OCTOBER ISSUE 2019

HEAT TREAT NEWSLETTER

Everything to do with heat treating

Advanced HT

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INTRODUCTION

Just in time for the upcoming **"Heat Treat 19"** show in Detroit and **"HK19"** in Cologne, Germany we have for you the October 2019 issue of **"The Monty"**. This issue has over 150 pages of the most up to date news and trends in the worldwide heat treatment industry combined with over 75 pages of surplus heat treating equipment. As always we hope you find this an enjoyable read.

Sincerely, Gord, Jordan and Dale Montgomery.


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HEAT TREAT NEWS

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Monday Morning Briefing

Sep 30, 2019

Back in March 2018 we had a press release about ***Allegheny Technologies Inc.*** (ATI) making a major investment in their facility in Cudahy, Wisconsin-the press release is below. We have been lead to believe that what this means in terms of heat treating is an investment of roughly $15 million USD in a number of automated box furnaces with external quenching all in a brand new building. ***Rumors*** we have heard suggest that the supplier of the box furnaces is a company by the name of ***"Fives North American Combustion"*** and that the equipment is being shipped as we speak. *"March 2018 ATI Ladish plant in Cudahy will undergo a $95 million expansion and add 125 jobs to meet a growing demand for aerospace jet engine components, company and state officials said Thursday. Under the expansion plan, the Cudahy plant will add a fourth iso-thermal press to the forging operations and adding more heat-treating capacity. The effort will take about three years to complete and fully qualify for aerospace-related production. ATI Ladish, part of Pittsburgh-based Allegheny's ATI Forged Products division, supplies high-performance forgings and castings largely for the aerospace and defense markets."* ***Thermex Metal Treating*** in Edmonton, Canada the largest commercial heat treater in Western Canada is in the midst of updating some of their equipment. In this case they are removing an older pit carburizing furnace and replacing it with a Unitherm Industries Pit Carburizing furnace with working dimensions of 36″ diameter X 72″ deep. Thermex is a company which has always invested heavily in new and updated technologies.

We ran across this photo just yesterday which shows a new ***Powermax*** Batch IQ installation in Turkey. Powermax is a new furnace builder near Shanghai, China which was started by Andy Chen a number of years ago. Over the years it became a fairly large furnace builder and for quite some time it was the AFC-Holcroft licensee in China. Our understanding was that it became part of Chinese furnace builder ***Fengdong*** however obviously the company is still selling under the Powermax name.

Controls company ***SSi*** of Cincinatti, Ohio, USA continues to grow and recently added a third building almost directly adjacent to the current two buildings-we will be able to show you a photo of the new building this week. The photo below shows a new vacuum furnace built by ***CHS Asia*** being installed at an aerospace manufacturing facility in Thailand. The photo brought back some good memories of the founder of the company, ***Mr. Randy Simmons*** of the USA who passed away a few years ago at a relatively young age. Good to see that the company he founded continues to thrive.

Heat Treating Finland. Give the relatively short train ride between Moscow and Helsinki we decided to have a brief look at the heat treating industry in Finland after the Moscow heat treat show. As it turns in there is a small but advanced heat treatment industry in the country however at the end of the day are contact was limited. For what it is worth this photo shows Dale and Gord Montgomery in Helsinki, Finland last week.

Tool Steel and its Heat Treatment Part I By; David Pye

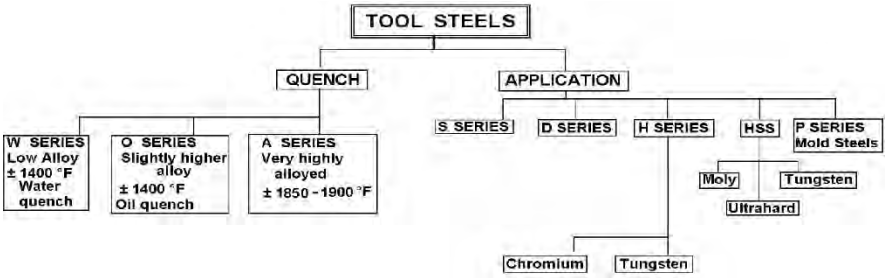
Sep 29, 2019

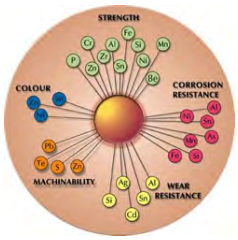
This presentation is the first of three parts and is focused on the heat treatment of tool steels. The complete presentation will address the categorization of tool steels, followed by heat treatment practice and concluding with troubleshooting, which will address some failures due to;

- *Tooling design*
- *Possible machining practice*
- *Material selection*
- *Design of Experiment*
- *Quenching practice*
- *Tempering*

Tool Steel Categorization

The illustration below is a suggestion as to how tool steels are generally categorized into one of two categories. Those categories are Quenching and application,





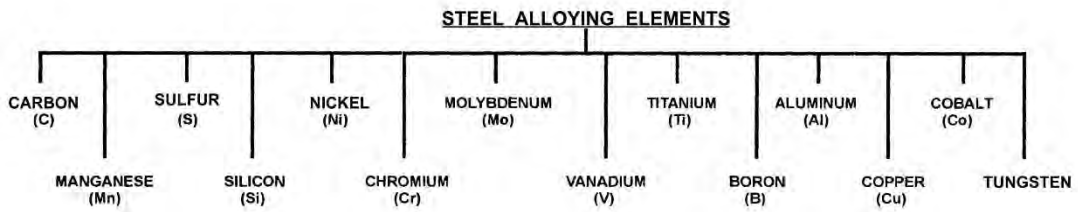
Above is shown in illustration of alloying elements which can be present in a tool steel to address different operational characteristics. (Please bear in mind, that the alloying elements will affect the selection of hardening and tempering temperatures.

- *W1 to W5 = Low temperature hardening with water quench.*
- *O1 to O7 = Low temperature hardening with oil quench.*
- *A2 to A9 = Higher temperature high alloy, air hardening*
- *D2 to D7 = High carbon, high chromium cold work tool steels with a high austenitizing temperature and complex quenching*
- *S1 to S7 = Shock resisting tool steels*
- *H (Chromium) H10 to H19 = Hot work die steel with high operating temperature. Also, high hardening temperature with complex quenching.*
- *H (Tungsten) H21 to H26 = Hot work tool steels with higher operating temperatures and high hardening temperatures plus complex quenching*
- *H (Molybdenum) up to H42 = As above for H21 to H 26.*
- *HSS (TUNGSTEN) = T1-T15Complex steels designed for high speed cutting.*
- *HSS (Molybdenum) = M1 – M36. As above*
- *HSS (Ultra Hard) = M41 – M47As above*
- *L2 – L6 = Low alloy special purpose tool steels.*
- *Mold steels = P2 – P21 Mold steels, usually low carbon and used often for cold hobbing of the impression on coining dies, then carburized or sometimes nitrided.*

Influence of alloying elements in Tool Steels

Carbon is what makes iron turn into steel. The amount of carbon that is added to steel will determine its maximum hardness and mechanical properties. It can be said of carbon, that carbon is the magic ingredient that is added to iron to create

hardness. The amount of carbon present in the steel will determine the steels maximum hardness value.



MANGANESE (Mn)

Manganese is present in all steels, including alloy steels as well as Tool Steels. There is no dividing line between carbon steels and manganese alloy steels. Generally, Manganese is present in amounts above 0.6%.

It is used to reduce oxide formations (deoxidizer) and it will form with sulfur to reduce embrittlement in the steel.

It also assists as a low-cost hardener in some of the lower alloyed Tool Steels. If it is present with Chromium and Molybdenum it will help to resist deformation on air hardening. Usually found in the A series Tool Steels.

CARBON (C)

Carbon is the universal hardener is all steels. It can be found in amounts from 0.01% up to 2.3%. It does not require a significant amount of carbon to affect the hardness of the steel. This element will interact with the elements listed below to form carbides. Once the carbon content approaches or even surpasses amounts greater than 1%, it will usually combine with other elements such as:

- *Chromium*
- *Molybdenum*
- *Vanadium*
- *Tungsten*
- *Cobalt*
- *Titanium*

SULFUR. Sulfur is considered to be an impurity and at the primary steelmaking it is deliberately reduced. However, there are instances when it is necessary to add sulfur in controlled amounts to improve the steel's machinability.

SILICON. This material is used primarily as a deoxidizer during the steel making process. However, in large amounts it will begin to affect the steel's

ductility. However, in the high alloy heat resisting steels, it will assist in the resistance to oxidation at high temperatures.

CHROMIUM

Chromium is found in a wide range of tool steels and in varying amounts. Chromium is one of the elements that has a tendency to form carbides with Carbon in the steel curing the heat-treatment procedure. Chromium will assist in:

- *Deep hardening*
- *Slight improvements in corrosion resistance*
- *Wear resistance*
- *It can be a disadvantage if the tool steel is held too long at austenitizing temperature by causing grain growth.*

TUNGSTEN

Tungsten will raise the hardening temperature (Austenitizing temperature). It forms very stable carbides with carbon. It will inhibit grain growth at elevated temperatures. It is found extensively in High Speed Steels which usually will form the excess carbides within the matrix of martensite. It's primary function is to give high red heat hardness in both High Speed Steels and Hot Work Steels.

Vanadium

Vanadium has two primary functions in tool steels: As a grain refiner, and a stabilizer of carbides at high temperatures. It will have a stabilizing effect on

martensite. This function makes it difficult to temper. The cycle times on tempering tend to be longer and require multiple tempering

MOLYBDENUM

Molybdenum will also form the complex carbides with carbides. It will improve the deep hardening characteristics of the steel. It is found in tool steels such as:

- Hot Work
- High Speed Steel
- Usually found at concentrations of around 4% plus.
- It also makes the steel resistant to tempering and also assists in the "secondary hardening" characteristics of the steel.

COBALT

This element is not usually seen in large quantities and is more usually found in the super alloy special High-Speed Steels. It will however tend to reduce the steel's hardenability (not hardness) It will tend to improve a High-Speed Steel's cutting ability. Because it will reduce the hardenability it will be necessary to increase the carbon content. It is usually found in steels such as T15 and M33.

Countdown for HK 2019 – 22 - 24 October in Cologne, Germany

The event is Europe's largest annual forum for experts in the field of materials technology, with a particular focus on heat treatment processes. This year a high quality congress program will be provided. The program jury were able to select the speakers from more than 50 submissions.

Main topics:

1. *Materials for lightweight design*
2. *Functional coatings*
3. *Intelligent process control*
4. *Quality control*
5. *Partial heat treatment of components*
6. *Additive manufacturing*
7. *Microstructure and strength*

Congress and trade fair – a strong duo;

Around 3,000 trade visitors – from heat treatment shops, as well as from sectors such as industrial furnace construction, from supplier companies, manufacturers of testing equipment and also employees from the automotive and steel industry – now make use of this event to share and exchange information on innovations and trends in the sector within the network of the AWT (German association for Heat Treatment and Materials Technology). At the show, around 180 exhibitors from across Germany and from around the world will be providing information on their latest product innovations across an exhibition space of 13,000 m². The strong connection between the congress and the associated trade show has the advantage that employees from all areas of a company can take part in the event – company management, research and development, quality management, technical practice and sales. This will ensure a high standard of discussion with the customers at the trade show.

HK for the 75th time – from Heat Treatment Colloquium to Heat Treatment Congress;

Celebrate with us and immerse yourself in the history of the event! We have put together a large collection of photos from the 75 events which have been held between the years 1942 and 2018, and have made them into a photo show. The show will be presented on the stand next to the Piazza in the exhibition hall, in the Feedback Area and in the Congress Hall. All visitors to the congress and all

exhibitors are invited to our big Anniversary Reception on the evening of Wednesday 23 October!

News from the Online Marketplace;

Take part in a round table discussion about the 20 µm issue concerning the Vickers hardness test. Furthermore, you'll get a report from the DIN ad-hoc group „Indention diagonals below 20 microns" and the last ISO meeting of the TC 164 „Mechanical testing of metals" that took place in September 2019. Location: AWT booth on the Piazza C-120, 23rd October 2019 from 2.00 to 3.00 pm

More information, apps and ticket shop at www.hk-awt.de

The place for networking and meetings with the VIPs from AWT at HK is the Heat Bar

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Schaeffler Installs Heat Treat Line at South Carolina Facility

Sep 27, 2019

This press release tells us about the 50th anniversary of the Schaeffler Group USA facility in Cheraw, SC, USA and talks about the investments the company has made in the plant which includes a new heat treat furnace. The heat treat furnace the press release refers to is a mesh belt line which is now in production.

"*Leading global automotive and industrial supplier Schaeffler Group USA Inc. celebrated the 50th anniversary of its Cheraw, S.C., operations with an event that highlights the facility's growth and success, as well as its long-standing ties to the local community. The event also recognized the campus's new role as an Engine Systems Manufacturing Center of Competence for North America. Today's festivities featured numerous invited guests and dignitaries, including: The Honorable Henry McMaster, Governor of South Carolina; Family Shareholder and Chairman of the Board Georg F.W. Schaeffler; Schaeffler AG CEO Klaus Rosenfeld; and members of Schaeffler's Global and Regional Executive Boards. "Fifty years of manufacturing in Cheraw is a good reason to be proud," said Rosenfeld. "It is living proof that the Schaeffler Group is a global player with a local presence, as it is one of our core interests to be close to our customers here in the United States. In addition to our local manufacturing, we also provide local and regional R&D facilities to fulfill the needs of our clients. Dedicated to being an attractive employer, Schaeffler Group also heavily invests in the dual vocational training in the United States to find, train and keep talent for our company."*

Earlier this year, Schaeffler announced plans to establish an Engine Systems Manufacturing Competence Center in Cheraw to better optimize its manufacturing footprint. Schaeffler's existing Cheraw manufacturing operations are currently being expanded to handle production of the FRAX bearing component used in an award-winning one-way clutch assembly that Schaeffler supplies to global automakers. The localization of the new component in Cheraw requires a new stamping press, heat treat furnace, media blaster and assembly line, as well as the relocation of 22 current Schaeffler employees. The expansion work is expected to be completed by the end of 2020. The new Cheraw Engine Systems

Manufacturing Competence Center, which represents a $65 million investment ($45 million in 2018/2019 and another $20 million slated for 2020) to the region, will create approximately 38,000 sq. ft. of additional space at one of the company's two manufacturing plants in Cheraw. The facility currently produces a variety of bearings as well as roller finger followers, roller rocker arms, planetary shafts and other precision components for a variety of automotive and industrial manufacturers."

Thomas Doppler, Aichelin GesmbH, Austria

Sep 26, 2019

We are looking forward to an interview early next week with Mr. Thomas Doppler of furnace builder Aichelin of Austria. Also upcoming is a visit to furnace builder ECM in Wisconsin, USA, news of some upcoming auctions featuring some heat treating equipment and talk of several individuals in the heat treating industry in Europe and North America changing positions.

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25 Most Influential People in the North American Heat Treating Industry

Sep 26, 2019

Recently we published our list of the most influential in the North American heat treating industry, a list which can be found at https://themonty.com/25-most-influential-people-in-the-north-american-heat-treating-industry-6/ It came as no surprise that this generated a number of comments both good, bad and indifferent. Two readers commented on the lack of females on the list-well we can think of several top notch females in the industry some that come to mind are Elena Ritoli of Metallurgical Processing in CT, Debbie Aliya of Aliya Metallurgical in MI and Kathryn Byington of Byington Steel Treating in CA however none of these names were mentioned to us. Several people lambasted us for not mentioning Steve Thompson of SSI while a number were very pleased to see the name of Mario Ciampini of Bodycote. At the end of the day we went with the names that were suggested to us. By the way two people asked when we are going to put together such a list for Europe, the answer is sometime in the future.

StandardAero Celebrates 30,000-Square-Foot Expansion at Ohio, USA Plant

Sep 26, 2019

This press release tells us how Standard Aero has just celebrated the expansion of their facility in Hillsboro, Ohio, USA-what it doesn't tell us is whether this includes any expansion of their heat treating department. It is certainly possible since their locations in Miami, Florida, Winnipeg, Manitoba and others have substantial vacuum heat treat departments which includes both horizontal and bottom load styles (Ipsen and Vac Aero both come to mind).

"StandardAero Component Services recently celebrated the grand opening of the company's 30,000-square-foot expansion of its Hillsboro, Ohio engine component manufacturing and engine component repair facility. The additional working space and capital improvements included the building and additional equipment to support aerospace engine low pressure turbine vane manufacturing. The expansion also provides additional space for further growth. Kerry O'Sullivan, Chief Operating Officer of StandardAero, and Rick Stine, President of StandardAero Components, Helicopters & Accessories, joined Mark Greene, Vice President & General Manager of the company's Hillsboro facility, his leadership team and employees to dedicate the new expansion on Sept. 20. The Hillsboro location expansion completes StandardAero's current plans for new building and expansion investments, which have also occurred at its Cincinnati, Miami and Kansas City locations over the last 18 months. StandardAero Component Services provides a complete suite of complex, high precision manufacturing capabilities including CNC milling, turning, drilling, grinding (creep feed, CBN & radial), welding (TIG, EB, & resistance), unconventional machining (EDM & SEG), brazing & vacuum heat treatment, thermal spray (APS, HVOF, & Wire), shot peen, inspection (CMM & NDT), and plating (anodize, chrome, cadmium, nickel, etc.). Providing a full suite of capabilities lowers TAT for its aerospace, oil & gas, and military customers."


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ALD SyncroTherm System Shipped to China

Sep 24, 2019

If you recall September 12 of this year we had a news item about German furnace builder ALD shipping a ***"SyncroTherm"*** furnace system to China-along with that item we had a few comments about how many such systems the company has sold over the years *(the original article can be found further down)*. In response to our comments ***Dr. Klaus Loeser***, Senior Vice President of ALD sent us a very informative response:

"Gord, correct, we delivered 5 SyncroTherm lines to the USA. Since the introduction of SyncroTherm a total of more than 30 lines have been delivered worldwide. The spectrum of application ranges from the automotive industry and its suppliers, the aviation industry, tool manufacturers to contract heat treaters. Let me say a few words about the costs of the system, which at first glance appear high. For our customers, the total production costs in the manufacturing chain count. They invest in SyncroTherm technology if, for example, the low-distortion heat treatment in this system can significantly reduce their hard machining costs, or if, for example, a hardening press can be dispensed with. The costs of the pure heat treatment system are then subordinate. We have customers who have invested in two technologies for their product range, in a SyncroTherm system with 2D-small batch production technology for components that cannot be treated differently due to distortion reasons, and in a ModulTherm system with 3D-large batch production for the remaining components. Best regards, Klaus Loeser, Senior Vice President Heat Treatment, ALD Vacuum Technologies GmbH"

September 12/2019 News Item; *German furnace builder ALD of Hanau started offering their SyncroTherm thermal processing system a few years back and this press release tells us how the company has shipped their first system to China. The SyncroTherm system offers some advantages over other furnace systems but the very high cost is certainly a detriment to a lot of potential customers. We are unsure of how many systems the company has in the worldwide market place but we can say that our understanding is that the company has 5 such systems installed in North America, two at Milwaukee Electric Tool in Mississippi, USA*

(which were installed in 2013) and 3 at an aerospace components supplier with 2 locations in the US.

"The vacuum heat treatment system SyncroTherm creates completely new perspectives for an effective and more economical hardening of high-quality components. This new and unique technology improves productivity meanwhile simultaneously reducing negative effects such as distortion of the treated components and a high degree of environmental compatibility. With the delivery of the first SyncroTherm to a well-known institute in the Beijing area, ALD has been able to create an important reference and provide impulses for technological developments. The carburization of components made of micro-alloyed steels is carried out at high temperatures above 1,000C without unwanted grain growth. In addition, single-layer charging permits individually controlled and component-adapted high pressure gas quenching for a wide variety of component geometries. With the SyncroTherm, our customer will be testing novel steels for high-temperature vacuum carburization, which in the long term can make a significant contribution to cost-effectiveness and environmental protection. Our delegation of customer was convinced of the quality of the system after the preliminary acceptance. It is now prepared for shipment to Beijing."

Where Are They Now-Ron Graham

Sep 24, 2019

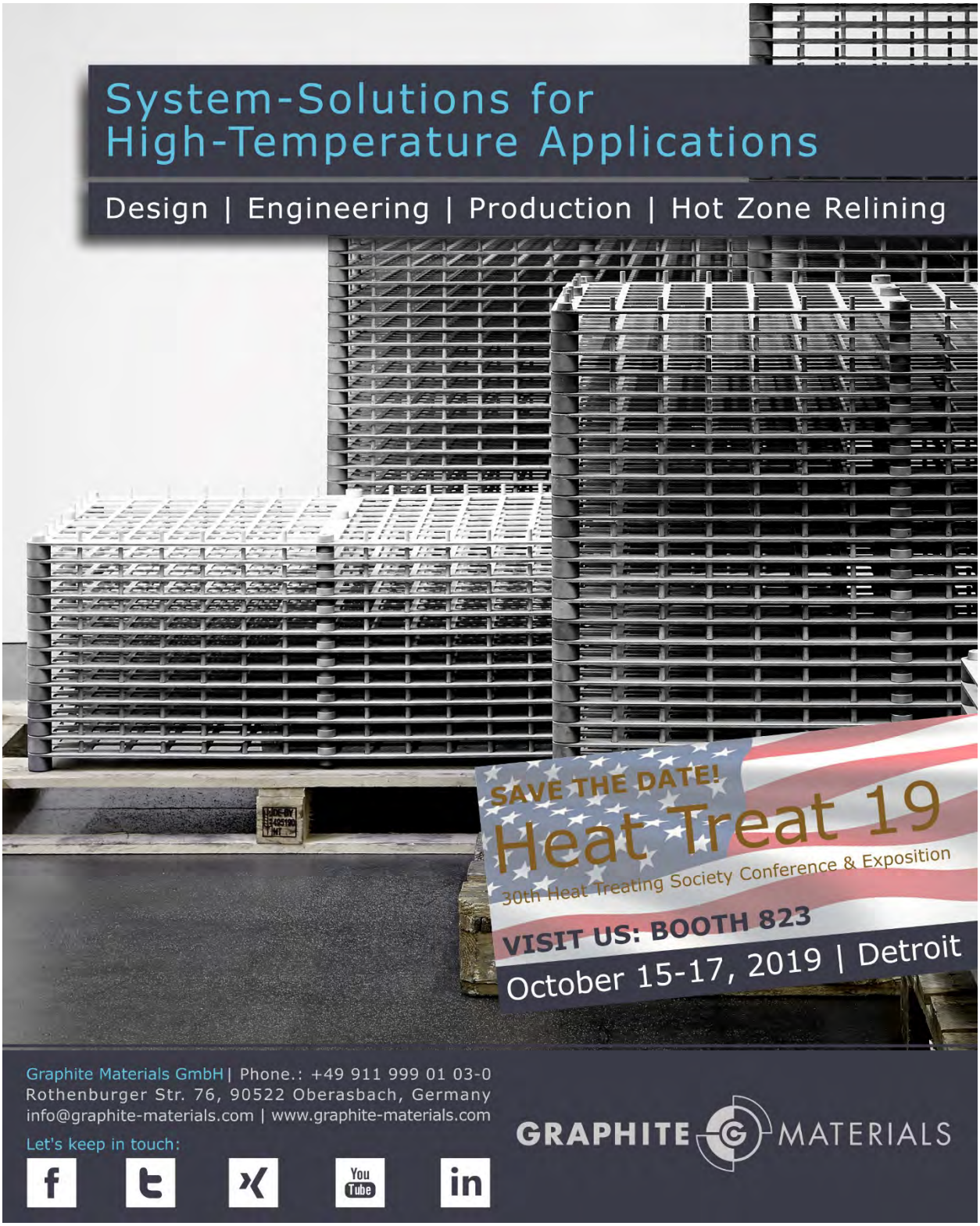
Ron Graham has bounced in and out of the heat treat industry with stints at furnace builder Surface Combustion, furnace builder AFC-Holcroft and commercial heat treater Paulo where he worked out of the Cleveland office for one year. It would appear that he has left the industry again just one month ago and is now involved in Business Development at August Mack Environmental in the Ohio area.

Cost of in House Heat Treating

Sep 24, 2019

Now this is an interesting question, one which deserves some more attention in the near future-basically what is the cost of in house heat treating? We have condensed the original question but the gist remains the same. The question reminds us of a very large captive / commercial heat treater in New York State who told us during a meeting a couple of years back that the heat treat department was far and away the most profitable department in the entire company-we were suitably impressed. However after some more discussions it was revealed that the energy costs for the entire plant were allocated on a square foot basis rather than by department. As most of the plant consisted of assembly and machining it was immediately obvious that if the energy costs were allocated on a departmental basis the profitability of the heat treatment department would drop substantially. We will look at this more in the near future.

"Gord I am reaching out about a particular problem I'm having with our heat treat department. That issue is determining the most accurate way to assign costs to our heat treated parts. We are an internal heat treater only, and heat treating makes up only one part of our manufacturing process. As such, it becomes difficult for us to associate how much cost should be associated with each part-any suggestions or rules of thumb?"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Mayer Industries, Orangeburg, SC, USA Auction

Sep 24, 2019

Braiding machine manufacturer (we are not entirely sure what a braiding machine is), Mayer Industries in South Carolina, USA has closed their doors and the remaining equipment is going to auction October of this year. Our interest and yours is in the fact that there are a few heat treat items of interest included in the auction, the main one being a rather nice looking CI Hayes Vacuum Carburizing furnace with these specs; 2400 Degrees Max. Operating Temperature, 24” x 12” x 9” Working Dimensions, 100Lb. Maximum Load; Parts Door Approx. 18″ W x 15″ H. CI Hayes was at one point in time the leader in vacuum carburizing technology and the company made hundreds of these systems. These days when they come on the used equipment market their value ranges from zero to substantial-it is always hard to tell because the demand fluctuates enormously but this appears to be a nice looking unit and will probably attract some reasonable offers. An official announcement about the closing is below along with some photos which might be of interest.

“An Orangeburg braiding machine manufacturer is closing its doors after nearly 50 years of business. “Mayer Industries Inc. has been a longtime resident in Orangeburg,” Mayer CEO George Fischer said. “It is with no small sense of sadness that the Mayer family had to make a difficult decision to consolidate manufacturing at the German headquarters of Mayer & Cie. The current consolidation of the braiding machine business into the German operations follows the consolidation of the knitting machines business in the early 2000s,” Fischer continued. “This consolidation will provide diversification and improved asset utilization.”

Solar Atmospheres of Western PA Appoints Gregory Scheuring as Plant Metallurgist

Sep 24, 2019

"We are extremely pleased to announce the addition of Gregory Scheuring to our team, as Plant Metallurgist for Solar Atmospheres of Western PA (SAWPA). Greg is a graduate of the University of Pittsburgh, where he earned both a Bachelor's and a Master's degree in Materials Science and Engineering. Having extensive metallurgical experience from his time with A&T Stainless, AK Steel, and the Ellwood Group, Greg brings a wealth of knowledge and expertise to his new role as Plant Metallurgist with Solar Atmospheres. Greg applied to Solar after developing a keen interest in vacuum thermal processing and wanted to gain real world experience with the advantages of vacuum heat treating.

Bob Hill, President of SAWPA, says, "We are excited to gain Greg's knowledge base of many materials. Along with assisting with daily metallurgical questions, Greg will be instrumental in expanding our materials testing laboratory." Greg resides in New Castle, PA with his wife, Rachel, and their five children. For additional information about Solar Atmospheres, contact Mike Johnson at 1-855-934-3284 or mikej@solaratm.com, and visit us at www.solaratm.com."

East Carolina Metal Treating/Raleigh, NC, USA

Sep 22, 2019

One of the larger family owned commercial heat treats in North America is East Carolina Metal Treating in Raleigh, NC-a company we know fairly well. The company sent us this press release about their 6th Nadcap audit.

"After many successful years undergoing rigorous Nadcap audits, East Carolina Metal Treating has completed it's 6th audit successfully! This audit completed in August has given the company a merit based certificate that will allow them to complete their audits on an 18-month schedule rather than the traditional 10-month schedule. Special congratulations to East Carolina Metal Treating and their quality team for working hard to ensure that quality and customer service is a top priority on a day to day basis. East Carolina Metal Treating has been in business since 1976 with locations in Raleigh, North Carolina and Lynchburg, Virginia."

Premier Furnace Specialists' and BeaverMatic Expansion

Sep 22, 2019

Premier Furnace Specialists' and BeaverMatic have completed a major 2.5 million dollar building expansion at one of their Farmington Hills facilities. This expansion provides 45' high ceilings with two large (25 ton and 10 ton) overhead cranes to complement the existing two (10 ton) overhead cranes. The total square feet under one roof is now 40,000. The expansion was needed for the continued growth of both companies, the magnitude of the furnaces being built, and to employ additional employees. We are looking forward to future prospects and growth.

Gasbarre Supplies 48" Wide Belt Annealing Furnace to a World Leading Fully-Integrated Manufacturer

Sep 22, 2019

Gasbarre Thermal Processing Systems recently manufactured and commissioned a 48" wide belt, electric, annealing furnace for a world leading manufacturer. This is the 2nd furnace Gasbarre has supplied this company. The customer chose Gasbarre again because of the quality and reliability of the first furnace. The first furnace provided unparalleled up time with minimal downtime needed for maintenance. This new system was designed to meet the customer's strict process requirements. The furnace came equipped with 3 heating zones that can heat up to 1200 degrees Fahrenheit. Our customer required a target belt speed of 10 inches per minute in addition to 2000lbs per hour and we were able to achieve all those goals. To aid with unattended loading and offloading Gasbarre designed a special automated parts feeder and a Pneumatic unload mechanism. The furnace was equipped with an Allen Bradley Panelview HMI for complete furnace control and data tracking and trending.

Located in St. Marys, PA, Gasbarre Thermal Processing Systems has been designing, manufacturing, and servicing a full line of industrial thermal processing equipment for over 40 years. Gasbarre's product offering includes both batch and continuous heat processing equipment and specializes in Temper, Tip Up, Mesh Belt, Nitriding, Box, Car Bottom, Pit, and Vacuum Furnaces as well as a full line of replacement parts and auxiliary equipment which consists of atmosphere

generators, washers, quench tanks, and charge cars. Gasbarre continues to service and support Sinterite brand equipment and custom designs and manufactures thermal processing equipment to meet customer's specific needs.

For more information on how Gasbarre can manufacture custom-engineered heat treating equipment solutions for your specific thermal heating requirements, please contact Bill Gasbarre at (814) 834-2200 or via email at bgasbarre@gasbarre.com. You can also visit our website at www.gasbarre.com and find us on LinkedIn (Gasbarre Products Inc.), Twitter (@gasproinc), and Facebook (Gasbarre Products Inc.

GASBARRE

Magnetic Specialties Expands Plant Space

Sep 22, 2019

Magnetic Specialties, Inc. (MSI) announces the construction of a new 4,800 SF addition to its plant space on Keystone Drive, Telford, Pa. The new insulated and heated steel building with reinforced concrete floor is contracted with Gorski Construction Engineers Collegeville, Pa. Mike Afflerbach, President of MSI, says the building addition is essential for added efficiencies and expansion of useable floor space in his main manufacturing building. Afflerbach states: "This expansion gives us 25-30% more production floor space, which is significant. When completed, we will have the flexibility to realign the space as needed for better efficiency." MSI is a manufacturer of heavy-duty power supplies for the electric furnace industry, specialty transformers and reactors for various industries, and smaller specialty transformers for the electrical and electronic industry. For additional information about Magnetic Specialties, email sales@magspecinc.com, call 267-384-5231, or visit www.magspecinc.com.

Moscow Heat Treatment Show

Sep 20, 2019

The just concluding heat treatment show in Moscow, Russia doesn't deserve a great deal of attention because of it's relatively small size, however we will leave you with a few further photos. By the way in just 3 weeks we will have a great deal of coverage of the Detroit, USA show followed by the Cologne, Germany exhibition.

Damian Bratcher, SSi, Evgeny Ilichev and Anna Peretyaka of furnace company Nakal.

DCI Thermal (which is US cooling specialist Dry Coolers of Michigan).

Gord Montgomery and Olivier Chevre, Sales Manager of Swiss furnace builder Codere

Michael Taake, PhoenixTm, Germany

Heat Treatment Exhibition Moscow

Sep 18, 2019

We are currently at the “13th International Specialized Exhibition Heat Treatment” in Moscow, Russia which runs from September 17-19th. This is the first time we have attended this event and we will happily even gladly give you our impressions. The main thing to know is that this show is only if you want to sell heat treat products to Russian customers. You do not attend this event for technical seminars (although this year the IFHTSE conference is being held in conjunction with the show which is an exception), and you do not attend this show to meet potential European, Asian or North American customers-you attend to meet potential Russian customers and from that standpoint the show is the best available. With roughly 70 exhibitors (we would estimate half Russian companies and the balance Asian and European) it would be considered a small affair, but reasonably well organized. While we at “The Monty” wouldn’t consider this an important venue several European furnace manufacturers reported that the Russian market is an important one for them with one company saying that almost a third of their sales come from Russia these days. These photos give you an idea.

Hugo Bosio, Bill Disler, Mark Ruetsch

Thomas Mueller and Walter Hacker (Rubig), Gord Montgomery

Sarkay Sasi (Sistem Teknik), Gord Montgomery and Evren (Sistem Teknik, Turkey)

Jean-Michel Bechir, VP Sales, Swiss Furnace Builder Solo/Borel

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Auction, Assets Formerly Of Torqtek

Sep 18, 2019

Auto parts supplier American Axle & Manufacturing recently closed down their facility in Charleston, SC, USA (this was the former Torqtek facility). Thursday October 17th starting at 10:00 AM the remaining assets which include CNC Hobbers, gear shavers, chamfering machine, machining centers, turning centers, grinders, heat treat and much more will be auctioned off. While the auction mentions heat treat equipment most of it has already been sold and what remains will be fairly limited.

An Understanding of the Annealing and Normalizing Process's By David Pye Part 1

Sep 18, 2019

A Simple Review of the process of Annealing.

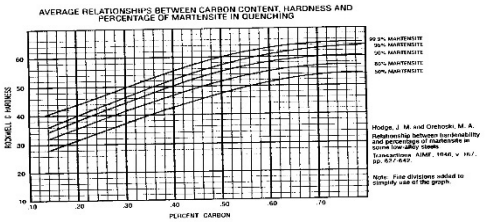
We know that the purpose of annealing is to make the steel soft and malleable. We know that the process of normalizing will provide a uniform prior grain structure and flow. We know that the process of stress relieving will reduce induced stresses in the steel as a direct result of cold working and machining of the steel.

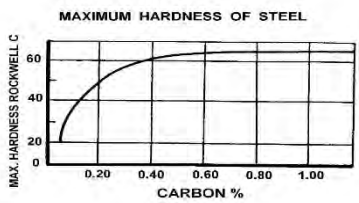
Why is carbon added to the steel?

Carbon is added to iron to transform the iron into steel, because that is what steel is. Simply an alloy of iron plus carbon. However, the more carbon that is added to the steel, the worse the surface finish will become. The strengthening effect of carbon in steel is the fact that the carbon is in solid solution in the steel. The grain size and type of phase formation is an important consideration to the machining characteristic of the steel as well as it ability to respond at the final heat treatment. The grain size grain orientation will also influence the steel's ability to resist (not eliminate) cracking at the final heat treatment. Once the carbon percentage exceeds 2.3%, then the steel is becoming cast iron. Cast iron can exist with either graphite nodules in the form of round nodules, or long stringers of graphite. Cast iron can also exist as white or gray cast iron.

The cast irons are simply iron with an excess or super saturated solution of carbon in iron. Cast Irons do not usually have any carbide forming elements present in solution. Because cast irons have excellent compressive strength, they have been traditionally used in machine tool applications. It is interesting to note now, that in present day machine tools other materials are being used for compressive strength.

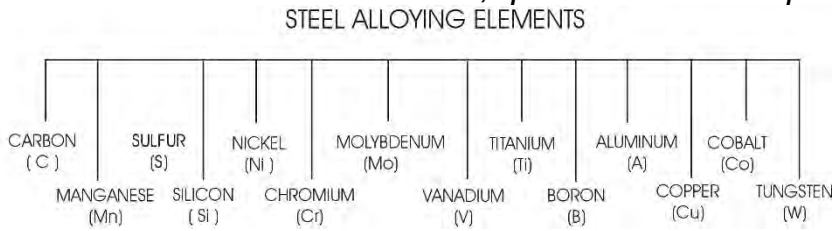
The following illustration shows the effects of carbon in a plain carbon steel. It further shows the importance and effects the quench medium and the transformation of austenite to martensite. Please remember that this is for a plain carbon steel, not an alloy steel or tool steel. The top line displays the hardness results based on a good transformation to martensite, and the bottom line shows the effects of only 50% transformation from austenite to martensite.





The previous illustration (shown above indicates) the approximate maximum hardness achievable despite the increase in carbon % above approximately 0.65The following illustration once again shows, the principle alloying elements that are typically added to the steel ladle when the steel is being made.

There are other elements which are used as trace elements and are not shown here. Each of the alloying elements creates different properties and reactions within the steel when the steel is austenitized, quenched and tempered.

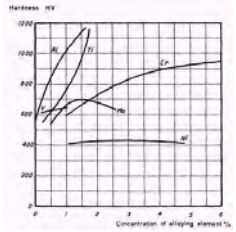


Manganese

Manganese is used as a deoxidizer and desulfurizer. It is usually present in amounts from 0.30% up to a maximum of 2.0%. However, there is a steel called Hadfield's Manganese steel with 12.00% manganese and 1.00% carbon. The steel is soft (austenitic) at room temperature but will rapidly work harden making it very useful for high abrasive wear. The influence on the hardness properties of steel by the introduction of suitable alloying elements.

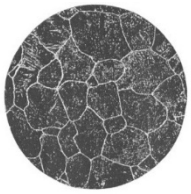
Silicon

Silicon is present in most steels as one of the principle deoxidizers at the steel melt operation. It is usually kept to a maximum content of 0.40% maximum. If that value is exceeded, then a reduction in ductility will be seen. Silicon will also assist in hardenability if combined with manganese or molybdenum.



A graphical interpretation of the change in the mechanical properties due to various elemental additions to an alloy steel.

The illustration below is of a plain carbon steel exhibiting a coarse grain structure.



Comparison of coarse grain steel in relation to fine grain steel.

- *Greater distortion factor than with fine grain steels.*
- *Deeper depth of hardening than with fine grain steels.*
- *Lower ductility factor than a fine grain steel of the same analysis and hardness.*

Sulfur is present in the first instance as a trace impurity. Sulfur is also added as an element to assist with free machining capabilities.

- *High sulfur will also cause segregation at the grain boundaries in significant amounts.*
- *If the steel is a bearing steel, then sulfur will improve the fatigue life.*
- *In the free machining steels, the sulfur is anywhere betwe0.08% up to 0.32% ca*
- *If there are high manganese contents and high sulfur contents, the sulfur can react to form insoluble manganese sulfide stringers which are insoluble.*

Phosphorous

- *Phosphorous is also seen as an impurity in high concentrations, of greater than 0.04%*
- *Phosphorous has the ability to reduce both ductility and impact toughness.*
- *High phosphorous contents can also cause temper embrittlement in the alloy steels, and it can also help and assist with hardenability.*

Aluminum

- *Aluminum is a strong deoxidizer at the steel making procedure, and also a grain refiner.*
- *Aluminum is also a strong nitride former and will react to for hard nitrides.*

- *Aluminum can also assist in the reduction of surface oxide formation. Do not be under the impression that it will eliminate surface oxidation, it will only reduce it.*
- *The higher contents of aluminum are generally added to the heat resistant alloys to reduce the oxidation problem.*
- *Aluminum can also be added to improve the corrosion resistance of low carbon corrosion resistant steels.*

Chromium

- *Chromium is a carbide former and is used in tool steels as well as alloy steels to form hard carbides with carbon.*
- *Chrome carbides assist in the resistance of abrasion due to their very hard nature.*
- *The chrome carbides will retain hardness values at high operating temperatures.*
- *Chromium will improve the corrosion resistance of a steel as well as assist in the reduction of surface oxidation.*

Molybdenum

- *Molybdenum is an exceptionally strong carbide former in the presence once again of carbon.*
- *Molybdenum has the ability to improve the secondary hardness characteristic of some of the highly alloyed tool steels.*
- *Molybdenum will assist very strongly as a grain refiner.*
- *Molybdenum will improve both hardenability and fatigue strength.*
- *Molybdenum also has the ability to improve the corrosion resistance of a steel, although not as well as chromium.*
- *It is also used to reduce the creep strength of low alloy steel that operate at elevated temperatures.*
- *Molybdenum is also used in some stainless steels to help reduce pitting corrosion.*

Boron

- *Boron is generally seen in steel in very small amounts of between 0.0005% up to 0.0035%.*

- *It will improve the depth of hardening very dramatically of all of the other alloying elements in solution in the steel.*
- *Large amounts of Boron make it very brittle. Its only benefits are seen with the lower concentrations.*
- *Boron is also a useful element in assisting a steels weldability.*

Nickel

- *Nickel is a non-carbide former and will do nothing in the steel to assist with the formation of both carbides and nitrides.*
- *Nickel will raise the hardenability of certain steels.*
- *Nickel will also assist in improving fracture toughness and fatigue resistance.*
- *However, in a carburizing steel, high nickel contents tend to promote retained austenite.*

Tungsten

- *Tungsten is among the carbide formers and will readily for strong carbides. As the tungsten content increases, the carbide formation will increase.*
- *High percentages of tungsten will assist in the secondary hardness phenomenon in certain tool steels.*
- *The presence of tungsten will enable the steel (high speed steels and hot works) to retain their high hardness values at red heat.*
- *Tungsten will also minimize the risk of grain growth at elevated temperature. Therefore, tungsten is a grain refiner.*

Cobalt

- *Cobalt is not a carbide former, and on its own it will reduce the hardenability of steel. However, if cobalt is present with chromium, the steels hardenability will improve dependent on the percentages of both elements.*
- *Cobalt will raise the Martensite Start line on the Tim Temperature Transformation diagram.*
- *Cobalt will also inhibit grain growth.*
- *Cobalt will further improve the temper and high temperature strength.*
- *The use of cobalt is usually restricted to the high alloy tool steels, such as HSS Hot Works.*

Vanadium

- *Vanadium is an excellent carbide former and will strongly improve the steels hardenability.*
- *Vanadium is also a strong nitride former and will for strong nitrides.*
- *Vanadium is also a grain refiner and will improve the tensile strength and toughness.*
- *Vanadium is used in the micro-alloyed steels as a strong carbide and nitride dispersion.*
- *Vanadium will also assist in tempering and it will raise the steels ability to cut and it will raise the steels ability to cut and retain its hardness at red heat.*
- *Vanadium will also help to retain the edge of a cutting implement because of the strong carbides.*
- *It will also assist in the ease of welding of heat treatable steels.*

Lead

- *Lead has been the element of choice to add to steel for free machining properties.*
- *Lead has been used in a range of 0.20% up to 0.50%*
- *Lead will begin to evaporate from the surface of free machining steels at elevated process temperatures such as carburizing. It will leave a slight surface porosity.*
- *The use of lead as a free machining element is declining almost to the point of extinction, because of it being hazardous to health.*

Nitrogen

- *Nitrogen is usually present in solution with the steel.*
- *However, it can be added as a solid solution by the decomposition of (for example) ammonia.*
- *Nitrogen is also an austenite stabilizer. In other words, during the process of carbo-nitriding, Nitrogen will suppress the Upper Critical Lines of the Iron Carbon Equilibrium diagram, thus reducing the austenitizing temperature. (Reducing the distortion).*

Niobium and Tantalum

- *Niobium and Tantalum are strong carbide formers, but are not present in large percentage amounts.*

- *Both elements are also strong grain refiners and will increase the yield strength of the steel.*
- *Niobium is used predominantly in micro alloyed steels to create an increase in the steels yield strength.*

Copper

- *Copper is not a usual alloying element in steels. Copper will increase the steels hardenability*
- *The presence of copper will improve the corrosion resistance of steels if present in appreciable amounts. If above 1% in stainless steels, it will improve the resistance to acidic corrosion.*

Zirconium

- *Zirconium is added to HSLA steels to improve the steels resistance to nonmetallic inclusion formation such as occurs with manganese sulfide.*
- *Zirconium is also a very strong carbide former and will react with readily with carbon in the steel to form zirconium carbides dispersed through the matrix of the steel.*

We will continue with part 2 in the next issue. Sincerely, David

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Paul Dymond-35 Years At Bodycote

Sep 18, 2019

We happened to see on one of the social media sites that Mr. Paul Dymond of Bodycote was celebrating 35 years with the company (Paul is now Regional General Manager-Western USA). This prompted our recollection of a picture we posted of Paul back in 2010. In this photo you can see Paul arm wrestling with Don Longenette (who was with Bodycote at the time) over the bar bill. We remember this as a very fun evening.

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25 Most Influential People in The North American Heat Treating Industry

Sep 17, 2019

With the help of our readers (just over 300 different suggestions in total) we have completed our 2019 list of the 25 Most Influential People in the North American Heat Treating Industry. The basic criteria we suggested to make the list is that the individuals named are in positions to change the course of the captive and heat treating markets in North America either in terms of presenting new technologies, influencing purchasing decisions, deciding what type of heat treating to do or effecting current heat treatment practices. Examples could include pioneers in new forms of heat treatment, the fellow at a major captive heat treater who decides which furnaces to buy, CEO's of major furnace builders, large commercial heat treaters or consultants who advise on what equipment should be used. In addition, to make the list individuals must currently be active in the industry which means that those who are deceased will not be included (we are not being facetious, time marches on at least 3 individuals who made previous lists are no longer with us, Jeff Pritchard of Vac Aero, Mr. George Pfaffman of Ajax Tocco and Steve Graham of American Axle & Manufacturing).

We received some very interesting (although in some cases puzzling) suggestions. Some suggestions we received who did not make the list were Dan McCurdy of

Bodycote (just retired), Mr. Bill Andreski, President – MetConsult LLC who received one very complimentary suggestion from a large captive heat treater (by the way we also have a high opinion of Bill) and Don Longenette formerly of Timken and Bodycote (who very recently changed career paths). It is interesting how much the list has changed since our last update-13 out of 25 names on this list did not appear all those years ago.

We do want to stress that all of these names were suggested to us by multiple people, but unfortunately we are sure that some who deserve to be named were not for one reason or another.

So we proceed to the fun part–the actual list. The #1 suggestion for the most influential individual in the North American heat treating industry is none other than Mr. Stephen Harris, CEO of Bodycote. We have listed his name first along with the reasons he was suggested. The other 24 names are in alphabetical order. We appreciate all the suggestions and look forward to another updated list in 2020.

Stephen Harris, Bodycote International. As CEO of the largest commercial heat treater in North America (although based in the UK) Stephen decisions have an enormous effect on the industry. In North American alone the company has 67 facilities between Mexico, Canada and the US and sale of over $400 million USD per year-the company's footprint has doubled over the past 7 years. Other readers mention the fact that under his 11 years of leadership the share price has gone from 115 pence when he started to 760 pence today.

Pete Batche, Emerald Steel. 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. While we recognize that Pete is just one part of the CQI-9 team his name keeps popping up and several people suggested him. Pete has been going strong

for many years and is currently Quality Manager/Metallurgist at Emerald Steel in Michigan.

Bill Braddock, Braddock Metallurgical. Family owned Braddock Metallurgical based in the US Southeast is ranked as the 7th largest commercial heat treat in North America https://themonty.com/largest-commercial-heat-treats/ and this is largely due to the efforts of Bill and Steve Braddock (unfortunately Steve has passed away). Bill has been on our lists in the past and while he is not as involved in the day to day operations as he once was, several people suggested him. Bill's title these days is executive Vice President.

Bill (B.J) Bernard, Surface Combustion. 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 Bernard (Senior) had a direct impact on the industry. In turn his son B.J. Bernard who is now President of the company has a very strong influence in the industry.

Bill Disler, AFC-Holcroft. Bill has spent virtually his entire working career in the heat treating industry and for the past 13 years has been President and CEO of AFC-Holcroft (part of the Aichelin Group located in Vienna Austria). As one of the largest furnace builders in North America his decisions about what new technologies should be pursued and what products to offer can and do affect the entire industry.

Mario Ciampini, Bodycote. Mario has not been on our list before, however with his history in the industry we agreed with each of the suggestions we received about including Mario. 18 years with Ipsen (1987-2005) of which 13 were in the capacity of President/CEO. Two major accomplishments: Acquisitions integration of Abar Ipsen and Ipsen Industries followed by the acquisition of Vacuum Furnace Systems. This was followed by joining the Bodycote Group in 2006 and establishing the Asia footprint in China, SE Asia, India and Japan for a period of 6

years, followed by operational responsibilities in North America, and M&A for past 3 years.

Fred Hamizadeh, AAM. A brand new entry on our list is Mr. Fred Hamizadeh of American Axle & Manufacturing who has the title of Director – Global Manufacturing Services – AAM Heat Treat & Facilities Process. Fred has over 30 years in the industry with companies such a Surface Combustion, Williams Industrial and AAM where he makes the heat treating decisions for one of the largest captive heat treaters in the world. Without a doubt Fred deserves to be on our list.

Mark Hemsath, SECO/WARWICK. Director of Nitriding & Special Vacuum Furnaces-Thermal GM, SECO/WARWICK. Like many of us in the industry Mark was born into it as his father was very prominent in heat treating. We had a total of 6 suggestions that Mark be included which is very impressive. Mark offers a lifetime of experience in heat treating and new technologies.

Jeff Hemmer, Bluewater Thermal. Jeff has been in the heat treat industry for almost 40 years and has worked with commercial heat treaters such as Industrial Heat treating and NDT services which was acquired by Lindberg which was then acquired by Bodycote. Since 2008 he has had a leadership role at Bluewater Thermal and is currently President and CEO. Overseeing over 550 people Jeff has a very decided influence on heat treating.

Bob Hill, Solar Atmospheres. Commercial heat treater Solar Atmospheres is one of the largest commercial vacuum heat treaters in North America and several people suggested Bob. We will leave it up to Bill Jones, CEO of the company to tell us why Bob should be in included on our list; “Bob is a degreed metallurgist with over 40 years’ experience in the heat treating industry. His career began in 1977, with Precision Heat Treating Co. of Southampton, PA. Within two years, Bob was promoted to Plant Manager. In 1995, Bob left Precision HT to join Solar Atmospheres of Souderton, PA as Plant Manager. In 2000, Bob established Solar

Atmospheres of Western PA (Hermitage) from a greenfield site, with the first 24' car bottom vacuum furnace for annealing large Ti rolls, some 50,000lb workloads, and, at the time, the largest car bottom vacuum furnace of its kind. Bob has since expanded the plant to 75,000sf of factory floor space, with an additional 18 vacuum furnaces, including a metallurgical lab and testing facility. Bob is well recognized as a heat treater for large aerospace components, medical, and other critical materials, including Ti, high temperature SS alloys, magnetic metals, and vacuum brazing large assemblies. Starting from nothing, the Solar Hermitage plant now generates over $20m in sales per year and is growing. Bob is a past President of the MTI (2014) and former ASM Board of Trustees member (2010). Respectfully submitted by William R. Jones, Owner of the Solar Family of Companies"

John Hubbard, Thermal Process Holdings. You could certainly make the argument that the most successful commercial heat treater in North America is John Hubbard. From humble beginnings he formed a small commercial heat treating group by the name of Hinderliter which became part of Bodycote which lead to him becoming CEO of the company. After retiring for a few years he re entered the industry and is now part of Thermal Process Holdings which has 5 locations around the US with more to come.

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.

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 Michel created one of the largest furnace controls company's in North America, United Process Controls. Michel was on our

original list many years ago and while perhaps he has slowed down a bit we still see him at various trade shows and he continues to have an impact on the industry.

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. Scott is truly a staple of the heat treatment industry and can be found at various trade shows all over the world quite often as part of IFHTSE (International Federations of Heat Treating & Surface Engineering).

Bill Mayer, Industrial Heating. Bill was in the top five for the number of nominations we received. Bill is Managing Editor of Industrial Heating, the largest and oldest publication in the heat treatment industry in North America. He has had more than 9 years at IH and the general consensus was that his decisions on what to print have a day to day effect on heat treaters.

Pat McKenna, Ipsen. Pat is now President of Ipsen North America which is one of the largest furnace builders on the continent. He like many (most) on this list became involved in the heat treatment industry at quite a young age and has worked his way up through companies such as Nevada Heat Treating. We predict that his star is going to continue to rise in this business for quite a few years to come.

Jeff McLaughlin, McLaughlin Furnace Group. Interesting fellow Jeff. He started in the heat treating industry at a very young age and up until just a few years ago his name was not one commonly recognized. Over the past few years his company McLaughlin Furnace Group has grown by leaps and bounds and is now quite a recognized name all around North America both for atmosphere and vacuum furnaces.

Jim Oakes, SSi. We had several suggestions about Jim Oakes, Vice President of Business Development at controls company SSi. Interestingly enough

the suggestions concentrated more on his involvement in organizations such MTI and Nadcap than his efforts at SSi. Jim is President Elect of Metal Treating Institute and will become the President this fall.

Rich Ott, Linamar. Global auto parts supplier Linamar is an amazing success story moving from a 1 man operation 50 years ago to a multi billion dollar per year, global supplier. Based in Canada Linamar offers captive heat treating on 3 continents and this includes vacuum carburizing, nitriding, nitro carburizing-you name it and Linamar probably does it. And the man in charge of their heat treating-Rich Ott with over 40 years experience.

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.

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. Gary made our original lists but 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.

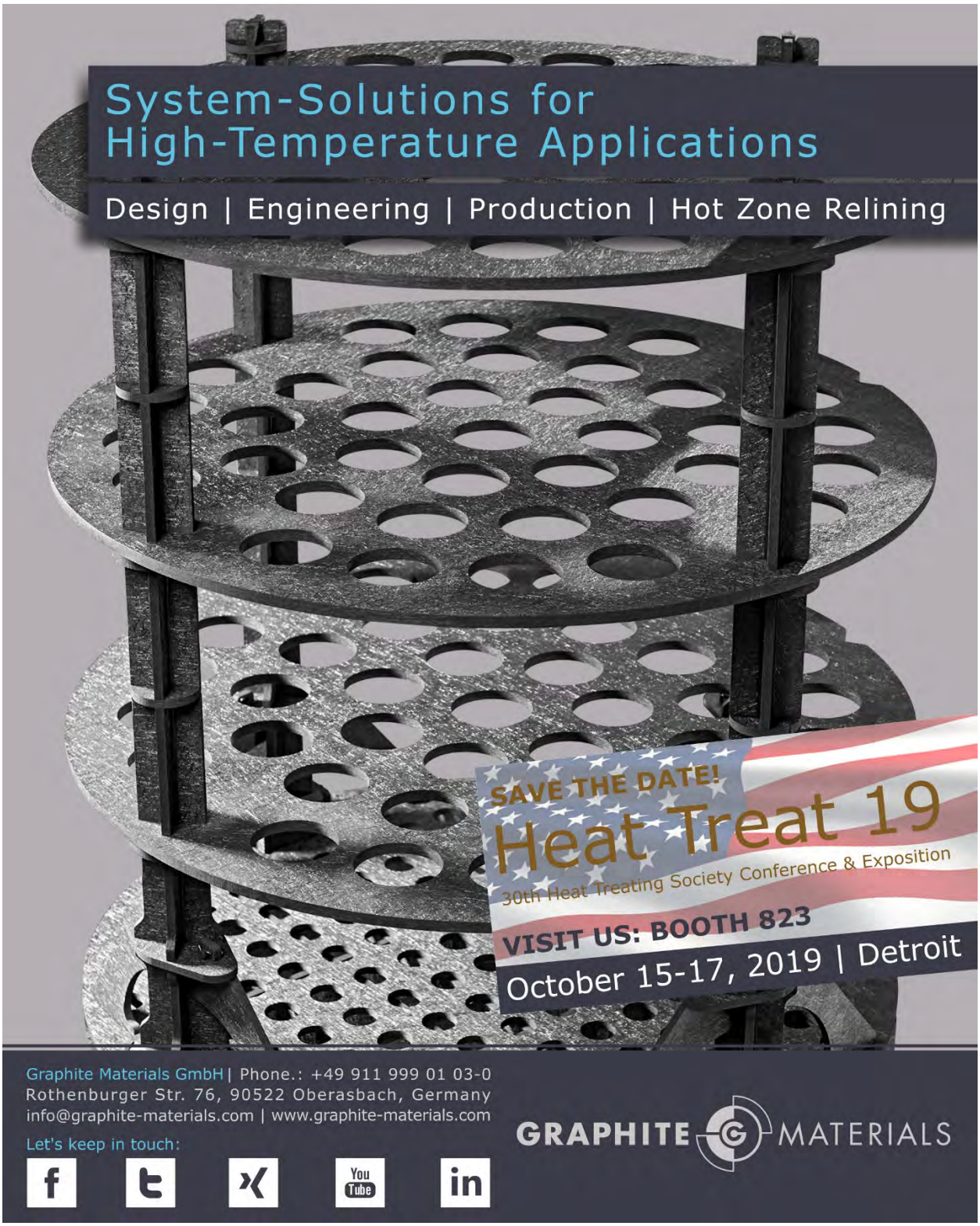
Jeff Smith, SBS Corp. We have to confess that Jeff's was not a name which occurred to us, however because of his efforts water cooling of quench oils is largely a thing of the past. We had several people suggest his name including Dean Russell who said this; "I would like to nominate Jeff O. Smith the founder of SBS Corp. Jeff truly changed the Heat Treat Industry by solely focusing on one objective, To convert existing integral quench furnaces, and convince new

customers that the only way to cool quench oil is with air coolers. No small task for a small start up company. But one by one, and year by year he stayed focused, and accomplished his objective. I played a part in the early years, and I can thank Jeff for introducing me to a fabulous 40 year career, in an industry I love. Sincerely, Dean L Russell. Industrial Thermal Systems".

Geoffrey Somary, Ipsen Inc. My how Geoffrey's star has risen over the years. From beginnings outside of the heat treating industry he has slowly but gradually moved up the ranks at Ipsen, very recently becoming CEO of Ipsen Group one of the largest furnace builders in the world. In this position Geoffrey has ultimate authority over product development, marketing and new technologies.

Pat Torok, United Process Controls. What an excellent suggestion this was by several readers and one which would not have occurred to us much to our embarrassment. Pat has always been involved in the controls side of the business and many of his ideas have been truly ground breaking such as "The Furnace Doctor" (a portable 3 gas analyzer) which he brought to market quite a few years ago. Since that time he has worked with one of the larger control companies in the industry, United Process Controls and continues to come up with innovative ideas.

Valery Rudnev, Inductoheat. Inductoheat is the largest induction supplier in the world and the good doctor is Director of Science & Technology at the company's office in Michigan. His name regularly pops up in connection with Induction heat treating technology and in particular for various awards, all based upon a lifetime spent in the industry. Valery by the way is the only Induction "fellow" to make our list.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Monday Morning Briefing

Sep 16, 2019

Furnace builder ***AFC-Holcroft*** of Wixom, Michigan, USA (part of Aichelin Group) just last week held an open house as we can see in this photo. We see what appears to be a total of 4 large batch IQ furnaces in various stages of construction- no idea who they are going to.

Thermal Modification Technologies. Out in Tualatin OR, USA we find commercial heat treater Thermal Modification Technologies (which used to be called Beaver Heat Treat by the way, a name which rolls off of the tongue a lot easier than Thermal Modification Technologies but that is just our opinion). The company is quite justifiably proud of this beast which they installed not that long ago. It is a very large carbottom furnace with working dimensions of 12' wide x 10' tall x 45' long.

We see that commercial heat treater ***Hauck***, one of the largest in Europe is expanding their Dzierżoniów, Poland facility. We visited this location a few years back and at that time what we saw was a brand new plant with brand new batch IQ (sealed quench) furnaces. The man most responsible for this is the GM ***Mr. Bart Olegnik*** who can be seen in the centre of the one photo below.

Down Mexico way as they say we see that commercial heat treater ***Procesos Termicos HTMX*** has joined a small, select group of heat treaters in the country who are NADCAP accredited. The company offers batch IQ processing amongst other processes and operates under the direction of ***Mr. Humberto Ramos Fernández***, Director General. While a fairly new company they would appear to have come a long way in a short period of time.

According to this press release ***SECO/WARWICK*** received an order for a vacuum carburizing system from an aerospace manufacturer in the US-no idea who this might be; *"SECO/VACUUM Technologies (SVT), a SECO/WARWICK Group division, with its headquarters in Meadville, PA is privileged to be working with a prominent aerospace equipment manufacturer to bring their low pressure carburizing and hardening work in-house. SVT will be supplying its signature CaseMaster Evolution® (CMe)* ***dual-chamber vacuum oil quench furnace*** *to improve their lead times and quality objectives."We developed the CaseMaster Evolution® to help customers in aerospace and other critical industries solve some of the more challenging issues with traditional integral quench furnaces, as well as to produce clean parts typical of vacuum furnaces, said Maciej Korecki, VP, Vacuum Heat Treatment Furnaces, SECO/WARWICK. "So, the CMe is a hybrid combining the best of both worlds, resulting in clean parts from a non-toxic work environment, providing greater repeatability of workloads, with no CO/CO2 emissions, exhaust hoods, or endothermic generators."* The ***Bodycote*** (commercial heat treating) facility in Berlin, CT, USA is pretty pleased that they recently added some more vacuum furnaces. This plant is pretty typical of most commercial heat treaters in the US Northeast in that it concentrates on Aerospace and Defense manufacturing. The Berlin plant carries Nadcap, AS9100 and ITAR to support a diverse group of Aerospace and Defense manufacturers. The plant specializes in vacuum heat treating, aluminum heat treating, raw material processing, & Electron Beam Welding.

A Giant Amongst Men? We have this rather interesting photo of ***Jeff McLaughlin*** of McLaughlin Furnace Group doing an install of some heat treating equipment in Viet Nam. This particular very large installation is for a captive heat

treater making gears and the equipment is a combination of used Ipsen Sealed quench furnaces and new McLaughlin equipment.

The ***IFHTSE*** *(International Federation of Heat Treating & Surface Engineering)* meeting is taking place in Moscow as we speak which make this news item rather appropriate. "*Professor* ***Marcel A.J. Somers*** *has been awarded the dual honour of both receiving a rarely bestowed medal and giving a commemorative lecture at the 26th Congress of Heat Treatment and Surface Engineering in Moscow. Several years may pass between each awarding of the medal by the IFHTSE-The International Federation for Heat Treatment and Surface Engineering, a global association of heat and surface treatment organizations-to particularly prominent researchers within the field of heat and surface treatment of metals. Best known is probably his metallurgical scientific work with gas-based surface treatment of stainless steel, which his research group was one of the first to reveal the true nature of, and which laid the foundations for taking out a number of patents and forming the company* ***Expanite****."*

And to round things out we see that ***Terry O'Leary*** recently became Sales Manager Europe at ***Bodycote Surface Treatments*** after several years as the UK Sales Manager-good for him.

Rocky Mountain Commercial Heat Treat for Sale

Sep 16, 2019

For sale is a small commercial heat treater in the Rocky Mountain, USA region of the USA. This is quite a small operation with sales of under $1 million USD but it is a classic example of how commercial heat treating can be very profitable. This is an absolutely perfect opportunity for an individual to realize his life long dream of owning his own business while at the same time making a much higher than average income. If you would like more details please let Jordan jordan@themonty.com know.

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25 Most Influential People in The North American Heat Treating Industry

Sep 13, 2019

We owe our readers a bit of an apology on this-we had promised a completed list by Friday September 13th however that is not going to happen. What we do promise is that the list will be completed and posted next week. You have our apologies, sometimes things do not go as planned.

Somebody's In Trouble!

Sep 13, 2019

Quite understandably most people in the world don't ever consider the effects of poor (or in this case non existent) heat treating which is quite understandable. However as everybody in the industry knows bad heat treating can have catastrophic results. In this case Mack Truck recalled a few axles due to the fact that the parts completely missed being heat treated.

"Mack is recalling model year 2015 Pinnacle CXU tractors Meritor FF967 Non-Drive Front Steer Axles. Mack says the axles missed the heat treating operation during manufacturing, reducing their strength and possibly causing the axle beams to fracture. If an axle beam fractured, it could cause loss of vehicle control."

LIEBHERR-Aerospace, Toulouse France Adds Vacuum Brazing Furnaces

Sep 13, 2019

From vacuum furnace builder BMI in France we have this press release about two vacuum brazing furnaces the company recently installed at Liebherr Aerospace in Toulouse, France;

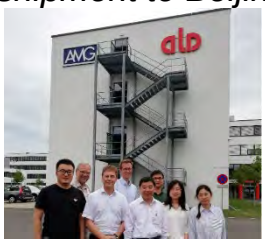
*"Two new BMI vacuum furnaces have been added to the brazing workshop of LIEBHERR-AEROSPACE TOULOUSE (France). They are big size furnaces with a useful volume of 1000*h1000*2500mm for the vacuum brazing of stainless steel exchangers (furnace B56T250) and aluminum exchangers (furnace BA56-250). The LIEBHERR exchangers are part of their innovative on-board systems for the air-conditioning of the cabin. These two vacuum furnaces are state-of-the-art in the technology of vacuum brazing of aerospace components. BMI's extensive knowledge in temperature regulation under secondary vacuum, as well as BMI's ability to adapt its products to customer's process requirements have led to the success of this business in terms of quality and performance."*

ALD SyncroTherm® System Shipped to China

Sep 12, 2019

German furnace builder ALD of Hanau started offering their SyncroTherm thermal processing system a few years back and this press release tells us how the company has shipped their first system to China. The SyncroTherm system offers some advantages over other furnace systems but the very high cost is certainly a detriment to a lot of potential customers. We are unsure of how many systems the company has in the worldwide market place but we can say that our understanding is that the company has 5 such systems installed in North America, two at Milwaukee Electric Tool in Mississippi, USA (which were installed in 2013) and 3 at an aerospace components supplier with 2 locations in the US.

"The vacuum heat treatment system SyncroTherm creates completely new perspectives for an effective and more economical hardening of high-quality components. This new and unique technology improves productivity meanwhile simultaneously reducing negative effects such as distortion of the treated components and a high degree of environmental compatibility. With the delivery of the first SyncroTherm to a well-known institute in the Beijing area, ALD has been able to create an important reference and provide impulses for technological developments. The carburization of components made of micro-alloyed steels is carried out at high temperatures above 1,000°C without unwanted grain growth. In addition, single-layer charging permits individually controlled and component-adapted high pressure gas quenching for a wide variety of component geometries. With the SyncroTherm, our customer will be testing novel steels for high-temperature vacuum carburization, which in the long term can make a significant contribution to cost-effectiveness and environmental protection. Our delegation of customer was convinced of the quality of the system after the preliminary acceptance. It is now prepared for shipment to Beijing."



Heat Treatment Industry Interviews-Upcoming

Sep 12, 2019

We are rather proud of the fact that no other company in the world has interviewed more people in the heat treatment industry than ***"The Monty"*** https://themonty.com/interviews/ Over the past few months we have interviewed ***Mr. Brian Reid of Park Thermal***, the new ***President & CEO of SECO/WARWICK, Mr. Mr. Slawomir Wozniak***, the ***President & CEO of ECM, Mr. Laurent Pelissier*** and currently we have an interview on the home page of our website with ***Mr. Steve Thompson and Mr. Jim Oakes of controls company SSi*** https://themonty.com/ So who are we looking forward to interviewing in the near future? October 1 we will be speaking with **Mr. Thomas Dopler CEO** of furnace builder **Aichelin GesmbH, Moedling, Austria,** November 1 we meet up with **Mr. Andreas Fritz** of cleaning equipment supplier **EMO Oberflächentechnik GmbH** and December 1 we have a long awaited interview with **Mr. Stephen Harris, CEO** of commercial heat treating giant **Bodycote.** This photo shows Mr. Thomas Dopler of Aichelin who is next up.

SSi Mexico Seminar

Sep 11, 2019

"SSi Mexico conducted a one-day technical in Monterrey, Mexico on 29 August 2019. The session was attended by fifty-one heat treatment professionals from the states of Chihuahua, Nuevo León, Coahuila, and Tamaulipas. The attendees represented commercial and captive heat treatment operators and managers. The topics included Principles of Heat Treating, Quality & Metrology in Thermal Treatment, Endothermic Atmospheres, Flow Meter Technology, Atmosphere Controllers & Troubleshooting, SCADA, Sensor & Analyzer Theory & Technology and Thermocouples & Pyrometry. The technical presentations were conducted by SSi Mexico's quality lab technicians, sales engineers and Super Systems Inc.'s Manager Mexican Operations Steve Duban and Director International Operations Damian Bratcher. The conference included hands-on breakout sessions demonstrating Super Systems Inc's products and solutions. The breakout sessions provided a detailed review of Super Systems Inc.'s process controls, analytical devices and SCADA software solutions. The event concluded with a scenic boat cruise along the Santa Lucia River Walk, tapas, cerveza and Blanton's bourbon. SSi Mexico's next technical seminar is 24 October 2019 in Santiago de Querétaro, Mexico."

Uttis

Sep 11, 2019

We welcome our most recent advertiser, furnace manufacturing firm Uttis whose ad can be found on the right hand side of this page. Based in Romania, Uttis offers a wide variety of heat treatment furnaces in addition to their commercial heat treating division. We rummaged through our file photos and came up with these two pictures. One shows a recent installation the company did at a Daimler facility in Romania, the second shows part of the Uttis team at HK 2018 in Cologne,

Germany last October. In the center of the photo you see Petruța Drugă, Managing Director of the company.

Michael John Moxie Obituary

Sep 11, 2019

We regret to mention the passing of Mike Moxie who we met through his company Advantage Thermal Services of Indiana many years ago. Advantage Thermal lives on as a prosperous, well run commercial heat treater; *"Michael John Moxie passed away on Aug. 30, 2019, after an extended illness. He was born in Canton, Ohio, to John and Helen Moxie on Feb. 6, 1951. Mike grew up around the corner from Meyers Lake Amusement Park where he spent many happy days fishing, playing and working at the Park. He graduated from Canton Lehman High School in 1969 and The University of Akron in 1973, where he was a proud member of Theta Chi Fraternity. Mike went on to have a very successful career working in Commercial Heat Treating, when in 2006 he purchased and owned Advantage Thermal Services in Kendallville, Ind. Mike was extremely proud of his accomplishments of having completed three marathon races. Mike is survived by his wife, Denise (Tinlin) Moxie; sons, Michael (Morgan) Moxie, Evan (Jessica) Moxie and Matthew Moxie; grandchildren, Matthew Moxie, Jr., Avery and Adalyn Moxie, Brayden Moxie and a new baby boy Moxie due in December. Mike is also survived by sisters, Lenora (Dick) Krueger, and Olivia (Steve) Heppe. Also numerous nieces and nephews."*

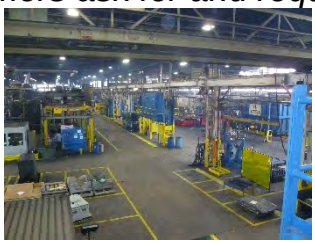
Bodycote Elgin, Illinois, USA New Facility

Sep 10, 2019

Earlier this year we posted a press release from Bodycote, the world's largest commercial heat treater about a brand new facility the company was building in Elgin, Illinois, USA (the original press release from January of this year is

below). We understand the new facility is progressing and that orders for new equipment have been placed. This plant will eventually replace the Bodycote location in Melrose Park, Illinois which is just 25 miles away. Melrose Park was originally a Lindberg plant (commercial heat treater Lindberg was of course acquired by Bodycote quite a few years back). The Melrose Park plant is probably the largest Bodycote facility in North America if not in the world in terms of sheer size but large parts of it are unused and certainly underutilized. It would appear that Bodycote very much to their credit is investing a great deal of money in a new location, new equipment and new technologies. One of the photos below shows Melrose Park as we saw it a few years back.

"Bodycote, U.K., the world's largest provider of heat treatment and specialist thermal processing services, announces plans to open a new heat treating facility by late 2019 in Elgin, Illinois. The plant will support the automotive, agricultural, mining, construction, and various other manufacturing supply chains in the Upper Midwest region. The new facility will include advanced heat treating technologies such as low-pressure carburizing and carbonitriding, vacuum nitriding and ferritic nitrocarburizing, Bodycote's proprietary Corr-I-Dur process, and traditional carburizing of large parts. According to Dan McCurdy (editors note; Dan McCurdy recently retired) President Automotive & General Industrial, North America & Asia division, "This investment demonstrates Bodycote's commitment to serving the Midwest with the services our customers ask for and require."

Monday Morning Briefing

Sep 9, 2019

Where Are They Now-***Don Longenette***. Because of his years in the heat treating industry working with companies such ***as Timken Bearings, Bodycote and Thermal Holdings*** Don's is a name which many in the industry recognize immediately. Don recently made a change and as of 1 week ago he is Facilities

and Maintenance Director at Union Metals in Canton, Ohio. We have no doubt but that he will do a good job. Last week we ran across the name ***Tracy Glende***, which is a name from the past. If you recall Tracy was the President of the ***Bodycote ADE*** (Aerospace, Defense & Energy) division in North America for several years ending in 2009. Tracy is now Chief Executive Officer at Valence Surface Technologies if you are curious. ***Nickel Pricing*** has reached it's highest level in 5 years meaning that all alloy component prices are slowly edging up.

From ***McLaughlin Furnace Group*** we have this press release; "*McLaughlin Furnace Group is proud to announce the purchase of the property housing Vesco-McLaughlin. Vesco is a heat treat service and vacuum pump repair company that has been in operation for over 30 years, servicing primarily vacuum heat treat equipment. Since the addition of Vesco to the McLaughlin Furnace Group team, McLaughlin now houses the capability to service both atmosphere and vacuum heat treat equipment. The recent expansion of both the Indiana and Connecticut facilities has certainly set McLaughlin Furnace Group apart from the competition.*"

McLAUGHLIN
FURNACE GROUP, LLC

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vacuumengineering.com

It would appear that the upcoming heat treat exhibition, ***Heat Treat 19*** being held October 15th-17th in Detroit, Michigan, USA is going to be a success. As of last week there were 5-count em-5 booths left which will probably mean that this ends up being a sold out event. This is the largest exhibition of its kind in North America in 2019 and our opinion is that if you have an

interest in the heat treat industry don't miss this. ***Bluewater Thermal*** is one of the largest commercial heat treaters in North America, if you don't believe us check out our list of the Largest North American Commercial Heat Treaters https://themonty.com/largest-commercial-heat-treats/ We mention the company today because our understanding is that the company is looking for a buyer for their operation in Kitchener, Ontario, Canada. This plant features batch IQ, mesh belt and aluminum processing. Furnace manufacturer ***Gasbarre*** (whose ad can be found on this page) sent us this press release; *"Gasbarre Thermal Processing Systems recently manufactured and commissioned a High Temperature Box Furnace Line for an aerospace company in the Midwestern United States. The system is custom designed to meet the customer's strict process requirements, manufacturing methods, and eliminates the need for a quench pit. The equipment will process 36" wide by 48" long by 24" high workloads, weighing up to 2,000 lbs, and will be used for solution treating of high alloy forgings. The single zone electrically heated furnace is designed with multiple trim zones to meet AMS 2750 temperature uniformity requirements across a wide temperature range and allows for fast furnace recovery times. "*

To round things out for today we have this photo from gear manufacturer/captive heat treater ***Overton Gear*** in Addison, Illinois, USA. What you are looking at are several of their parts fixtured prior to going into a Lindberg pit carburizing furnace with working dimensions of 7' diameter X 15' deep. Overton maintains a very impressive in house heat treat department which includes possibly the largest Gleason press quench units ever built which have the ability to process parts up to 84" in diameter.

25 Most Influential People in The North American Heat Treating Industry

Sep 6, 2019

With our readers help we are plugging away on our updated list of the 25 Most Influential People in the North American Heat Treating Industry using these parameters; *"The basic criteria to make the list is that the individuals named are in positions to change the course of the captive and heat treating markets in North America either in terms of presenting new technologies, influencing purchasing decisions, deciding what type of heat treating to do or effecting current heat treatment practices. Examples could include pioneers in new forms of heat treatment, the fellow at General Motors who decides which furnaces to buy, CEO's of major furnace builders or consultants who advise on what equipment should be used. Your suggestions are appreciated and these should be addressed to Jordan Montgomery jordan@themonty.com Based upon these suggestions our list will be presented Friday September 13th, 2019."* We will add that to make the list individuals must currently be active in the industry which means that those who are deceased will not be included *(we are not being facetious, time marches on at least 3 individuals who have made the list in the past are no longer with us, Jeff Pritchard of Vac Aero, Mr. George Pfaffman of Ajax Tocco and Steve Graham of American Axle & Manufacturing).* To date we have quite a few interesting suggestions, some obvious and some which left us scratching our heads. For instance a few suggestions include Dan McCurdy of Bodycote which we would agree with however Dan recently retired, Jeff Smith of SBS, Fred Hamizadeh of AAM, Stephen Harris of Bodycote, Jeff Hemmer of Bluewater Thermal, Dan Hill of Solar Atmospheres, Ben Bernard of Surface Combustion, Don Longenette, Robert Peters formerly of ALD, consultant David Pye along and along the same lines consultant Dan Herring and quite a few others. We look forward to your suggestions.

Ipsen the Target of a Takeover?

Sep 5, 2019

Recently rumors have been circulating that Ipsen, one of the largest new furnace builders in the world is the target of a potential 200 million pound takeover by a

British company, Stirling Industries. We asked Mr. Geoffrey Somary, CEO of Ipsen Group if he could comment. His comments can be found here;

"As Stirling is a publicly listed company there are rules that need to be followed regarding comments. Therefore, I must leave it limited by saying the press release by Stirling PLC speaks for itself. I am looking forward to giving you more details at a later time regarding Ipsen's future and the great things we have in store for the heat treating industry. We do not anticipate any significant change to our strategy towards the market and our customers."

And the following is from a posted news item we found:

"Acquisition vehicle Stirling Industries PLC on Wednesday confirmed it is in ongoing talks over the takeover of Ipsen International GmbH. Shares in Stirling Industries, which was formed to make an acquisition in the industrial sector, were suspended in London on Tuesday after it said it was in "advanced" talks over the purchase of its first asset. Debt funding has been agreed in principle, Stirling said on Tuesday, with due diligence essentially done, and the firm is now looking at securing equity funding. Late on Tuesday, Sky News reported the target is steel-products heat treatment firm Ipsen. Stirling on Wednesday, in response to "rumour and speculation", confirmed the company in its sights is Ipsen. https://news.sky.com/story/stirling-times-190m-bid-for-apple-watch-supplier-ipsen-11801529 "Whilst discussions are on-going, there can be no certainty at this time as to the final terms and conditions of the transaction or whether the transaction will proceed," said Stirling on Wednesday. "A further announcement will be made as appropriate in due course. Stirling currently expects to be able to update shareholders in the period leading up to its annual general meeting, which is to be held on September 30, 2019."

How is decarburization evaluated? Presented by David Pye

Sep 5, 2019

Firstly, how does decarburization occur? Decarburization can be caused by any of the following pre-existing conditions.

- Insufficient machining of the raw bar stock to remove any surface decarburization caused by rolling, forging, or preheat treatment conditions.
- Decarburization can be caused also by an imbalance of carbon potential control between the furnace atmosphere being weaker in carbon potential than that of the steel being treated.

How then do we know that decarburization has occurred? This will be dependent on the treatment that that the steel component is being subjected to. Generally, it is normally seen after the final heat treatment step.

There are usually three methods of evaluating the presence of decarburization in the finally heat-treated component.

The first being a lower than expected surface hardness being observed when the component is checked that the heat treatment procedure has been successful. A good indication that decarbonization is present is when the surface hardness value is approximately five or 6HRC points below the expected hardness value.

The second method of examination for decarburization being present on the final heat-treated component would be to conduct a microhardness cross traverse survey (using either the Vickers micro–hardness or Knoop micro hardness test units) on a sample component or test coupons of the same material as the

component has been manufactured from and heat treated at the same time. The survey will show an accurate measurement of the depth of decarburization that could be present.

The third method of establishing decarburization would be to conduct a simple visual metallurgical examination of the sample using a suitable etchant (could be, 3% to 5% nital etchant). Great care should be observed when cutting the sample for the metallurgical examination that the maximum amount of coolant is applied to the sample to keep the sample from overheating and to wash away the metal powder originating from the cutting.

After the nital etch procedure has been conducted and the sample dried, then one can follow with a hot alkaline of sodium picrate. Then the sample can be observed microscopically, and if decarburiztion is present then the Fe_3C will be seen as dark patches and the remaining ferrite will etch out white. It is usual that at the preliminary engineering stage, the decarburization limits are specified by the materials engineer. In addition, this will generally be accompanied by the mechanical properties desired from the finished component.

Great care should be given to establishing the heat treatment furnace atmosphere's carbon potential in relation to the carbon content of the steel being treated. It is always advisable (in the writer's opinion) to ask the customer/engineer for the original test certificate of analysis issued by the steel mill to the merchant/manufacturer.

One often hears the comment, 'that the part should be heat treated in a 'neutral atmosphere'. In order to establish a neutral atmosphere, the furnace atmosphere and the steel being treated should be in equilibrium. In other words, the carbon potential of the atmosphere should match the carbon content of the steel.

Then the atmosphere will be in equilibrium and can therefore be considered to be a neutral atmosphere. Please be aware that there is no such thing as a 'one atmosphere suits all'. Neutrality is relevant only to the steel that is being treated. Another contributing factor to the cause of surface decarburization is the component cleanliness prior to it being subjected to its final heat treatment at an elevated temperature.

Furnace Builder McLaughlin Furnace Group Expanding

Sep 4, 2019

Furnace manufacturing company McLaughlin Furnace Group based in Avilla, Indiana, USA is certainly growing these days as you can see in this press release. Over the past few years the company has grown from a small service company to a 2 location firm with international partnerships. The photo below shows the VESCO location in the US Northeast which is part of McLaughlin Furnace Group; "McLaughlin Furnace Group broke ground today on a site in Avilla's new industrial park, an expansion that will cost about $3 million, a spokeswoman said. The company is currently at 333 Progress Way in Avilla. The address for the industrial park is the 1300 block of East Albion Street, located off Indiana 8 next to Oak Farm Montessori School. The address may change, spokeswoman Melissa Thompson said through email, once roads in the industrial park are named. McLaughlin Furnace will have about 50,000 square feet in a one-story building at the site, up from the current 17,500 square feet. Work on the new building is expected to be completed by spring 2020. The privately held company, owned by Jeff McLaughlin, has annual revenue of $7 million, Thompson said. McLaughlin Furnace Group currently employees 42 people, with hopes of hiring 15-30 new employees within the next five years. During the last 12 years, McLaughlin Furnace has served the heat-treating industry, "providing small to international companies with custom designed heat treat furnaces utilizing cutting edge technology," the news release said. Later this week McLaughlin is meeting with representatives from SpaceX before traveling to Vietnam to work with a client. McLaughlin said the new facility will provide his company with the space it needs to help his business run more effectively and efficiently."

25 Most Influential People in The North American Heat Treating Industry

Sep 4, 2019

Many years ago (in the early 2000's to be exact) "The Monty" put together a list of the 25 most influential people in the North American Heat Treating Industry-a list which was updated several times in subsequent years. It was a fun little exercise, so much fun in fact that we are in the process of updating our list for which we need your suggestions. The basic criteria to make the list is that the individuals named are in positions to change the course of the captive and heat treating markets in North America either in terms of presenting new technologies, influencing purchasing decisions, deciding what type of heat treating to do or effecting current heat treatment practices. Examples could include pioneers in new forms of heat treatment, the fellow at General Motors who decides which furnaces to buy, CEO's of major furnace builders or consultants who advise on what equipment should be used. Your suggestions are appreciated and these should be addressed to Jordan Montgomery jordan@themonty.com Based upon these suggestions our list will be presented Friday September 13th, 2019.

BMI Ships Vacuum Furnace To Turkey

Sep 4, 2019

Now isn't this a wild color for a vacuum furnace? This furnace was built by vacuum furnace manufacturer BMI of France and will be shipped to a Technological area near Izmir, Turkey. The area is a joint venture between Celal Bayar University-Manisa and some private investors with the goal of researching vacuum aluminum brazing. This is a model BA55-200 and with the delivery of this furnace it means that BMI has now sold 15 systems in the country.

Steve Thompson & Jim Oakes, Super Systems Inc. Interview

Sep 3, 2019

We are excited to have this interview with Mr. Steve Thompson, President of controls company Super Systems Inc., in Cincinnati, Ohio and Mr. Jim Oakes, Vice President Business Development and future President of Metal Treating Institute (MTI).

Steve you got into this business for the same reason as I in that both of our fathers were in the industry. Could you please share with us your background and that of SSI? By the way I am sure many of our readers would like to hear how your Dad, Bill is doing these days-he was certainly a pioneer in this industry and many will remember him quite fondly.

Thank you for this opportunity. I started my career just after high school working at Marathon Monitors (MMI) while earning my associate degree in electronics. Soon after, I completed my bachelor's in electronic engineering technology. My father sold MMI around the time I graduated and I found a job as a sales engineer in the Midwest selling to various industries including heat-treating. After seven years, I had the opportunity to join my father at Super Systems which was founded in 1995. At that time we sold only the Gold Probe. As time passed, we introduced many other technologies such as dew point analyzers, gas analyzers, process controllers, software, and flow technology. Almost all of our products are the result of customers requesting more heat-treat-specific solutions and the introduction of new technology. What I have enjoyed most are the relationships that I have developed with my co-workers and customers. Advice once given to me as a young man by my father was to surround myself with people that are smarter than I am and listen to them.

My dad is doing great. He is now 81 years young and enjoying playing golf and tennis in Jupiter, Florida. He stops up a few times a year and now has the title of CIO (Chief Interference Officer). All kidding aside, he is my advisor on all matters and I am grateful for that. Often it is hard for father and son to work together in business but in our case it has always been a pleasure.

How about you Jim-how did you come to find yourself in this industry?

Well, I was first introduced to the heat treating industry by none other than Bill Thompson. Bill invited me to Cincinnati after I graduated from high school and worked as an intern with Marathon Monitors. I am quite certain that I did not even know what heat treating was for some time but I had an opportunity to work with software and electronics that allowed me to apply what I was learning in school to the real world. I was able to work with some great people – some of whom I still work with today, and others who I still cross paths with in the industry. Following graduation from college I used my skills outside the heat treating industry but when Steve was ready for me in 2005, I was eager to join SSI and it's been a great ride. The technology, the people, the industry, have been a great ground for growth, learning and fun for me personally and professionally.

Before we move on Jim perhaps you could tell us more about your role at MTI and what the organization stands for.

MTI is the acronym for the Metal Treating Institute. Since 1933 MTI has provided an outlet for businesses that focus on heat treating. Today MTI represents the largest network of commercial heat treaters in the world and under the MTI Board of Directors and all the members, MTI strives to fulfill its mission of enhancing the image and value of the heat treating industry. MTI provides many services to its members such as leadership development, technical training for member employees, sales forecasting focused on the heat treating industry, annual meetings with great programming for professional development and networking, a technical standards committee giving heat treaters a voice in the specification review and design process, and a membership committee that is focused on specific topics that are important to the members. MTI's bylaws were changed in early 1995 to include Associate Members. Associate Members are companies that supply equipment or services to the heat treat industry and share many of the same benefits as members of MTI that commercial heat treaters get. I have served on a number of committees over the years with MTI and joined the MTI Board of Trustees in 2011. In 2015 I joined the executive committee as the Treasurer and served for 3 years. Most recently I was nominated for President-

Elect which leads me to the MTI President role this fall. It is quite an honor and I am very excited about the opportunity. I follow in the footsteps of some incredible people and I don't take that lightly.

Lets talk about SSi, please tell us about company, the size, the industries you focus on and some of your products.

Our global headquarters is in Cincinnati, OH and we have offices in Birmingham, England; Shanghai, China; New Delhi, India; and Queretaro, Mexico. Our combined offices give us a footprint to address heat treaters' needs around the world.

Our specialty is providing technology for the thermal processing industry. We do this with a mixture of products and services covering a wide variety of applications. We have a great group of R&D engineers that help enhance and deliver products to the industry. Our engineers cover electrical, mechanical, software, and metallurgy, giving us a vast knowledge base for coming up with products that benefit the heat treating industry.

We mentioned our roots earlier with the oxygen/carbon probe, and of course we still manufacture and ship that product around the globe today. In addition, we have other tools that the industry benefits from like gas analyzers (for carburizing, endo gas, nitriding, FNC,etc), electronic flow meters, data logging devices, controllers, and software.

In addition to our products, we also have some of the best field service engineers in the industry. Our field team provides onsite services commissioning controls and software to give captive and commercial heat treaters the latest in technology for their equipment.

Care to give us an idea about your annual sales? Even a hint?

I am proud to say we are privately owned and don't disclose our financials. We have approximately 100 employees and I think most can estimate what that equates to in annual sales.

Correct me if I am wrong but I have always considered that the company was built on oxygen (carbon probes) with everything stemming from this-would that be a fair statement? Taking it one step further do you feel that probes will continue to be the #1 way of monitoring and controlling furnace atmospheres?

You are correct. We founded the company on the Gold Probe and probes still represent a significant part of our revenue. We are very proud of the product and continue to see growth each year domestically along with our international markets expanding. The oxygen probe is an in–situ device that is fast in response with very little maintenance required. For that reason along with being cost–effective, it will continue to be the number one choice for controlling atmosphere furnaces.

This question is a continuation of the question above. First came the oxygen probe, next came three gas analyzers (I realize that 3 gas is not a new technology but it is now useable as opposed to the first versions), next came probe plus 3 gas-where do you go from here?

If you look back prior to the use of oxygen probes you will find that CO2 gas analysis has been used for decades as the standard. As you know, gas analysis is an extractive reading and requires regular maintenance for calibration, filtering, and maintaining sample lines. Probes were introduced in the 1970s, and although not as reliable back then as they are today, they were much more cost–effective and reliable than CO2 gas analysis. Over the last twenty years CO2, along with CO and CH4, have provided more accurate analysis of carbon with much more reliable technology. Today the optimum carbon control utilizes the Gold Probe along with a permanent three-gas analyzer. In this case you benefit from direct reading of the probe but the precision of the CO, CO2 and CH4 measurement. This is what we refer to as "probe plus IR." In the future I expect to see combinations of the probe with three gas and the addition of online process simulation utilizing the software tools available. Although this technology is available today and used by some it has not been adopted by many as of yet.

Over the years you have developed a number of innovative new products-out of them all which new product are you most proud of? To put it another way is there one where you can say it was a brilliant idea and succeeded beyond all of your expectations?

This is a great question. I have to admit the products I love the most are the ones that are the simplest to use: the Gold Probe, DP2000 dew pointer, and PGA portable three-gas analyzer. These three products are used everywhere in the world. Each one has an immediate payback and requires very little training to use. We do have many other much more technical products that frankly are more impressive but when I walk into a heat treat and need to solve a problem it is usually one of those three that provides the solution. Another product that is a workhorse and continues to deliver great value to customers is our data acquisition product, SuperDATA. The amount of data being collected on a daily basis by captive and commercial heat treaters is pretty incredible. One heat treat facility alone can have a million data points captured in one day and if I think about all the heat treat shops running SuperDATA day in and day out, it's truly impressive. I cannot point to any one product as "brilliant" but I do look at all of them as tools utilized by all heat treaters providing value and giving them the ability to deliver quality parts efficiently.

Jim recently SSi has been making some very impressive investments-what can you tell us about them?

Gord, we are always looking for opportunities to invest conservatively which allows us to grow and effectively deliver new products and services to the industry. Infrastructure is needed to make that happen and for us that means people and space. Our facility has expanded in Cincinnati to accommodate a leaner manufacturing space , which was timely for the manufacturing of our electronic flow meters. During this expansion, we also focused on enhancing our laboratory to support our ISO/IEC17025 accreditation with environmentally-controlled production areas. We also have the equipment to perform nitriding and FNC process development along with lab equipment for metallugical evaluation of test parts. In Mexico, we moved into a new facility, which has also provided us a

laboratory environment, provided more space for our employees, and storage for our products, allowing us to more efficiently meet customer demand. Most recently, we finished renovating our main office to accommodate a friendlier modern workspace with a state of the art conference and training center. This really gives us great space to present our technology to customers and it gets put to good use during our quarterly training where customers and business partners come to Cincinnati to take a deeper dive into learning our products.

Steve you have done a tremendous job of building up the company over the years-when you look back what are you most proud of? I have to ask you this also-did you ever expect the company would be as large as it is today?

I am most proud of the people I work with. I have surrounded myself with very smart and professional individuals. The company is a result of a great team internally complimented by excellent representatives and partners around the world. We have never reorganized or changed our direction. The foundation for our success is getting everyone on the same page when it comes to taking care of the customer and staying current with technology. I love the technical competency of our team at SSI and the excitement triggered when we put a plan in place to enhance or develop products. The company is larger than what I thought it would be back in 1995. Having said that I believe we will double the size in the next 10 to 15 years based on the solutions and global market we have available today.

Jim or Steve what is your number one worry about running the company?

Gord, the thing that keeps me up the most at night is taking care of the customer and making sure we are providing a good experience for our employees. The ideal experience for the employee is providing the best benefits possible, challenging them in their day-to-day operations to keep things interesting, and keeping them safe. Customer service is the backbone of what we do at Super Systems and we instill that in all areas of our business. With so many products and so many customers in the market it is quite an effort to make sure that you're constantly listening to the all the concerns, needs, and

issues and are able to address them efficiently. I feel we have a great team to make this happen, but it is always a concern. Staying current with technology and competition is not far behind that. Again, having a team in place that pushes us to make sure that we are current and make sure that we take care of the customer makes this less worrisome.

Steve and Jim many times over the years I have done interviews with furnace builders and I always like to ask them what type of furnaces they see as experiencing the most growth in the future. With all due respect to the furnace builders I sometime feel it is not fair to ask a vacuum guy as an example if he thinks there will be more growth in atmosphere furnaces rather than vacuum furnaces and visa/versa. You deal with all types of furnaces- what type or style of furnace do you expect to grow the most in the next few years?

I believe we will continue to see both atmosphere and vacuum grow along with FNC and Nitriding. Today more than ever, there is a demand to meet industry specifications, keep equipment up to date, and most of all keep it safe. As a result, we will continue to see opportunities to update and replace outdated and older equipment with today's current technology. The technology aspect is a significant driver for our growth. Looking at today's marketplace, automation is a goal for many based on the labor market. Other technology benefits include harnessing the data from sensors and controls for better decision making. I do believe the vacuum market will have a higher growth rate than atmosphere partly because there is a large amount of atmosphere capacity in the global market today, there are manufacturing processes and materials that lend themselves to vacuum heat treatment, and vacuum has a potentially cleaner footprint. Although the nitriding and FNC market is smaller than traditional atmosphere, we are seeing these applications growing at the fastest pace which we think is driven from the lower distortion rates during heat treating, increase in wear and corrosion resistance, and in some cases aesthetics of the finished part.

Our previous question mentioned furnace builders. Do you work with most of the OEM's or do you find they like to offer their own control systems?
We do work with many OEMs. We are fortunate to have such a wide variety of products so even when an OEM has their own system, they may incorporate some of our products in the overall control solution. Good examples of this would be probes, gas analyzers, flow meters and discrete controllers. What makes our control packages unique is our ability to create a standard solution providing unique benefits to the users. We build this directly into our controls and when an OEM does incorporate our controls, these features are built in.

Times have been good, as a matter of fact extremely good in the heat treating industry for the past few years. Do you expect the rest of 2019 and 2020 to be as good? Better? Worse?
This is the most asked question. If you asked me in 2017 what 2018 would look like I would have been wrong. If you asked me in 2018 what 2019 would look like I would have been wrong. Do you sense the trend? I think we are due for a pullback. I hope I am wrong.

What does the future hold for you personally and for the company? Any plans you can share with us?
I often think about the growth over the last 24 years. I think about the company when we only had a handful of products and a small staff. Today we have multiple offices with many products, which are all complimented by software and end-to-end systems. The desire of heat treaters and manufacturers is to stay current with technology combined with a global market; I believe we will double the size of the company in the next ten to fifteen years. To get there, we will continue to do what I believe we do best, listening to customers and using technology to develop products and solutions that help our customers stay competitive and deliver quality parts efficiently.
I very much appreciate the time.
Thanks, Gord

Steve Thompson & Jim Oakes In Front of SSi

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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#IQ469 Surface Combustion "Super 30" Batch IQ Furnace

Manufactured by Surface Combustion this is a Batch IQ furnace with 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. Currently installed but not in use. Furnace is complete, installed and ready to go. Shut down approximately 5 months ago. Excellent condition.

Asking Price: $49,000 USD

https://themonty.com/project/itemiq469-surface-combustion-super-30-batch-iq-furnace/

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

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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#BOX469 SierraTherm Forced Convection Elevator Batch Oven

SierraTherm LTCC16-24-4A 8500 Series Forced Convection Elevator Batch Oven. The internal dimensions of the chamber are approximately 18" inches wide by 18" inches deep by 24" inches high. The advertised temperature achievable is 1050°C. The Oven comes with the two computers, one monitor, one mouse, & one keyboard, as shown. One computer has the SierraTherm Furnace Monitoring System Software loaded on it, as shown. The power requirements are 240Vac 3-phase 60Hz. Each of the computers power-up although only one has the SierraTherm Furnace Monitoring System Software loaded on it.

Asking Price $42,500 USD

https://themonty.com/project/itembox469-sierratherm-forced-convection-elevator-batch-oven/

Item#BOX468 SierraTherm 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#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#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#T376 Grieve Oven 60″ x 60″ x 60″

GRIEVE TRUCK OVEN TCH-550. Hardworking ovens designed for baking, drying, preheating or any other application where a dependable source of heated air to 550°F is required. Complete with temperature controllers that offer the latest in heat-sensing technology and built-in floor level guide tracks that make truck loading easy.
Vintage: 2017
ID: 60″ x 60″ x 60″
125 CU FT
OD: 80″ x 91″ x 74″
550°F
Blower: 2000 CFM, 2 HP
6″ Insulation
Double Doors
24 kW
175,000 BTU
Control Accuracy: ± 0.3%
Uniformity: ± 5°F
Temp Ramp: 38 min
Weight: 3160 lbs
2 years old – low use, dark mark on back panel is a *scuff*. UL LISTED CONTROL PANEL. Standard Truck Ovens from Grieve meet the requirements of National Fire Protection Association Standard 86, Industrial Risk Insurers, Factory Mutual and OSHA standards. For some applications, such as those involving flammable solvents or hazardous locations, the above organizations require additional safety devices.

- Controls – Digital, microprocessor based, thermocouple actuated, indicating temperature controller
- Modulating burner on gas ovens
- Motor control push buttons and on-off heat switch
- LED pilot lights
- Safety Equipment—Electric Oven
- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- Separate heating element control contactors
- Recirculating blower air flow safety switch
- Safety Equipment—Gas Oven
- Adjustable, thermocouple actuated, manual reset excess temperature interlock
- Electronic flame safeguard protection
- 325 CFM powered forced exhauster for combustion venting
- Exhauster air flow safety switch
- Recirculating blower air flow safety switch
- Purge timer
- High gas pressure switch
- Low gas pressure switch
- Two pilot safety shutoff valves with leak test stations
- Two main safety shutoff valves with leak test stations
- Valve position indicator on main safety shutoff valves
- Choice of air flow patterns specially adapted for truck processing
- Aluminized steel interior
- Aluminized steel exterior with enamel finish
- Brushed stainless steel control panel face
- Explosion venting latches
- 6″ of 10 lbs/cf density industrial rockwool insulation
- Built-in baffles prevent radiant heat
- Silicone rubber door gasket
- Insulated floor with truck tracks

- Adjustable fresh air intake and exhaust dampers
- High pressure recirculating blower

Asking Price $17,500 USD

https://themonty.com/project/itemt376-grieve-oven/

Item#T375 Grieve Walk-In Oven 5’W x 5’L x 6’H

Manufacturer: Grieve
Type: Walk-In Oven with Cart
Model: WTH 566-750
Maximum Temperature: 750F
Work Zone: 5’W x 5’L x 6’H
Footprint: 7’W x 7’L x 9’H
Manuals and electrical schematics included
Power: 460V, 84A, 3Ph, 60Hz
Heat Input: 60KW
Fans: Exhaust fan and circulation fan (largest motor 5HP)
Controls: Honeywell UDC 2300 Temperature Controller and analog high limit controller
Uniformity: Appears to have been designed as +/-10F, was last used as if it was +/-25F
Condition: Excellent

Asking Price $24,500 USD

https://themonty.com/project/itemt375-grieve-walk-in-oven/

Item#T374 Pacific Scientific 30” x 48” x 30” Electric Temper

Pacific Scientific 30” x 48” x 30” Electric Temper. Model PKMD 100-E. Serial number: 662-0208P . Heating: Electrically. Power Req: 65 KW, 460 Volt, 3 Phase. Max Temperature: 1450°F.

Asking Price $15,000 USD

https://themonty.com/project/itemt374-pacific-scientific-30-x-48-x-30-electric-temper/

Item#T373 Pacific Scientific 30” x 48” x 30” Electric Temper

Pacific Scientific 30” x 48” x 30” Electric Temper. Model PKMD 100-E. Serial number: 662-0420. Heating: Electrically. Power Req: 65 KW, 460 Volt, 3 Phase. Max Temperature: 1450°F. Nitrogen Capable.

Asking Price $14,500 USD

https://themonty.com/project/itemt373-pacific-scientific-30-x-48-x-30-electric-temper/

Item#T372 Selas (Pacific Scientific). Model PKMD 100-E

Selas (Pacific Scientific). Model PKMD 100-E, Serial number 662-0585. Working dimensions: 30”X 48” X 30”. Max Temp: 1450°F. 65 KW, 460 Volt, 3 Phase. Very good condition.

Asking Price $17,500 USD

https://themonty.com/project/itemt372-selas-pacific-scientific-model-pkmd-100-e/

Item#T371 Recirculating Box Type Draw Oven

Lindberg Model 152418-E12 recirculating box type draw oven. Working dimensions of 18″ high X 15″ wide X 24″ deep. Electrically heated 230/3/60, operating temperature of 1250F. This is a standard Lindberg “Cyclone” design . Coiled Nichrome heating elements are housed in a separate chamber. A high velocity paddle wheel fan delivers the heat to the work chamber and provides for good uniformity. Plug type swing open door. Brick lined door, stainless steel interior. Provisions for two shelves, one shelf included. Furnace will be checked out and reconditioned, cleaned, painted and test fired. Includes a 30 day warranty. Very good condition. ALSO AVAILABLE ARE 4 OTHER TOOL ROOM BOX DRAWS IN STOCK.

Asking Price $5,950 USD

https://themonty.com/project/itemt371-recirculating-box-type-draw-oven/

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#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#VF360 Vacuum Aluminum Brazing Furnace

Manufacturer: PV/T, Inc. (Now an Inductotherm Group company)

Type of Furnace: Vacuum Aluminum Brazing

Work Zone: Horizontal, 24" Wide x 37" Long x 33" High

Temperature Rating: 1250°F

Used for: Brazing Radiators

Design Temperature Uniformity: +/- 5°F (6 zones of control)

Hot Zone Design: Rectangular Shape, Elements all 4 sides, top & bottom

Hot Zone Condition: Good

Vacuum Pumps: Varian HS-16 Diffusion Pump (New in 2005), Stokes 412-H Roughing Mechanical Pump, Stokes Mechanical Booster Pump, Welch 1402 Holding Pump

Floor Space Requirement: 8 ft x 11ft for furnace, 2 ft x 5 ft for control panel

Power Requirement: 480V/3Ph/60Hz, 200 Amp Disconnect

Controls: Honeywell, Barber-Coleman

Accessories Included: Loader, Water Cooling System (as shown in photos)

Disassembly: No charge, Just pay for rigging

Asking Price $95,000 USD

https://themonty.com/project/itemvf360-vacuum-aluminum-brazing-furnace/

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#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#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#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
