you can convert to graphite insulated hot zone.
Controls: Honeywell AC90 recipe controller, Honeywell UDC 2000 over-temperature controller, Televac MC300 vacuum gauge, SSi Touchscreen Digital Chart Recorder, Dewpoint Panametrics Moisture Monitor Series 35, SSi Series 7 diffusion pump oil temperature controller

Asking Price $250,000 USD

https://themonty.com/project/itemvf358-abar-ipsen-10-bar-vacuum-furnace/

Item#VF357 Abar Ipsen Rebuilt Vacuum Furnace

– Manufacturer: Abar Ipsen
– Model: HR 46X72
– Condition: Rebuilt in 2015, used through 2016. Very good.
– Hot Zone: 36"W x 24"H x 72" deep, Moly, New in June 2015
– Elements: Moly
– Controls: New Ipsen control panel, new in 2015.
– Temperature: 2400F
– Diffusion Pump: 32" Varian Diffusion Pump (new in 2015).
– Pumps: Stokes 212 mechanical pump was rebuilt in early 2016. Welch 1398 holding pump was rebuilt in 2015. Stokes 615 blower recently rebuilt.
– Estimated Footprint: 21' Wide (+ water surge tank which could be relocated 4'x10'x6'H). 24' Deep (+10' deep loader). 12' High. Spool piece adapter added to remove need for diffusion pump pit.
– Power: 480 Volts, 3 Phase, 60 Hz
– Loader Included, 10' Long x approx. 3.5' Wide.
– 2-Tier TZM Moly Grid Fixture, 36" Wide x 72" Long x 18.5" Tall.

– Cold Trap: Liquid N2 fed Cold Trap

– Status: Furnace is currently disassembled in storage. Furnace was in production until January 1st, 2017.

Asking Price $350,000 USD

https://themonty.com/project/itemvf357-abar-ipsen-rebuilt-vacuum-furnace/

Item#VF356 DeGussa 2 Bar Vacuum Furnace (Located in Turkey)

This furnace is in operation at a captive heat treat in Turkey where it has become surplus. Currently it is under power and can be seen at any time. Vendor is willing to run sample parts. Good condition, complete and with many spare parts and alloy fixturing.

-Built in Mid 1990's

– Working dimensions of 1100x1100x2200 (2600kg load)

– 390 kW

– 2 bar quenching with nozzles

– Diffusion pump

– Vacuum pumps are in good shape

– Hot zone newly rebuilt

– Suitable for the aerospace industry, furnace was originally hardening parts for Sikorsky and Liebherr aviation parts

– There are approximately 900kgs of alloy fixtures which most of them are almost new (see photos) (2.4879 material)

– Lots of spare parts for virtually all graphite components.

– Is under power and can be seen, sample parts can be heat treated.

– Located in Turkey

Asking Price $62,000 Euros

https://themonty.com/project/itemvf356-degussa-2-bar-vacuum-furnace-located-in-turkey/

Item#VF355 Vacuum Furnace Control Panel

Built by Loy Instruments in 2014 for use on an Abar Vacuum furnace. System consists of a free standing, 2 door panel with Honeywell 900PLC with Honeywell Over Temp and Televac vacuum controller. Panel was used for 2 years before it was removed from service. Panel has always been in a controlled atmosphere environment maintained at 70F. Very clean and in excellent condition. New this was $60,000 USD.

Asking Price $26,000 USD

https://themonty.com/project/itemvf355-vacuum-furnace-control-panel/

Item#VF354 ALD Degussa Bottom Loader Vacuum Furnace

Bottom loading vacuum furnace built by ALD Degussa in 1985 and rebuilt in 2016. Working dimensions of 1500 mm diameter and 1500 mm high. Load capacity of 1,000 Kg. Vacuum System; High vacuum system with diffusion pump. Vacuum Level : 10exp-4 …. 10exp-5 mbar. Used in the aerospace industry and suitable for AMS2750 regulations. Complete and in excellent condition. Located in Germany.

Asking Price $110,000 Euro

https://themonty.com/project/itemvf354-ald-degussa-bottom-loader-vacuum-furnace/

Item#VF353 Bottom Load Vacuum Furnace 60” X 60”

Vac Aero Rebuilt Bottom Load Vacuum Furnace, working dimensions of 60″ x 60″. Model: VAV-6060-BL. Hot Zone: Moly face with graphite insulation. Vacuum

Pumps: 35″ Diffusion Pump, Stokes 1722 Package. Quench System: 125 HP external quench. Rebuild in progress: Complete exterior reconditioning. Interior of pipes, fna house and vessel receive sand blasting and new high temp white epoxy paint. New hosing. New hot zone. New quench heat exchanger. Rebuilt 125 HP motor. Rebuilt mechanical pump and blower. (New controls available at extra cost). PHOTO BELOW SHOW FURNACE BEFORE REBUILD.

Asking Price $495,000 USD

https://themonty.com/project/itemvf353-bottom-load-vacuum-furnace-60-x-60/

Item#VF351 GCA/Vacuum Industries Vacuum Furnaces (3 Available)

MANUFACTURER: AVS/VACUUM INDUSTRIES
TYPE: VACUUM FURNACE I.D.: 12”W X 36”Ð X 12”H
SERIAL#: 42093 MODEL: WORK HOUSE 3040
MAX. TEMP: 3000 F
ELECTRICS: 460V/77KW/3PHASE
CONTROLS: HONEYWELL DCP 700 DIGITAL PROGRAM CONTROLLER, HONEYWELL OVER TEMP CONTROL, HONEYWELL CHART RECORDER MOUNTED IN AN ENCLOSED PANEL.
GENERAL: HORIZONTAL DOUBLE WALL WATER COOLED VESSEL WITH SIDE SWING DOOR, FAN IN REAR, METALLIC HOT ZONE, AND STAINLESS INNER WALL. OUMPING SYSTEM INCLUDES A WELSCH MECHANICAL PUMPAND A 6” DIFFUSION PUMP.

Asking Price $22,500 USD

https://themonty.com/project/itemvf351-gca-vacuum-industries-vacuum-furnaces-3-available/

Item#VF350 Ipsen Bottom Load Vacuum Furnace

Model VVFC, Serial number #57411. Working dimensions of 48” X 48”. Max. temp 2300F. 225KW heating power. 2 speed 25 HP cooling fan. Increased internal heat exchanger coils. Insulated hot zone with moly hot face. Stokes 412 mechanical pump with ROOTS CONNERSVILLE 1016 booster. New SSI programmer/controller. Built 2/6/78. Graphite heating elements and graphite hearth. Installed but not in use. Good condition.

Asking Price $99,000 USD

https://themonty.com/project/itemvf350-ipsen-bottom-load-vacuum-furnace/

Item#VF348 C.I. Hayes Vacuum Furnace

C.I. Hayes Vacuum Furnace. The front door is mounted on an I-Beam trolley and slides to the side for access to the interior. Quench section is located directly in front of the heat chamber with a hydraulically operated door separating the chambers. Hot zone is lined with graphite felt backed up with ceramic fiber blanket.Six graphite rod elements are mounted horizontally across the chamber, 3 over and 3 under the work area. Hearth rails supprt the work load. Hydraulic cylinder transfers the load between the chambers. Hydraulic pumping system lowers and raises the work load into the tank. There is a Kinney vacuum Electrically heated with a voltage of 480/3/60/20 kW. Model # VCQME and serial # 16482 (1987). Max operating temperature is 2400°F. Working dimensions of 8″W x 6″H x 14″L with external dimensions of 5′ wide x 9′ 6″ long x 8′ 5″ high Furnace only – not including pumps, transformer. Controls are mounted and wired in a separate enclosure. There is a Honeywell DCP 511 programmable controller and a Honeywell round chart recorder / high limit with digital readout. MKS vacuum gauge indicates vacuum level in the quench area and the heat chamber. Control switches for all functions of the furnace including

temperature, vacuum, nitrogen backfill, gas fan and oil agitator are flush mounted in the enclosure. Controls for transferring the load and elevator controls are located next to the furnace door. Voltage reduction transformers with DC power drivers are mounted in a NEMA 12 enclosure.

For Pricing Please Contact Jordan@themonty.com
https://themonty.com/project/itemvf348-c-i-hayes-vacuum-furnace/

Item#VF344 C.I. Hayes Vacuum Furnace

Built by C.I. Hayes this is a VCH-202436 Single Chamber Vacuum Furnace. Work dimensions of 20”h x 24”w x 36”d. Max. Temp.: 2450 deg.F. Connected Load: 125 KW, 440/3/60. All Graphite Heating Chamber. Vacuum Components: Mechanical Pump/Blower Combo (16” Port For Addition Of Diffusion Pump). High Volume Recirculating Gas Cooling System. Programmer Controller, OT Protection, Two Recorders. Previously used for sintering of stainless steel magnetic material and the quench is capable of hardening alloy materials. Hot zone in good condition. Furnace is presently in storage.

Asking Price $90,000 USD
https://themonty.com/project/itemvf344-c-i-hayes-vacuum-furnace/

Item#VF342 Ipsen Bottom Load Vacuum Furnace

Ipsen Bottom Load Vacuum Furnace 48” X 54”. Completely Re-Manufactured IPSEN 48″ Dia x 54” High Vertical Bottom Loading Vacuum Furnace for your Heat Treating and Brazing requirements. This furnace complies and meets the SAE Aerospace Material Specification AMS2750 Latest Revision E (AMS2750E) and NADCAP. Operating temperature from 800°F (427°C) to 2400°F (1315°C). Temperature uniformity ±10°F (±6°C) between 1004°F (540°C) to 2400°F (1315°C). Equivalent to Class 2 Furnace in AMS2750E standards. Circular one-piece gas plenum/hot zone support structure provides strong, uniformly

expanding support for elements Work Zone Dimensions are 48” (1219 mm) Diameter x 54” (1372 mm) High. Hot Zone Insulation is composed of the following layers:
Hot Face
First Layer
Second Layer
– 0.060” Thick Graphite Foil with CFC Sheet at ends
– 1.00” Thick High Purity Graphite Felt
– 1.00” Thick High Purity Graphite Felt
Hearth gross load weight capacity of 3000 lbs (1361 kilograms) at 2400°F (1316°C). Ultimate Vacuum (nominal) 10-5 Torr Range. Re-manufactured Stokes 412H-11, 300 C.F.M. (8,500 litres per minute) mechanical roughing pump. Re-manufactured Stokes 900-615, 2,000 C.F.M. (56,600 litres per minute) as blower pump. Re-manufactured Varian NHS-35” Diffusion pump, pumping speed 50,000 litres per second. Comes with Safety Guard against hot body surfaces. New Leybold Trivac 8B, 5.7 C.F.M.(161 litres per minute) Rotary Vane Vacuum pump as holding pump. New Oil Mist Filter System for pumping system exhaust. One (1) Re-manufactured External 4400 CFM 50HP Spencer Turbine Co. Gas Fan Cooling Motor and heat exchanger system. One (1) Re-manufactured step-up transformer for Gas Fan Motor. One (1) Backfill Reservoir Gas Tank @ 120 p.s.i.g of 5,000 litres capacity. Argon Quenching To Maximum 2 Bar. Consider this basically a new furnace with a 12 month warrantee. Asking $525,000 USD with start up and training included. Half the price of new.

Asking Price $525,000 USD

https://themonty.com/project/itemvf342-ipsen-bottom-load-vacuum-furnace/

Item#VF335 ALD Vacuum Carburizing Furnace

Loading Dimensions : Width 400 x Length 400 x Height 400 mm. Loading Capacity : 80 kg max. Cooling Fan Motor : 75 kW, 3000 rpm for 10 bar N2. Vacuum System : Leybold SV100 Mechanical Pump. Leybold WA501 Roots

Pump. Leybold E250 Mechanical Pump. Leybold WA1001 Roots Pump. Vacuum Level : <5x10-2 mbar. Leak Rate : <5x10-3 mbar l/s. Heating Zone : 120 kW, 2 zones. Plasma Chamber : 60 kW, 1 zone. Diffusion Zone : 180 kW, 3 zones. Max. Tempereture : 1250 °C (Heating chamber). Operating Temperature : 800-1100°C. Process Gases : Nitrogen, Methan, Argon, Hydrogen. Installed Power : 700 kVA, 3x400V 50 Hz. Manufacturing Year : 2002.

Asking Price $75,000 Euro

https://themonty.com/project/itemvf335-ald-vacuum-carburizing-furnace/

Item#VF331 Elnik Vacuum Furnace

High Temperature Vacuum Furnace 2300. Manufactured by Elnik this is a MODEL T-3000 unit, built in 1993. The vacuum furnace consists of a watercooled cylindrical chamber, a molybdenum hot zone with tungsten heaters, a roughing pump, a holding pump, a diffusion pump, a heat exchanger assembly, and all associated valving.

- The furnace runs on 480 volts
- Working dimensions of 18” X 18” X 18”
- External dimensions of furnace 6’ X 6’, water tank 5’ X 5’
- Ultimate vacuum 10-5
- Stokes roughing pump Model 148 H-9
- Holding pump (Walsh) 1402
- Varian diffusion pump – VHS-6
- Water system – Model WCS 305-ET with a 300 gallon stainless steel recirculating tower model 1CT4-64
- 2300F operating temperature
- Ut35 temperature controller controls the temperature of the furnace as programmed by the operator via the computer’s profiler utilities
- Complete and in Good Condition

Asking Price $19,950 USD

https://themonty.com/project/itemvf331-elnik-vacuum-furnace/

Item#VF330 Surface Combustion Vacuum Furnace

Surface 2-Bar Quench Vacuum Furnace. Model# HVPI 484824. Maximum Temperature: 2400F. Power requirements: 460/3/60, 275 KW. Hot Zone Dimensions: 48" Wide x 48" Deep x 24" High. External Dimensions: 12' Wide x 12' Deep x 11'High. Features: Horizontally Loaded Vacuum Furnace complete with 412 Stokes Vacuum Pump, Roots 615 Booster Pump, 2 Bar Quenching, Graphite Heating Elements, "Autoclave" Style Swing-Out Front Door, and Powered Big Joe Loader. Also Included is (1) Crate of New Spare Heating Elements and Connectors. Controls: Free-Standing Control Panel complete with Marathon Monitors Digital Temperature Controller, Honeywell Digital High Limit, and Honeywell Round Chart Recorder. Condition: Very good – Operational. Approx. Weight: 25,000 lbs

Asking Price $119,000 USD

https://themonty.com/project/itemvf330-surface-combustion-vacuum-furnace/

Item#VF327 Surface Combustion Vacuum Temper Furnace

Working dimensions of 36″ x 48″ x 24″ and is approximately 23 years old. The equipment is in good condition with Honeywell HC900 Controls, Telvac Vacuum Control & Sensors, Honeywell UDC 2000 overtemp control, Stokes 412 Vacuum Pump, Controls Concepts SCR, McLeen Cabinet Cooler. Brand New Heating Elements ready to be installed. Internal Fan Circulation. This unit was pulled from service to make room for a new Vacuum furnace just recently. Max Temp 1500° F, 480 Volt / Three Phase.

Asking Price $50,000 USD

https://themonty.com/project/itemvf327-surface-combustion-vacuum-temper-furnace/

Item#VF326 Ipsen Vacuum Furnace

Ipsen 924 Vacuum Furnace. Ipsen Model: VFC-924-R Vacuum Furnace S/N: 58699. Working dimensions of 32″ wide X 53″ deep X 26″ high. Maximum operating temperature of 2400F, recently surveyed from 1400-2000F at +-25F. Molybdenum faced hot zone. Stokes 412 roughing pump, Stokes 615 booster pump, and Varian HS-20 diffusion pump. 40 HP fan. Water cooled. One zone of control. Honeywell controllers and chart recorder. MKS 937B Vacuum Gauge Controller. Good operating condition. 480 Volts. Was used in an aerospace facility before it was very recently removed.

Asking Price $80,000 USD

https://themonty.com/project/itemvf326-ipsen-vacuum-furnace/

Item#VF321 Ipsen Vacuum Furnace

– Manufacturer: Ipsen
– Model: VFC-524, working dimensions of 24” wide X 36” deep X 24” high
– Temperature: 2400F
– Moly-faced hot zone
– Graphite heating elements
– 18″ Ipsen Diffusion Pump
– Stokes 412H-10 mechanical pump
– 50 kVA power transformer
– Top-mounted cooling fan with 15 HP Motor
– New control Panel with Athena AT25 Digital Temp Control, Hastings Series 310 Digital Vacuum Controller, and L&N strip chart recorder.
– Currently in storage in San Diego, CA area

Asking Price $58,000 USD

https://themonty.com/project/itemvf321-ipsen-vacuum-furnace/

Item#VF320 Thermal Technologies Vacuum Furnace

High Temperature Vacuum Furnace.Manufactured by Thermal Technologies LLC, Model 121224G. Working dimensions of 12” wide X 12” high X 24” deep. Maximum load weight of 200 pounds. Operating temperature of 1565C, maximum temperature of 2000C. Operating vacuum level 10-2 torr range. Ultimate vacuum level 10-3 torr. Process gas argon. Front and rear doors. Graphite heating elements with rigid fibrous graphite insulation panels (hot zone is NOT installed but virtually all the components are included) 125jVA power supply. Rotary vane pump , Trivac B Leybold Model D65B (53CFM). Eurotherm Model 2704 high performance controller/programmer with SpecView software. Furnace comes complete with parts washer.

Asking Price $75,000 USD

https://themonty.com/project/itemvf320-thermal-technologies-vacuum-furnace/

Item#VF316 AVS Vacuum Furnace

Manufacturer: Advanced Vacuum Systems (AVS). Model: HMF-24-24-48-1100, S/N 4-1284-0683 Approx. 1990. Chamber: Cylindrical, Horizontal, Stainless Steel with front & rear access doors for ease of maintenance. Hot Zone: Used, All-Metal Moly/SS Shielded Hot Zone with Moly Elements and Moly Hearth Ass’y. Vacuum System: Stokes Mechanical Pumps and Varian Diffusion Pump (Typ. 10-4 to 10-6 Torr ultimate) Pumps: Varian HS-20 warranty rebuilt Diffusion Pump. Stokes 310 warranty rebuilt mechanical blower pump (booster). Stokes 212 warranty rebuilt Mechanical Roughing Pump. Holding Pump for diffusion pump. Power: 480V/3Ph/60Hz, 300 Amp, 250 KVA Heating. Floorspace Requirement: Approx. 15’ x 15’ x 11’H. Work Zone: 24”W x 48”D x 24”H. Max. Temperature Rating: 1100°C (2012°F) Max. Load Rating: > 1500 lb. Upgraded Controls: SSI 9220 Controller with 12.1” Advantech Touch Screen HMI and built

in digital data acquisition, SSI Series 804L Hi-Limit, SR12 Remote Input Satellite Recorder, New Allen-Bradley Micrologix 1400 PLC, Televac vacuum instrument & gauges. Gas Cooling: External VFD Drive Blower and Heat Exchanger, 1 Atmosphere Pressure. Other: Included – 24” x 48” used 2-Tier Molybdenum Grid Fixture. Both front and rear doors have ports for adding end heating elements, if desired (not included). Rear door also has a port for a circulation fan, if desired (not included).

Asking Price $170,000 USD

https://themonty.com/project/itemvf316-avs-vacuum-furnace/

Item#VF315 AVS Vacuum Furnace (Rebuilt)

Manufactured by Advanced Vacuum Systems (AVS) this furnace has a Model Number HMF-24-24-48-1100, S/N 4-1284-0490. Built approximately 1990. Chamber: Cylindrical, Horizontal, Stainless Steel with front & rear access doors. Hot Zone: New in 2015, All-metal, shielded (Moly and Stainless Steel), Moly Hearth, Moly Elements. Hot Zone rated for 2400F. Vacuum System: Currently 10-9 Torr, Cyrogenic and Turbomolecular Dry Pumps. Pumps: CTi Cryogenics 10” Cryo Ultra High Vacuum Pump; MAGintegra 10” High Vacuum Turbomolecular Pump (New in 2015); Pfeifer Balzers Duo 120 2-stage Rotary Vane Roughing Pump; Agilent Technologies SH-110 Dry Scroll Holding Pump for Cryo. Power: 480V/3Ph/60Hz, 300 Amp, 250 KVA Heating, Hunterdon VRT with Halmar Power Control. Floorspace Requirement: Approx. 15’ x 15’ x 11’H. Work Zone: 24”W x 48”D x 24”H. Max. Load Rating: > 1500 lb. Controls: ProVac computer based control system. New in 2015. Gas Cooling: External VFD Drive Blower and Heat Exchanger, 1 Atmosphere Pressure. Loader: Included. Cooling Water: 90 GPM @ 25-40 PSIG (40 Max.), Open Drain. Air: 1 cu. ft./hr @ 80-100 PSIG. Inert Gas: 35 cu. ft./Load @ 6-8 PSIG. Other: Includes 24” x 48” 2-Tier Molybdenum Grid Fixture, Has blanked off 20” port for easy change to diffusion pumping, if desired. Both front and rear doors have

ports for adding end heating elements, if desired. Rear door also has a port for a circulation fan, if desired.

Asking Price $195,000 USD

https://themonty.com/project/itemvf315-avs-vacuum-furnace-rebuilt/

Item#VF314 Ipsen Bottom Load Vacuum Furnace

Work Zone: 60” Diameter x 96” Tall with a Temperature of 2400F. Diffusion pump: 35″ diffusion pump, with port and right angle valve. Manufactured in the 1980’s with a Power of 480V/3Ph/60Hz; 600kW. Hot Zone: 2008 reline, graphite elements. Cooling Gas: Was running Argon; capable of 1-Bar cooling. Top mounted cooling fan. Water Cooling: Includes Dry Cooler closed-loop AquaVent water cooling system; 2005, 200 GPM, Plate & Frame Heat Exchanger with Thermacare fiberglass Tower.

Asking Price $325,000 USD

https://themonty.com/project/itemvf314-ipsen-bottom-load-vacuum-furnace/

Item#VF313 GT Technologies Top Loading Vacuum Furnaces

Top Loading Vacuum Furnaces (2 available). Manufactured by GT Technologies, Model # AMPF-4836HP – 2015. Working dimensions of 1200mm diameter x 900mm High. Operating temperature of 2100C. Controls by Loy Instruments (Honeywell graphic touchscreen). This unique ultra high temperature furnace is high vacuum, has resistance heating with all graphite hot zone and graphite felt insulation for high efficiency operation. 480 volt 3PH 50/60 HZ, 160 KVA. Maximum load 1,000 KG. Double Wall Stainless Steel Vessel construction. Platform with Stairs included. Halogen Gas Purge equipped, Dry Vacuum Pumping System with Blower. Graphite Purity levels to less than 5ppm. Cycle time 72 – 84 hours. 10 – 3 Torr vacuum level achievable. Options: Exhaust Scrubber System, Overhead Crane. Very good condition.

Asking Price $175,000 USD Each

https://themonty.com/project/itemvf313-gt-technologies-top-loading-vacuum-furnaces/

Item#VF312 Vacuum Furnace

2400C Vacuum Furnace. Capable of 2400C (4320F). Working dimensions of 10″ high x 22″ wide x 36″ deep element-to-element. External dimensions of 86” high x 76” wide x 85” deep. 480 volts, 3 phase, 225 kw. This unit is capable of both vacuum and atmosphere operation. Graphite rigid board insulations, graphite heating elements on all 4 sides, graphite hearth plate, 6 channel digital chart recorder, Yokogawa UP 550 digital programmable controller. High accuracy Raytek digital optical pyrometer. All New Vacuum Chamber – Tested and Certified and new graphite hot zone. Very good condition.

Asking Price $149,000 USD

https://themonty.com/project/itemvf312-vacuum-furnace/

Item#VF299 Sunbeam Vacuum Furnace

Model # 40236, Serial Number F-170-82. Working dimensions of 36” wide X 120” long X 36” high. Maximum operating temperature of 2552F (1400C). 460 volts, 400Kw, 3 phase. Honeywell digital program control, Honeywell digital overtemperature control, Honeywell strip chart (inoperative) and Granville-Phillips 375 Convectron vacuum controller in enclosed panel. Double walled water cooled horizontal load vessel. Interior has a molybdenum liner with graphite heating elements on both walls, roof and floor. 20 HP cooling fan mounted in rear. Pumping system consists of a Stokes 412-11 mechanical pump with Roots booster. Power to the heating elements is through VRT’s. A battery powered loader in included. Some of the heating elements were damaged during shipment and will need to be replaced by buyer.

Asking Price $95,000 USD

https://themonty.com/project/itemvf299-sunbeam-vacuum-furnace/

Item#VF282 AVS Vacuum Debinding/Sintering Furnace

This is a horizontal graphite vacuum debinding sintering furnace for steel MIM parts completely rebuilt from top to bottom by AVS in 2010. Working volume – approximately 18 cubic feet, 28” wide x 26” high x 42” long graphite retort, 1500# capacity. Temperature – rated for continuous operation at 1400°C ±10°C in vacuum, 1450°C burn-out. 50µ ultimate vacuum; leak rate <10µ / hour, CEDORT (Clean, Empty, Dry, Outgassed, Room Temperature). De-bind system – nitrogen or argon sweep gas, 0 – 100 torr differential pressure controlled by PLC and automatic I-to-P modulating vacuum valve, binder trap, condenser assembly; options available for hydrogen gas and burn-off. De-bind lines heated to keep vapor from condensing in vacuum lines. Fast cooling with circulation fan and automatic gas re-circulation ports. Control system – AVS ACE™ control/data acquisition system. Estimated cold-to-cold cycle time of 16 to 20 hours with AVS “Fast Cool” option. Horizontal jacketed chamber – 60” dia. x 80” long, nominal dimensions, flanged, on legs. SA-516-70 mild steel construction on water jackets and door + body flanges. Stainless Steel inner jacket & dished head plus all power ports Front-loading chamber with 2 doors – both doors on adjustable hinges, with buna o-rings, manual clamps, for operation from 50 millitorr vacuum to 3 psig positive pressure; rear door opens for service. Ports – rough line on side of chamber, delube line from bottom, fan housing flange on rear door Additional PORTS added to the system to accommodate future system modifications for processing ‘sinter-hard’ P/M materials – a total of up to 7 additional ports ranging from 18” in diameter down to 1” in diameter will be added. Further details available upon request. Currently installed and in excellent condition.

Asking Price $149,000 USD

https://themonty.com/project/itemvf282-avs-vacuum-debinding-sintering-furnace/

WASHERS

See something you need, click on the link or scroll through all the items for sale. Searching for something we don't have listed, let us know.

Item#W431 Surface Combustion Dunk Spray Washer 36x48x30

Manufactured by Surface Combustion in 1983 this is a dunk/spray washer with working dimensions of 36″ wide X 48″ deep X 30″ high. Serial number BC-42072-1. Maximum temperature of 180F. Installed and in operation. Very good condition. Available September 2019.

Asking Price $25,000 USD

https://themonty.com/project/itemw431-surface-combustion-dunk-spray-washer-36x48x30/

Item#W430 Surface Combustion Super 30 Dunk/Spray Washer

Manufactured by Surface Combustion this is a dunk/spray washer with working dimensions of 30″ X 48″ X 30″. Model WWD 30-48-30, Serial number BC 42072-1. Electrically heated with a maximum operating temperature of 180F. Installed but not in use. Excellent condition.

Asking Price $19,000 USD

https://themonty.com/project/itemw430-surface-combustion-super-30-dunk-spray-washer/

Item#W429 AFC-Holcroft Washer

AFC-Holcroft dunk spray washer 36″ x 48″ x 36″. Manufactured in 2013 this is gas fired and 180F. Disc type skimmer.

Asking Price $29,900 USD

https://themonty.com/project/itemw429-afc-holcroft-washer/

Item#W428 Abar Ipsen Parts Washer

Model WRD-5-G Dunk/Spray washer. Serial number 60099. Working dimensions of 24” X 36” X 24”, maximum load capacity 1200 pounds. Gas heated. 460/3/60 electrical. Currently installed. Very good condition.

Asking $19.900.00 USD.

https://themonty.com/project/itemw428-abar-ipsen-parts-washer/

Item#W426 Mart Corporation Table Washer

Mart Corporation Table Washer. Equipped with: Thermal Insulated Skins, Rinse Pump for Hand Wand, Wash-Rinse, Gas Heat, Oil Skimmer, Variable Pressure Switch Low-High, Rinse Pump Off-Auto, Turntable Off-On, Turntable Jog, 24 Vee-Jet Wash Nozzles, Oscillating Manifold 4 Revolutions Per Minute, 30 Minute Cycle Timer, 55 HP Duplex Pumps 399 GP, Reservoir Capacity 967 Gallons 260 Gallon Sludge Capacity, Table Load Capacity 20,000 lbs. Initial Heat Up Time 45-60 Minutes. Note: Unit is in very good condition. Table Bearings are good all maintenance up to date, recent items include, turntable drive replaced, as well as pump rebuild. Heated with natural gas. Model # Hurricane 84 and Serial # H3013. Max temperature 140°F – 180°F with a voltage of 480 3 Phase 60 HZ, 71 FLA. Working dimensions of 84″ Diameter x 75″H and external dimensions of 143″ W x 139″H x 125″L – 16,000 pounds. Controls Mounted and wired in an enclosure attached to the left hand side of the washer includes.

Asking Price $49,000 USD

https://themonty.com/project/itemm426-mart-corporation-table-washer/

Item#W425 Proceco Rotary Table Washer

Proceco Rotary Table Washer. Standard Proceco “Typhoon” stainless steel rotary table washer with 2000 pound table capacity. This washer has a wash stage, rinse stage and electrically heated blow-off stage. Wash tank is 600 gallons, rinse tank is 295 gallons. 25 HP wash pump, 360 GPM, 40 psi. 7-1/2 HP

rinse pump, 115 GPM, 60 psi. Manual and drawings are included with this washer. Washer options include the following: Center Nozzle Pipe (CNP), Full Flow Filtration, Exhaust Blower, Oil Skimmer, Fresh Water Rinse, Oil Coalescer, PLC Controls, Stainless Steel Construction. Electrically heated with voltage 460/3/60/39 Amps. Model # HD 62-60-S-2000-CO-2-R-BO-SS and Serial # 96-224. Working dimensions of 62″ Diameter x 60″ High with external dimensions of 8'W x 16'H (11'H shipping) x 13'L. Controls Mounted and wired in a free standing panel includes an Allen Bradley SLC 500 PLC control with operator interface flush mounted to the door. There are three (3) digital temperature controllers, 1 for 1st stage, 1 for 2nd stage and 1 for blow-off stage. Excellent condition and available immediately.

Asking Price $55,000 USD

https://themonty.com/project/itemm425-proceco-rotary-table-washer/

Item#W422 Surface Combustion Dunk/Spray Washer

Dunk/Spray Washer 36" X 48" X 36". Manufactured by Surface Combustion this is a Dunk/Spray batch IQ washer with working dimensions of 36" X 48" X 36". Electrically heated.

Asking Price $22,500 USD

https://themonty.com/project/itemm422-surface-combustion-dunk-spray-washer/

Item#W415 Surface Combustion Parts Washer

Manufactured by Surface Combustion of Ohio this is a spray washer with working dimensions of 30″ X 48″ X 30″ high. Radiant tube gas heat and rotary drum oil skimmer and separate skim tank located on back of wash. This is partially reconditioned . It is in overall good condition. BEST OFFER.

For Pricing Please Contact Jordan@themonty.com

https://themonty.com/project/itemm415-surface-combustion-parts-washer/

Item#W348 Ipsen Automatic Dunk/Spray Washer

Model #WRD-11, Serial Number 57690. Working dimensions of 36″ wide X 48″ deep X 24″+ high, 2200 pound capacity. Electrically heated, 72KW. Companion washer-In/Out or straight through design. Door each end, Cal Rod element bundle. 12″ wide belt oil skimmer, air operated-full width elevator rack for submerged oscillation, overhead spray rinse. Overall dimensions of 7′ 5″ wide X 5′ 4″ long X 11′ 8″ high.

Asking Price $35,000 USD

https://themonty.com/project/itemm348-ipsen-automatic-dunk-spray-washer/

Item#W314 Holcroft Dunk/Spray Washer

Model GPWS 24-36-24. Electrically heated, 480/3/60/50 amps. Working dimensions of 24″ wide X 24″ high X 36″ deep. External dimensions of 96″W X 143″ high X 124″ long (91″ without skimmer attached). This is a standard dunk/spray washer with 4 Warren Electric immersion heaters. Spray nozzles are arranged over and all sides of the wash area. Load height is 51″ from floor to top of rollers. Wheel centres are 14-1/2″. Controls are mounted and wired on the right hand side of the washer and includes all necessary pushbuttons and signal lights. There is a dunk cycle timer and spray cycle timer. A Honeywell UDC 2000 digital temperature controller controls wash temperature. Good condition.

Asking Price $18,500 USD

https://themonty.com/washers/

EMPLOYMENT OPPORTUNITIES ADVERTISING

The cost is $150.00 USD per month for a minimum of two months. Payment can be made by Visa or Check. Opportunities should be in the form of a “Word” document and e-mailed to jordan@themonty.com All “Employment Opportunity” ads can include your company logo and will automatically appear both on the website and in the monthly newsletter “The Monty”.

Item#O377 Looking For Multiple Sales Reps – Midwestern, USA

Mountain Rep (www.mtnrep.net) is a 36 yr old Rep Firm looking to hire multiple sales people in the Midwestern United States. Cover a territory or just a few accounts, your call! It’s a perfect opportunity for a retired person. Get paid for your relationships. We specialize in the thermal processing industry selling state-of-the-art heat treat furnaces, coating systems and rebuilding old furnaces & vacuum pumps. Other lines include fluid cooling systems, replacement parts and oils, TUS testing and software. Our perfect sales call is with a captive or commercial heat treater. Follow us on Linkedin, Google, and Facebook. Call or email Rosanne at rosanne@mtnrep.net, (216) 217-7769 .

Item#O376 Application/Sales Manager

Summary: Directs and coordinates activities of Applications Engineering Department by performing the following duties personally or through subordinate supervisors by performing the following duties:

Essential Duties and Responsibilities include the following. Other duties may be assigned.

Manage all mechanical, applications and electrical engineering resources related to TPS products.

Oversees development of drafting and design work.

Reviews engineered-to-order (ETO) proposals, technical and business risk assessment of proposals with appropriate personnel, including customer, to satisfy inquiries about TPS equipment capabilities.

Perform cost analysis on specific equipment to identify areas of possible cost saving, warranty problems, etc.

Assist in development of appropriate product bulletins, specification sheets, and sales aids to support the field sales effort and communications plan.

Conduct sales applications meetings, ensuring timely responses to customer inquiries for ETO and design-to-order (DTO) proposals.

Ensure proper selection and design concept modification of heat processing and environmental equipment to meet customer application and process performance requirements.

Determine accurate costs and ensure appropriate selling price and delivery schedule of products.

Apply broad, technical knowledge, insight, reasoning, and decision making to manage varied engineering functions; Ability to proactively seek, develop, and implement initiatives to achieve goals that are both cost effective and satisfactory to customers.

Analyze engineering design activities and associated requirements, including various alternative approaches with respect to technical, budget, schedule, and project-specific constraints to select approaches to projects that best meet the objectives of the company, our customers, and other parties.

Possess strong leadership skills to lead, convince, and motivate both individuals and teams to adopt and accomplish meeting complex technical and business goals. Promote independent actions of staff to improve operations and customer relations.

Provide technical leadership, counsel, and support to staff for technological/engineering advancement. Promote and arrange for training of staff and ensure that guidance and direction are provided.

Strong knowledge and application in heat transfer, thermodynamics and machine design fundamentals.

Report departmental status/metrics to upper management.

Supervisory Responsibilities: Directly supervises 4 to 8 employees in the Application Engineering Department and carries out supervisory responsibilities in accordance with the organization's policies and applicable laws. Responsibilities include interviewing, hiring, and training employees; planning, assigning, and directing work; appraising performance; rewarding and disciplining employees; addressing complaints and resolving problems.

Qualifications: To perform this job successfully, an individual must be able to perform each essential duty satisfactorily. The requirements listed below are representative of the knowledge, skill, and/or ability required. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions.

Education and/or Experience: A Marketing, Sales or technical undergraduate degree from an accredited university or college and 5 years' experience, including the supervision of employees, or an equivalent combination. Three or more years of original equipment quotation exposure, plus three years or more of application/process experience or equivalent preferred. A good knowledge of business law and principles as they apply to sales contracts is desired.

We will not be able to sponsor work-related visas for this opening.

Language Skills: Ability to read, analyze, and interpret general business periodicals, professional journals, technical procedures, or governmental regulations; ability to write reports, business correspondence, and procedure manuals and effectively present information and respond to questions from groups of managers, clients, customers, and the general public.

Mathematical Skills: Ability to work with mathematical concepts such as probability and statistical inference, and fundamentals of plane and solid geometry and trigonometry; ability to apply concepts such as fractions, percentages, ratios, and proportions to practical situations.

Reasoning Ability: Ability to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists and interpret a variety of instructions furnished in written, oral, diagram, or schedule form.

Computer Skills: Knowledge of BPCS Manufacturing software; SolidWorks CAD software; MS Office.

Certificates, Licenses, Registrations: This job requires no certificates, licenses, or registrations.

Physical Demands: The physical demands described here are representative of those that must be met by an employee to successfully perform the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. While performing the duties of this Job, the employee is regularly required to sit and talk or hear. The employee is frequently required to use hands to finger, handle, or feel. The employee is occasionally required to stand; walk and reach with hands and arms. The employee must frequently lift and/or move up to 25 pounds and occasionally lift and/or move up to 10 pounds. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception and ability to adjust focus.

Work Environment: The work environment characteristics described here are representative of those an employee encounters while performing the essential functions of this job. Reasonable accommodations may be made to enable individuals with disabilities to perform the essential functions. The noise level in the work environment is usually quiet.

Basic Core Competencies

Customer Service – Manages difficult or emotional customer situations; Responds promptly to customer needs; Solicits customer feedback to improve service; Responds to requests for service and assistance; Meets commitments.

Interpersonal Skills – Focuses on solving conflict, not blaming; Maintains confidentiality; Listens to others without interrupting; Keeps emotions under control; Remains open to others' ideas and tries new things.

Oral Communication – Speaks clearly and persuasively in positive or negative situations; listens and gets clarification; Responds well to questions; Demonstrates group presentation skills; Participates in meetings.

Written Communication – Writes clearly and informatively; Edits work for spelling and grammar; Varies writing style to meet needs; Presents numerical data effectively; Able to read and interpret written information.

Teamwork – Balances team and individual responsibilities; Exhibits objectivity and openness to others' views; Gives and welcomes feedback; Contributes to building a positive team spirit; Puts success of team above own interests; Able to build morale and group commitments to goals and objectives; Supports everyone's efforts to succeed.

Leadership – Exhibits confidence in self and others; Inspires and motivates others to perform well; effectively influences actions and opinions of others; Accepts feedback from others; Gives appropriate recognition to others.

Quality Management – Looks for ways to improve and promote quality; Demonstrates accuracy and thoroughness.

Organizational Support – Follows policies and procedures; Completes administrative tasks correctly and on time; supports organization's goals and values; Benefits organization through outside activities; Supports affirmative action and respects diversity.

Motivation – Sets and achieves challenging goals; Demonstrates persistence and overcomes obstacles; Measures self against standard of excellence; Takes calculated risks to accomplish goals.

Planning/Organizing – Prioritizes and plans work activities; Uses time efficiently; Plans for additional resources; Sets goals and objectives; Organizes or schedules other people and their tasks; Develops realistic action plans.

Professionalism – Approaches others in a tactful manner; Reacts well under pressure; Treats others with respect and consideration regardless of their status or position; Accepts responsibility for own actions; Follows through on commitments.

Quality – Demonstrates accuracy and thoroughness; Looks for ways to improve and promote quality; Applies feedback to improve performance; Monitors own work to ensure quality.

Quantity – Meets productivity standards; Completes work in timely manner; Strives to increase productivity; Works quickly.

Safety and Security – Observes safety and security procedures; Determines appropriate action beyond guidelines; Reports potentially unsafe conditions; Uses equipment and materials properly.

Adaptability – Adapts to changes in the work environment; Manages competing demands; Changes approach or method to best fit the situation; Able to deal with frequent change, delays, or unexpected events.

Please Submit Resumes or Inquiries To: Alicia Burgess,
Alicia.burgess@lindbergmph.com

LINDBERG/MPH

Item#O375 Heat Treat Operator / Supervisor

Valley Forge & Bolt Manufacturing located in Phoenix, Arizona is a specialty bolt manufacturer that has captured a strong market position with continued and aggressive growth. Numerous patents of load bearing bolts that provide immediate performance data utilizing digital and wireless data have provided for extensive growth across numerous markets including mining, wind power,

subsea applications, and ever-growing market applications. As a leader in the bolting industry, Valley Forge is expanding its captive heat-treating capabilities. Current positions include both operator and leadership/supervisor positions on multiple shifts.

Applicants should have a minimum of 2 years' experience operating endothermic batch integral quench furnaces, Rockwell hardness testing skills, reliability in attendance, ability to become MTI certified, a desire to be part of a dynamic team, and the flexibility and drive to "make it happen". Should your skills meet or exceed the fore mentioned requirements, we look forward to receiving your resume and potential interview. We pride ourselves in providing an excellent employment opportunity for those who have the desire to succeed! Pay will be commensurate with experience. Company benefits after probation period including health insurance, 401K with match, quarterly incentive and other benefits. Company-paid Drug Screen required upon hire.

Email resumes to careers@vfbolts.com

In Parting

We always enjoy comments, feedback and constructive criticism. Thanks for your feedback and don't hesitate to let us know your thoughts. Don't forget to visit us daily at www.themonty.com.

Gord Montgomery,
William G. Montgomery Limited
Phone: 905 271-0033
Email: gord@themonty.com
