

HEAT TREAT NEWSLETTER

Everything to do with heat treating



Hartha Aldenhoven, Germany

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HEAT TREAT NEWS

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INTRODUCTION

You will find in this, the August 2019 issue of "The Monty" the latest news and trends about the worldwide heat treating industry. For instance in this issue you can read about one of the largest vacuum furnace builders in Europe selling to a Chinese company, Applied Process in the USA being bought by a European company, the growing trend towards more "HIP" systems in the US, the new CEO of furnace builder MATTSA in Mexico and much, much more.

In addition we have 60 pages of used equipment listings which include a used 10 bar Ipsen Vacuum furnace, numerous Surface Combustion batch IQ furnaces, endo generators - basically if you are looking for used heat treat equipment we probably have it.

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

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HEAT TREAT NEWS

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Troubleshooting Generated Atmospheres for Heat-treatment

Jul 31, 2019

Atmospheres

The question is often asked, "What is an atmosphere?" A simple description of an atmosphere is a gas that can be introduced into a thermal process furnace with the objective of providing:

- *A surface protection environment*
- *A controlled oxidation environment*
- *The introduction of elements for surface modification*

There are many ways that a heat treatment atmosphere can be a generated. The atmosphere can be a synthetic atmosphere, or simply gas that is pre-mixed/pre-stored.



Three retort Endo thermic gas generator

If one considers a wood fire and the flame being generated from that wood fire is seen as a bright yellow, then the flame is a carbon rich flame. If one considers wood charcoal that is commonly used for a barbecue, then the gas generated as a result of the combustion is carbon monoxide, which is a carburizing gas and carbon dioxide which is considered as a decarburizing gas.

Because of the increasing demand for repeatable metallurgical results, great emphasis is being placed on the use of consistent gas analyses for various metallurgical processes. (Carburizing for example) It is necessary to understand

the basic reactions of the industrial gases chosen for metallurgical processing. Depending upon the application in question, one can use individual gases or combinations of gases. The principal gases used in the heat treatment of steel are as follows:

- Oxygen is perhaps the most freely available gas that there is. It is present in many generated gases such as the endothermically generated gases. Oxygen will react readily with iron in steel to produce iron oxide, more readily known as scale. It will also create Inter Granular Oxidation in the surface of an atmosphere carburized component*

In addition to this, oxygen will react with the carbon present in the surface of the steel and cause surface decarburization. It must be said at this point, that some processes take advantage of the presence of oxygen in order to create a controlled surface oxidation. This is accomplished to provide a corrosion resistant barrier on the surface of the steel.

- Nitrogen is usually present in an atmosphere as molecular nitrogen which is passive to ferrite and is most satisfactory for use in the processing of low carbon steels for annealing. The grade of nitrogen must be chosen very carefully due to the potential for the presence of moisture in the gas. If the gas does contain moisture then the surface oxidation and potential decarburization will take place.*
- Therefore, clean dry nitrogen is necessary for successful annealing of low carbon steels. If atomic nitrogen is used (this means if the gas is cracked to provide atomic nitrogen for a fraction of a second) then the nitrogen will begin to react with the iron (and alloys) to form finely divided nitrides (Iron Nitrides) that will be present in the surface of the steel.*
- This will cause an increase in hardness of the surface and in some cases brittleness, particularly at sharp corners. Nitrogen is often considered by many to be a neutral atmosphere. This is a misunderstanding of the action of nitrogen under heat. Nitrogen will prevent surface oxidation, but it will not stop surface decarburization.*

- *It should be remembered that in order to prevent surface decarburization, the carbon potential of the furnace atmosphere needs to be in equilibrium to the surface carbon potential of the steel.*
- *Carbon dioxide. At elevated austenitizing temperatures, carbon dioxide will react with the carbon in the steel surface and will produce carbon monoxide as shown in the following the reaction:*



The above reaction will continue to occur until there is no carbon dioxide available in the furnace atmosphere or until the steel surface has completely lost it's carbon. In other words it can be seen that the carbon dioxide is an oxidizing gas.

- *Hydrogen is considered to be a reducing gas which will reduce iron oxide to iron or copper oxide to copper. At temperatures above 1300 ° F. Hydrogen will have a decarburizing affect on the surface of the steel. Below 1300 ° F. the decarburization is almost negligible. If water vapor is present, then this will increase the decarburizing effect because of its dissociation and providing atomic nitrogen and oxygen. The reaction will also react with carbon in the steel surface to form methane in the following manner:*

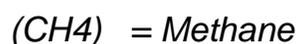


- *Water Vapor. If one is using an endothermic gas generator, then the air that is being used to form the endothermic reaction contains water vapor from the atmosphere. Water vapor will oxidize the iron in the surface of the steel and will combine also with the carbon in the steel surface to form carbon monoxide and hydrogen:*



This is why steam is often used as a bluing agent for motor laminations as it will oxygen eyes the surface of the steel and if the temperature is correct at around 700 ° F., then a blue color will be seen.

- *Hydrocarbon gasses are those gasses which are rich in carbon, that can be easily cracked and shown in the following:*



(C3 H8) = Propane

(C2 H6) = Ethane

(C2H2) = Acetylene

These gases will produce carbon rich atmospheres within the furnace process chamber. The chemical activity which will take place at the surface of the steel will depend upon the surface temperature of steel in order to decompose the carbon rich gas into nascent carbon. One needs to be very careful in the selection of the carbon rich gas in order to minimize the risk of sooting occurring within the process chamber.

- *Ammonia is often used for one or both of its elemental gases (nitrogen and/or hydrogen). The ammonia can be used as a source of nitrogen for the nitriding process, or a source of hydrogen for a reducing process. The ammonia can be produced as a generated gas, a bottled gas, or a bulk storage gas.*
- *Argon is truly an inert gas and that will not react with a metal surface. Its use is more often seen in the aerospace industry, providing a truly non reactive atmosphere gas. The major drawback of using argon is the cost.*

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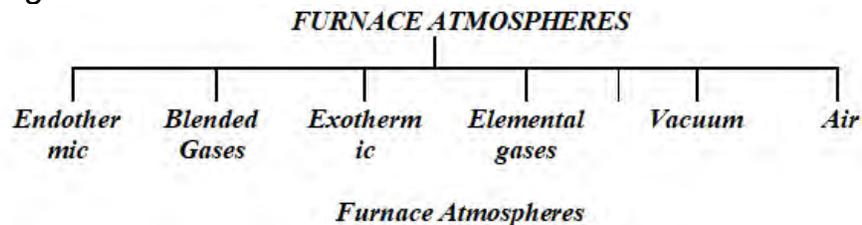
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Process Troubleshooting

Protective atmospheres for heat treatment shops (captive or commercial) can fall into five categories:



Endothermic Atmospheres

Endothermic based atmospheres are manufactured in an endothermic gas generator. The gas generator is a very simple furnace construction and its principle of operation is extremely simple. The generated gas is simply a mixture of a hydrocarbon and gas and air in very specific ratios. As one is aware, air will always carry moisture. The two gases of air and hydrocarbon are mixed together followed by a compression. The compressed gas is then passed through a nickel impregnated catalyst which will act as a catalyst to decompose and clean the gas of heavy carbon (soot). The compressed gas is passed through a heated chamber which holds the nickel catalyst at a temperature of approximately 1900 ° Fahrenheit. The gas output composition will be approximately in the following percentage by volume:

- Nitrogen (N₂) = 1 %
- Carbon monoxide (CO) = 6 %
- Methane (CH₄) = 3%
- Carbon Dioxide (CO₂) = 4 %
- Hydrogen (H₂) = 6 %

This is based on an atmospheric temperature of 72 ° Fahrenheit to produce a dew point at approximately 50 ° Fahrenheit. The carbon potential of the gas will be approximately 0.3%. The gas ratio of gas to air should be approximately 2.8 volumes air to 1 volume of gas. This will vary according to the 'natural gas' source.

On exhausting the from the furnace, the process gas passes through a cooler which is there to condense out any heavy carbon and to prevent it from being

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carried over to the process
furnace. At the process
furnace it is there where one
can decide how to blend the
gas with the enriching gas

Troubleshooting the
Endothermic Generator

If atmosphere problems arise
at the process furnace, it is
prudent to check the
performance of the
endothermic gas generator.
The following sequence is a
suggestion to commence
trouble shooting.

The function of the
endothermic generator is
based upon the performance
of the nickel catalyst cubes,

and it is necessary to keep the catalyst cubes clean and clear of residual carbon. A simple operation is necessary to ensure the cleanliness and the ability of the generator to produce good clean gas. The procedure is called burnout. The sequence of the burnout procedure is simply to reduce the cracking temperature of the generator to approximately 1500 ° Fahrenheit, with the process gas turned off. The generator is then run with only the air compressor operating. The presence of air inside the process retort at 1500 ° Fahrenheit will cause the carbon to ignite. The time taken to complete the burned-out procedure will be determined by the amount of carbon present in the nickel catalyst. Generally, the time can be between one to four hours.

Below is given a chart which will show the relationship of dew point to process temperature in relation to the common potential of the atmosphere being sampled either at the generator or the process furnace.

Trouble Shooting the Process Furnace Atmosphere

If it has been ascertained that the endothermic generator is functioning correctly, then the next step is to observe the process furnace atmosphere conditions. There are five common methods of testing and controlling the furnace atmosphere which are as follows:

- Shim analysis, by weight or by controlled burning*
- Three or four gas analyzer*
- Dew point*
- Oxygen probe*
- CO2/Infra red analyzer*

Perhaps the most common method of testing the furnace atmosphere will be by using the dew point method. This method is an old but tried and tested method of atmosphere control. It is usually supported by one or two other methods of control which shim analysis (Fig 4) are using the formulae as follows:

$$\text{Carbon Potential} = \frac{\text{Final Weight} - \text{Original Weight}}{\text{Original Carbon Content}} \times 100\%$$

Final Weight

In order to ensure that no contamination is carried into the process furnace, it is then necessary to ensure that the part is cleaned prior to entry into the process furnace. Cutting fluids, cutting oils, and lapping compounds may contain chlorides, sulfides, silicones and hydrocarbon compounds.

These surface contaminants may lead to a serious disturbance in the furnace atmosphere as well as at the work surface. In addition to this it must be ensured that the work piece surface is free and clear of surface oxides prior to entry into the furnace.

The presence of oxides on the work piece surface will lead to non uniform case formation (if carburizing). It is then necessary to ensure that the parts are pre-cleaned or degreased prior to entry into the process furnace.

If high dew points are being experienced in the process furnace atmosphere, then it is likely that air is present in the furnace atmosphere.

There are many sources of air ingress into the furnace. Check first that all door seals are not broken or damaged. The next area to observe would be all pneumatic cylinders that operate inner doors and elevators.

If the furnace has an internal mechanical handling the device, then the external drive housing that is mounted onto the side of the furnace could be improperly sealed, or the seal could be damaged. Another source of oxygen/air that is often overlooked and could contribute to high dew point levels is the external air itself.

High air humidity levels will contribute to high furnace dew point levels. If high water vapor levels are present within the furnace atmosphere, then there is a serious risk of causing the following reaction:



It can be seen that water vapor will cause serious surface oxidation to any alloy steel at an elevated temperature and it will combine with carbon in the steel to form carbon monoxide and hydrogen as shown in the following reaction:



A further effect of the presence of moisture within the furnace atmosphere will be to cause a grain boundary oxidation. Grain boundary oxidation can have a serious adverse effect on the steel surface particularly if there is no further machining to take place after the heat treatment procedure.

The following graph shows the effect of dew point in relation to process temperature, in the relation to carbon percentage within the furnace.

Trouble Shooting the Carburizing Furnace Atmosphere

The carbon potential in the process furnace atmosphere to ensure a good carburized case should be determined by

- *The type of steel to be treated*
- *The carburizing process temperature*

Generally, one would use an atmosphere carbon potential between the eutectoid line on the Iron Carbon Equilibrium diagram at approximately 0.8 percent carbon and up to 1.2 percent carbon (maximum). If control of the Carbon potential is not exercised then there are numerous problems that can occur on the resulting formed case:

- *Retained austenite*

- Grain boundary oxidation
- Intergranular cracking
- Surface cracking
- Low surface hardness
- Carbide networking

The carburizing furnace atmosphere is made up either of:

- Endothermic atmosphere carrier gas, plus city gas as the enrichment gas
- Nitrogen/Methanol carrier gas, plus city gas as the enrichment gas

If one is satisfied that the carrier gas is being generated in a satisfactory manner and there are no problems occurring with the carrier gas in terms of dew point, yet problems are occurring at the process furnace, then one should check the quality of the city gas. (Methane enrichment gas)

The following problems can occur as a result of the lack of control on the enrichment gas. Sooting. This problem is as a direct result of too much carbon presence in the furnace atmosphere and can be visibly seen precipitating out of the atmosphere.

Usually this condition would occur at carbon potentials that are approaching 1.6 % or greater. This condition will cause the furnace refractory to become overloaded with diffused carbon into the refractory brick, which will lead to difficulties in control of the furnace atmosphere.

Further to this, the carburized surface of the steel will lead to a serious potential for the formation of retained austenite. The obvious remedy is to cut back the enrichment gas or to dilute the furnace atmosphere with air.

The problem with air dilution is that there becomes a greater risk for the formation of grain boundary oxides, and surface oxides. Great care needs to be exercised when adding air into the enriched atmosphere that one does not create the problem of oxide formation.

If the furnace has been operated at high carbon potentials for extended periods of time, it will be necessary to burn out the carbon from the furnace refractory.

Some of the modern-day integral quench furnace manufacturers will build the furnace with a built in burnout system. This means that the furnace operator only has to go to the program mode for burnout and the burnout will be completed

automatically. With the older type furnaces, one simply reduces the furnace temperature to approximately 1600 ° F. and removes any ferrous atmospheres that might be present within the process chamber.

The doors of entry and exit to the furnace are opened and air is simply blown into the process chamber. The air can be supplied either by an external air blower or by lines of compressed air simply blowing into the process chamber. This will cause any carbon present in the refractory brick to ignite and burn.

The temperature control instrument should be observed as a rise in temperature will be seen to be occurring, and the temperature will continue rise until all the of the refractory carbon is burned out. Generally the burnout time would be approximately two to three hours.

- *Low Hardness.* Low hardness can be caused as a result of too low a carbon potential in the process furnace. The causes of low carbon could be as a result of too low a dew point in the process gas, too low a carbon potential, and too slow a quench (if the atmosphere is within the required carbon potential). Too much residual retained austenite as a result of too slow a quench or too much carbon in the surface of the steel. The remedy would be to check the furnace atmosphere carbon potential and adjust accordingly, also to check the quench medium temperature that it is not too hot and causing a slack/slow quench
- *Grain Boundary Oxidation.* This can be caused by the presence of oxygen/moisture that is present within the furnace atmosphere. The remedy would be to check the furnace for potential air leaks, and to check the volume of dilution air being used and adjust accordingly. Close and careful control of the dilution air is necessary to reduce the risk of the formation of the grain boundary oxide formation

These are just some of the potential problems that can occur as a result of minimal control of the furnace atmosphere. Control of the atmosphere is critical to the success of heat treat practices, especially with the carburizing process. It is also necessary that the furnace operator has an understanding of the process, its control feature and the cause and effect of corrective and non corrective actions. There are many aspects to the control of the endothermically generated gas as

well as the blended process gas both for hardening as well as carburizing. The endothermic gas generator is a simple unit, to both operate and maintain, however the maintenance is so often overlooked, in particular the burnout procedure. When the question is asked when an atmosphere problem is present, "when did you burn out the generator?"

The answer is usually, "We don't need to" or "What do you mean?" It is a necessary maintenance procedure, and the recommended frequency of burn out can be seen in the Operation and Maintenance Manual supplied by the equipment manufacturer.

It is also necessary to do the procedure on the process furnace, particularly when operating with high carbon potentials. The high carbon potentials will very quickly load up the refractory brick with carbon, making it difficult to control the process and also the final product quality.



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Trouble Shooting the Exothermic Gas Generator. The Exothermic gas generator is a unit that is designed as lower cost producing atmosphere generator and has been used for many years. The rich exothermic generator is a combustion chamber that is usually filled with a catalyst.

The internal process chamber is usually constructed with a gas combustion burner supplied with a gas air mixture for combustion. The important part of the unit is the combustion burner that must ensure a close tolerance ration of air to combustion gas.

The general problem that occurs with the exothermic generator can usually be traced back to the air to gas mixing system. Or to the gas cooler on the reacted gas discharge side.

In some instance depending on the gas quality required, the exothermically generated gas may pass through a refrigerant dryer. The refrigerant dryer will require the periodic recommended preventative maintenance as directed in the manufacturers Operating and Maintenance manual. Without maintenance, one can expect problems to arise.

Conclusion. The trouble shooting of furnace atmospheres can be dramatically reduced if standard operating procedures are written for both incoming material inspection as well as for the furnace equipment.

The material for heat treatment can cause considerable atmosphere problems if the incoming material is not prepared and pre-cleaned prior to the process treatment.

In addition to this, any residual surface contaminant can cause surface problems on the steel being processed in terms of corrosion, pitting, appearance as well as quality. Oils, greases, lapping compounds, marker ink, paint and cutting fluids should be removed by washing or degreasing.

The standard operating procedures for the generators and furnaces should include the burn out procedures as well as the method of furnace operation. If the operator/furnace technician understands both the process and operational procedures, then they would become as valuable an asset as the equipment is. It is because of their practice, that management's capital investment will be well protected.



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And Speaking About Hot Isostatic Pressing-Paulo

Jul 31, 2019

It's always interesting to see trends developing in the industry and certainly the expansion of Hot Isostatic Pressing in the commercial heat treating market can be considered a trend (although with the initial cost of the equipment being quite high we certainly do not expect Joe's Bar & Heat Treat to be entering the market). Last year Paulo announced that they were investing in the technology and the company has kindly provided us with this update about the installation. We are also throwing in a photo of the Cleveland plant as we saw it last year. *"Exciting news from Paulo's Cleveland Division where the [Hot Isostatic Press](#) has been delivered and is currently being installed. The furnace arrived after a long voyage from Sweden where it was built by Quintus Technologies. The modular elements as well as the pressure vessel and yoke are being set in place currently. The installation is on schedule and the vessel is slated to be ready for production early September. The 30,000sqft expansion to house the HIP vessel is complete and will provide the Cleveland Division room for additional expansion to support customer needs. Rigging is nearly complete as the many large components are set in place, the heaviest is the yoke, weighing in at over 80,000lbs (pictured below). The yoke contains the vessel while under pressures, which can reach 30,000 psi. Also pictured are the power and pumping modules which form the structure around the vessel. Paulo is excited to add HIP to its service offerings especially in light of the recent growth of additive manufacturing. "Many of the products we heat treat are*

HIP'ed prior to us receiving them, adding HIP allows us to be a one stop shop for many customers as well as growing our presence in the world of Additive Manufacturing," said Phil Harris, Marketing Manager. Installation and startup will continue for several weeks with both cold and hot testing and training to be completed by September. The construction of the expansion is nearly complete as seen below. Founded in 1943, Paulo is one of the largest providers of thermal processing and metal finishing solutions in North America. Headquartered in St. Louis, Paulo operates six divisions servicing the Midwest, Great Lakes, and Southeast regions of the United States and northern Mexico."



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BMI Builds New Giant Furnace For China

Jul 30, 2019

As we have mentioned French furnace builder BMI received an order from Aero Engine Corporation of China (a division of AECC). This furnace is a carbottom style which will be used for titanium annealing and stress relieving applications, among other processes. The useful dimensions are 2500 x 2500 x 1300mm High for a max load of 5 tons. This furnace will be equipped with a full metal hot zone designed and made by long-term Austrian Partner, PLANSEE. This furnace is similar to another one also delivered to China a few years back. The previous furnace had even larger dimension at 2500 x 7000 x 1500 mm for a max load of 7 tons. That particular one was the largest ever built by BMI.



Wisconsin Oven Ships 4 Zone Conveyor Oven

Jul 30, 2019

“Wisconsin Oven Corporation announced the shipment of one (1) Electrically Heated Four Zone Conveyor Oven to a manufacturer in the oil and gas industry. The electrically heated conveyor oven has sufficient capability to heat 25 parts per hour with a heating time of 48 minutes and a cooling time of 12 minutes. Each chamber in this four-zone conveyor oven has a maximum temperature rating of 400°C and dimensions of 1’8” wide x 2’0” long x 6” high. The oven has a guaranteed oven temperature uniformity of $\pm 6^{\circ}\text{C}$ at 310°C ($\pm 10.8^{\circ}\text{F}$ at 590°F) for a minimum of 6 minutes per heating chamber and with a belt speed of 2 inches per minute. The cool down features a 1,500 CFM propeller fan to cool the parts utilizing top-down airflow, where cooling air will be discharged into the shop from below the unit.”



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Aalberts Acquires Applied Process

Jul 29, 2019

Now this is more interesting news to start off the week. It would appear that Netherlands based conglomerate **Aalberts N.V.** has acquired commercial heat treater Applied Process, one of the largest commercial heat treaters in North America. Aalberts, through their **“Hauck”** division is the second largest commercial heat treater in Europe as ranked by “The Monty” <https://themonty.com/largest-european-commercial-heat-treaters-february-2019/> While the company is the second largest in Europe they have a relatively small presence in North America when it comes to commercial heat treating (having said that we should add that just last week we had a news item about their Accurate Brazing facility in SC expanding-scroll down this page for that news item). Applied Process (which was started by the Keough family of AFC-Holcroft fame) is a very unique operation in that the company almost exclusively offers salt quenching and boasts the world’s largest integral quench batch austempering furnace with working dimensions of 84”W x 96”L x 54”T. It was built in 2011 by furnace builder AFC-Holcroft of Wixom, Michigan and has a gross capacity of 20,000 pounds and a quench tank which holds 400,000 pounds of salt. This photo shows Gord Montgomery standing in front of “The Monster” as it is appropriately nicknamed.

“Applied Process, the industry leader in salt quench heat treating, announced today that it has been 100% acquired by Aalberts N.V. (Aalberts), a Dutch public company. Aalberts, one of the largest heat treating companies in the world,

operates in over 50 countries and is committed to adaption and innovation with a clear focus on engineering mission-critical technologies for its customers. Applied Process will join the Material Technology group within Aalberts. The Material Technology group offers a unique combination of advanced heat and surface treatment technologies utilizing a global network of service locations with excellent local knowledge to customers active in general industries, automotive, aerospace and power generation.

Richard Wright, COO of the US Division of Aalberts Material Technology stated "Aalberts is very excited that Applied Process is joining our team of world-class service providers. Applied Process is the world-wide leader in austempering heat treatment, and we look forward to supporting their efforts to expand their technology and service offerings." Harold Karp, Applied Process President and CEO stated, "We are very excited to be part of the Aalberts family. We especially look forward to the synergistic opportunities of providing a broader and stronger service offering to our customers that will come from the technical expertise and other businesses within Aalberts."

We are very grateful for our customers' business and look forward to continued growth together. We are also excited about the new business opportunities that will come as we join the Aalberts family. We are confident our new ownership will serve us all well and provide incremental technical, capital and human resources to further strengthen our superior technical support, unrivaled customer service, and perfection in heat treating services. Our brand and Hostile Duck will continue on, as will the entire leadership team. Our customers, prospects, and friends should expect "business as usual" after the transaction. In the meantime, please don't hesitate to reach out to Richard, Harold or Steve Metz with any questions."



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Monday Morning Briefing

Jul 29, 2019

We told you that after a one week break that we would have a million heat treat stories to tell you, this is the first installment. We start off by adding a few more details about the truly upsetting story we had last week-that of the passing of **Brad Luce** of **Modern Heat Treat** in Dallas, Texas, USA at the very young age of 43. Brad was like many of us in the industry in that he became a heat treater because his father **Jerry Luce** was a heat treater. Jerry founded **Metroplex Heat Treat** in the DFW area of Texas which became one of the largest independants in Texas before being acquired by Bodycote a number of years ago. Brad followed in his father's footsteps and founded Modern Heat Treat in Richland Hills, Texas back in 2009 along with partner **Rudy Saucedo**. The company has been a tremendous success and now has roughly 60 employees and over 40 pieces of equipment. While we didn't know Brad as well as we would have liked we did have a great deal of respect for what he accomplished and the person he was and we along with all in the industry will miss him.



July 25, 2019 commercial heat treating giant **Bodycote** released their 2019 financial results for the first 6 month of this year. All the details can be found at <https://www.bodycote.com/> and the highlights are below;

Highlights

- *Civil aviation revenue growth of 21%5*
- *Specialist Technologies' revenue growth of 4%5*
- *Emerging markets revenue growth of 3%5*
- *Western Europe car & light trucks' revenues decline 16%5*
- *Resilient 18.3% return on sales performance. £38m invested to support growth of the business, including two acquisitions*
- *Interim dividend of 6.0p, up 5.3%*

Solar Manufacturing Press Release; *“Solar Manufacturing recently shipped a horizontal front-loading vacuum furnace to Georgia Southern University (GSU) in Statesboro, GA. The furnace – the Mentor® – combines versatility and compact design to efficiently process smaller load sizes and is ideal for laboratory use. GSU will be using the furnace primarily for vacuum thermal processing research and development of various iron-based alloys, including additive manufactured parts. The Mentor® includes a graphite shielded hot zone and heating elements, with a work zone size of 12" (0.3m) wide X 12" (0.3m) high X 18" (0.46m) deep, and a weight capacity of 250 pounds (114 kg). Fully compliant to aerospace specification AMS2750E, the Mentor® can process in an argon or nitrogen atmosphere or in high vacuum in the 10⁻⁶ Torr range with a 6" Varian diffusion pump. The furnace incorporates the SolarVac® Essentials control system package with large graphic touchscreen overview. Programming capabilities include gas quench rate control up to two bar pressure, and precise temperature uniformity up to 2400° F (1316° C). Dan Insogna, Solar Manufacturing's Southeast Sales Manager states, “We are pleased to provide a solution to GSU's growing research and development efforts, and we know the Mentor® vacuum furnace will benefit the university with this research.”*



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Sean Driscol recently became COO of **Thermal Vac Technologies** out in Orange, California, USA, Thermal Vac is a commercial operation offering vacuum heat treating, brazing and a number of other process which was started by Sean's father Steve Driscol. Recently we told you about **Accurate Brazing** in Greenville, SC, USA expanding but we didn't put much emphasis on the fact that this included a HIP unit. This is worth repeating as this is the fourth commercial heat treater in North America who has added this high profit margin technology in the past year; *"Accurate Brazing, a full-service provider of specialized heat treating solutions, will add hot isostatic pressing to its thermal processing capabilities with the installation of a Hot Isostatic Press (HIP) from **Quintus Technologies**. The press, model QIH 122 M URC®, is equipped with Quintus' proprietary uniform rapid cooling (URC), a feature that improves material properties of parts designed for mission-critical applications, increasingly produced in the vibrant additive manufacturing environment. "We chose Quintus equipment because of the advanced technology and the versatility of the design," comments Steven Francis, President, Accurate Brazing, a subsidiary of Netherlands-based Aalberts N.V., a major player in the global heat and surface treatment business, with more than 150 locations in 50 countries. The new press will join the state-of-the-art equipment line-up already operating in Accurate Brazing's newest facility, in Greenville S.C. The company's AS9100 quality management system and Nadcap accreditation attest to its ability to meet the stringent needs of the aerospace and power generation industries."* Speaking of new equipment orders **Can Eng Furnaces** of

Niagara Falls, Canada recently landed a nice order for a rotary furnace designed for processing aluminum parts. The order comes from an international supplier of auto components and will be installed at their facility in North Carolina, USA.

“Nakal”, Russia’s largest furnace manufacturer recently installed a nitriding and carburizing system at one of the largest producers of mining equipment, “Kopeysk Machine-building Plant” JSC in Kopeysk, Russia. The system includes a nitriding furnace with working dimensions of 1500 X 2000 mm, a carburizing and nitro carburizing furnace with working dimensions of 1800 X 2000 mm and a carburizing and nitro carburizing furnace with dimensions of 1400 X 1400 mm.



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GRAPHITE MATERIALS

Advanced Heat Treat Corporation based in Iowa, USA and one of the largest commercials in North America has this to say about new hires; “Advanced Heat Treat Corp. (AHT), a recognized leader in heat treat services and metallurgical solutions, announced today the addition of three new sales and metallurgy employees: Tim Zemaitis, Shane Seevell and Katie Herron. The new sales and metallurgy team members will serve the AHT locations in Michigan, Iowa and Alabama. Zemaitis, regional sales manager for AHT’s Michigan facility, joins the team with over 30 years of experience in heat treatment, metallurgy and engineering. Seevell, regional sales manager in the corporate office located in Iowa, brings over 15 years of sales experience plus past heat treat experience working at AHT; and Herron, materials engineer & quality specialist in Alabama, rounds out the growing AHT team. Herron is a recent materials engineering graduate from the University of Alabama – Birmingham.

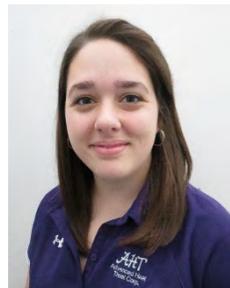
AHT president Mikel Woods commented, “We are excited about the new team members we’ve brought onboard. They bring new diverse skillsets that blend great with our mission.” Zemaitis will focus on heat treat needs in the Great Lakes area. The Michigan AHT facility offers ion (plasma) and gas nitriding, ferritic nitrocarburizing, UltraOx®, stress relieve, s-phase nitriding and more. Seevell will cover sales in the Midwest. The Iowa AHT facilities also provide ion (plasma) and gas nitriding, ferritic nitrocarburizing and UltraOx®, in addition to induction hardening, carburizing and more.



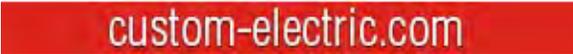
Tim Zemaitis



Shane Seevell



Katie Herron



Bradley Luce, Modern Heat Treat, Texas

Jul 25, 2019

We are extremely upset to mention the passing of Bradley Luce, co-founder of Modern Heat Treat one of the largest heat treaters in Texas. We will provide more details about Brad and his company next week.

Bradley Ferrel Luce, age 43, of Crowley, Texas passed away on Monday July 22, 2019. Visitation will be on Friday, July 26 at Pathway Church in Burleson, Texas from 6:00 pm to 8:00 pm. Funeral Services will be held on Saturday, July 27 at 10:00 am at Pathway Church in Burleson, Texas. Interment will be at Laurel Land Memorial Park in Fort Worth following the service. Bradley was born April 28, 1976, in Arlington, Texas. Bradley was a graduate of Arlington High School and received his college degree from Tarleton State University. He was an active member of Alpha Gamma Rho. After graduation he worked in the family business, Metroplex Heat Treat.

In 2009 Bradley, with his business partner, Rudy Saucedo, established Modern Heat Treat. Bradley was extremely generous and well respected by his co-workers. He was a strong advocate and supporter of the FFA. Bradley opened his ranch in Goldthwaite for family and friends to hunt and entertain. He loved spending time with his family. His children were his great pride and joy. At any gathering, you could find Bradley cooking. The food was good and there was always plenty. Time spent with Bradley at the family lake



house will always be cherished. Bradley was a loyal friend who would do anything for anyone, expecting nothing but a smile in return. He took pleasure in helping others, it brought him great joy. Bradley will be dearly missed by all.

He was preceded in death by his son, Trevor Wayne Luce. Bradley is survived by his wife, Jenifer; children, Travis, Tatum, Tyler, Tinsley; parents, Jerry and Judy; brother, Brian and Melissa; and numerous friends and extended family, including Rudy Saucedo and his family. In lieu of flowers, donations in his memory can be made to: Texas FFA Foundation, 614 E. 12th Street, Austin, TX 78701 www.mytexasffa.org

Gone Fishing July 22 to July 26th

Jul 22, 2019

While we have a million things to tell you about the worldwide captive and commercial heat treating industry we apologize but they will have to wait until Monday July 29th. We at “The Monty” are going fishing for a week-to be exact spending some time on an Island in Northern Canada but that is a potential story for another day. Gord, Jordan and Dale Montgomery.



Accurate Brazing, Greenville, SC, USA Expanding

Jul 18, 2019

“Accurate Brazing, a full-service vacuum brazing and heat treating company and subsidiary of Aalberts N.V., today announced plans to expand its Greenville County operations. The \$13 million expansion is expected to create at least eight additional jobs. “Greenville County is a great place for us to do business. It boasts good people, resources, a growing economy and easy access to transportation,” stated Aalberts material technology US division COO Richard Wright.

Since 1989, Accurate Brazing has provided complex and detailed heat treating and brazing applications to support aircraft, ground turbine and power generation markets. The company is adept at heat treating materials that include stainless steel, super alloys, copper and refractory materials. “Accurate Brazing’s decision to continue investing in South Carolina and our people shows that companies find the resources they need to be successful here,” said South Carolina Governor Henry McMaster. “We thank this great company for their ongoing commitment to our state.”

Accurate Brazing is a division of Aalberts N.V., one of the largest heat treating and brazing companies in the world. Committed to adaptation and innovation with a clear focus on customers, Aalberts N.V. employs approximately 16,500 people at more than 150 locations in 50 countries around the globe.

“This latest expansion by Accurate Brazing is a further demonstration that South Carolina’s business-friendly climate, market access and quality infrastructure are growing the economy and creating jobs,” added Secretary of Commerce Bobby Hitt.

Accurate Brazing is upgrading approximately 20,000 square feet of an existing facility located at 299 B Garlington Road in Greenville County to install a new world-class Hot Isostatic Press. The press is designed to improve ductility and stress resistance of critical, high-performance manufactured materials.

“County Council is pleased to congratulate Accurate Brazing on its new expansion in Greenville County,” said Greenville County Council Chairman and Board Member of the Greenville Area Development Corporation H.G. “Butch” Kirven. “As a market leader in high-quality vacuum brazing and heat treating of materials for

the aircraft, ground turbine and power generation markets, Accurate Brazing is a very important member of our business community and we are proud of their growth and success.” The company has been located at the Garlington Road facility since 2001 and added another location on nearby Pelham Road in 2017. The project is expected to be complete in the second quarter of 2020.”



European Furnace Builder Sells to Chinese Company

Jul 18, 2019

The big news of the month which we announced yesterday was the sale of the **HTC Group**, which includes four companies – **IVA Schmetz** (Germany), **Mahler** (Germany), **Fours Industriels B.M.I.** (France) and **IVA Schmetz Industrial Furnaces** (Shanghai) (China) – to a Chinese company by the name of **Qizhi GmbH** and **Shanghai Qizhi Information Technologies Co., Ltd.** We alluded to this sale back in April of this year when we had the rumor below (*obviously this acquisition took a lot longer than any party anticipated*). Each of the Tennova companies involved in the sale are well known, top end suppliers of heat treating furnaces, mainly in Europe and Asia. **Mahler** is best known for continuous furnaces, **BMI** for vacuum furnaces and **IVA Schmetz** for Sealed Quench furnaces and vacuum nitriders. This marks the first time as far as we can recollect that we have seen an Asian company buy a substantial “western” furnace builder. It will be interesting to see if anything changes in the company. For our North American readers we have to say that each of these brands are not well known in the USA, Canada or Mexico although each company has a few installations in North America. As an example we include this photo of a BMI furnace in Quebec which was recently installed.

“April 2019 News Item; Betcha you have never heard of Shanghai Qizhi Information Technology Co., Ltd., based in Ningbo, China before-we certainly

hadn't. If you are curious about the company you can get all the details at <http://www.qijing-m.com/En/INTRODUCTION.html> which will tell you it is a large conglomerate which produces auto parts, power tools, washing machines, home appliances and a host of other items. What the website does not tell you is that supposedly in the near future the company will be able to add vacuum furnaces to their list of products. This by the way fits very neatly with what the company does as they already have a large heat treating operation featuring sealed quench furnaces. If our information is correct they have just reached an agreement to buy a European manufacturer of vacuum furnaces and we will be telling you all about it."



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Tenova Sold the HTC Group to Ningbo Qijing

Jul 17, 2019

Now this is quite an interesting news item, so much so that we will have some further comments tomorrow.

“Castellanza, July 17, 2019 – Tenova – a company of the Techint Group specialized in innovative solutions for the metals and mining industries – today has positively concluded the selling process of the HTC Group, which includes four companies – IVA Schmetz (Germany), Mahler (Germany), Fours Industriels B.M.I. (France) and IVA Schmetz Industrial Furnaces (Shanghai) (China) – specialized in advanced technologies for heat treatment processes for components.

The purchasers are Qizhi GmbH and Shanghai Qizhi Information Technologies Co., Ltd. (both members of Ningbo Qijing Holding Co., Ltd.). Ningbo Qijing is also the parent company of Qijing Machinery Co. Ltd., a company specialized in the research, development manufacturing and assembling of mechanic systems and precision parts mainly operating in the home electric appliance field and industrial application filed (in particular automotive, power tools and hydraulics).

*“As an experienced company in supplying precision parts for different industries we recognize in the heat treatment one of the most critical process for precision machined parts. We believe that HTC group, with its expertise and product range, has the potentials to gain space and relevance in growing sectors, especially in the Chinese market”, affirmed **Wang Yongqi**, Chairman of Ningbo Qijing Holding. In fact, the demand for heat treatment technologies is booming in the aerospace industry, whilst in two other business sectors like medical and metals powders this equipment will face a rapid expansion in the near future. “Qijing group represents*



a solid industrial partner, in search of an excellent European technological player to expand its business. While we as Tenova are focused more and more on the “green” technologies for large steel and aluminum plants, I am convinced that Qijing is the right purchaser to boost the development of the

*HTC companies, that will enhance them and develop their full potential in other sectors”, declared **Andrea Lovato**, Tenova CEO.*

The successful outcome of the purchasing process was possible also thanks to Seta Capital and UniCredit, who have acted as financial advisors to Tenova in the context of the transaction.

About Tenova

Tenova, a Techint Group company, is a worldwide partner for innovative, reliable and sustainable solutions in metals and mining. Leveraging a workforce of over 2,500 forward-thinking professionals located in 19 countries across 5 continents, Tenova designs technologies and develops services that help companies reduce costs, save energy, limit environmental impact and improve working conditions. For more information, visit www.tenova.com

The 22nd SECO/WARWICK Seminar “Heat Treatment 4.0” in the climate of Industry 4.0

Jul 17, 2019

SECO/WARWICK, one of the world’s most widely recognized manufacturer of industrial furnaces, invites to the 22nd Seminar “Heat Treatment 4.0”, which will take place on 10-12.09.2019 in the heart of the Karkonosze Mountains – picturesque Karpacz in the Gołębiewski hotel.

The SECO/WARWICK seminar is a certified training, with a high substantive level and an exchange of knowledge and experience platform valued among experts. Specialists from the world of science and business, engineers, practitioners, and experts from the Technical University of Lodz, Poznan, Rzeszów and Silesia will ensure the unique value of the event.

The most important trends in the field of heat treatment of metals

“SECO/WARWICK, being a leader in heat treatment, constantly sets new standards and trends. It will be shown and proved during this year’s Heat Treatment Seminar 4.0 as well. According to the refreshed formula, there will be four thematic blocks, corresponding to main groups of customers of heat treatment solutions. The most important trends from the field of heat treatment technology will be discussed, “says Katarzyna Sawka, Marketing Director of SECO/WARWICK Group.

Heat treatment 4.0 and 4 theme blocks

SECO/WARWICK, often referred to as an “innovator”, “champion”, “trendsetter” or “one of the top 5 providers of equipment and services for metal heat treatment”, this year will welcome the Seminar’s participants with a refreshed formula of the event. The seminar program, will cover 13 lectures, with selected content, is divided into four theme blocks, concerning trends, challenges and issues from the aviation industry, service and automation, mass production and commercial heat treatment.

2 days of lectures (11-12.09), with additional discussion panels, networking sessions and attractions, will be preceded by Ice Breaker, i.e. the first evening, opening the event (10.09), which is a great opportunity to establish informal business contacts. A more festive artistic setting can be expected during the Gala Dinner, topping the event. The program, including topics for lectures and information about speakers, is available online at: <https://www.secowarwick.com/en/seminar-2019/>

“Invention and reliability” as part of the Seminar

“Invention and reliability” is in every SECO/WARWICK’s product, solution, strategy, project. Coupled with passion and commitment it is the company’s distinguishing feature and gives a competitive advantage to its clients. Thanks to this approach, SECO/WARWICK is a leader on the market of heat treatment of metals, an innovator who, together with numerous research institutes, defines new award-winning solutions, offering equipment along with modern technology tailored to the needs, possibilities and requirements of individual clients and the industry. Efficient logistics, delivery, assembly and commissioning of equipment, service in every corner of the world, technical and technological trainings, an international team of experts and specialists all result from the need for continuous development. It is inscribed in DNA from the very beginning of the company existence and present at every moment and every thought.

With an innovative approach and mindset, SECO/WARWICK has developed a set of intelligent tools enhancing production processes through the use of augmented reality and predictive maintenance which are said to be the most immediate tech development that will affect our lives. [These 4.0 solutions along with an “invention](#)

and reliability” approach, will be discussed during the service and automation thematic panel and workshop, making it an important Industry 4.0 part of Seminar.

The number of tickets is limited

SECO/WARWICK conducts registration for the Seminar only until September 3, 2019. Ticket sales details and application form are available on the organizer’s website: <https://www.secowarwick.com/en/seminar-2019/>

See also:

- Photo gallery from last year’s edition <https://www.secowarwick.com/en/news-events-and-information/seminar-2018/galeria/>
- A short video report from the previous edition: <https://www.youtube.com/watch?v=7sfQ1hvOOIE>



Students from Lehigh's Summer Engineering Institute Tour Solar Atmospheres

Jul 17, 2019

On July 11 th , Solar Atmospheres hosted 28 high school students enrolled in the Summer Engineering Institute (SEI) at Lehigh University. The group also included a few members of Lehigh University undergraduate students and staff. The SEI program, under the guidance of Director Dr. Laura Moyer, is a two-week residential program, running two sessions back to back. Students are nominated by faculty of local

high schools, and the program specifically targets under-represented groups including girls, first-generation students, and students who might otherwise have limited opportunities to study in the fields of science, technology, engineering, and math (STEM). Solar Atmospheres provided a tour of the campus, exhibiting materials and processes for intriguing applications in a variety of markets. The students experienced a manufacturing setting encompassing related topics from their curriculum, gaining a better understanding of heat treating and manufacturing, and how cutting edge technology reshapes centuries-old processes. "Solar Atmospheres was a great company and its wide range of clientele was purely astounding," remarked student, Cole. "From aerospace companies to software and medical supplies companies, Solar Atmosphere shows just how important heat treatment is to the world we live in."

Another student, Elizabeth, was surprised to learn how great an impact manufacturing has on our lives. "This field trip opened my eyes to the complexity of the products we use daily. By touring the facility, my horizons were broadened and I was able to physically understand what manufacturers do daily." The next group of SEI students is scheduled to visit Solar later this month. For additional process information, contact Mike Moyer, Director of Sales, Solar Atmospheres, at 215- 721-1502 x1207, or mikem@solaratm.com, and visit www.solaratm.com.



Used Endothermic Generators-What's Selling and What's Not?

Jul 16, 2019

Until recently we would have told you that there was no market for used endothermic generators-period. However recent events have lead us to qualify that statement and this is what we would now say; “old style box type endo generators don't sell well, new style multi retort generators do sell if the price is right”. We believe it was Surface Combustion who originally came out with the idea of the modular system whereby each retort could be run independently of the others allowing for easy maintenance and also the ability to reduce endo production depending upon demand. Whoever came up with the idea it was a damn good one and now virtually all new generators feature a multi retort design. Circling back to where we started, the idea was so good that it means everybody wants the multi retort design and few people want the old style units which is reflected in the sale price of each on the used market. In these photos we see both a used multi bottle generator and a 4 retort but single style endo generator. Guess which one is the more saleable one-correct the multi bottle will sell for approximately twice the price of the “box” style.





BMI Building Large Vacuum Furnace for China

Jul 16, 2019

This photo was taken at the BMI facility near Lyons, France very recently (BMI is a large manufacturer of vacuum furnaces). What you see is the shell of a vacuum brazing furnace which is going to an aerospace customer in China. The furnace has working dimensions of 2500 mm X 2500 X 1300 (roughly 100" X 100" X 51") and a weight capacity of 5 tons making it a pretty good size furnace. It is expected to be completed the end of September of this year.



Carlos Torres Appointed President and CEO of MATTSA Furnace Company

Jul 15, 2019

In Mexico we see that **Carlos Torres** has been appointed President and CEO of **MATTSA Furnace Company**. Based in San Luis Potosi MATTSA is the largest furnace builder in the country;

“MATTSA Furnace Company is pleased to announce the appointment of Carlos Torres as President and Chief Executive Officer of the Company, effective July 15 2019. Carlos has extensive experience in the Heat Treat industry and a fresh perspective for the company’s future. His duty will be to continue to grow and

solidify the company in the Heat treat market as an important player in the industry. Carlos has this to say; “I am excited to be a part of what I envision to be a robust growth period for MATTSA and look forward to leading the Company through this transformational stage. Our Mission is to show the world the professionalism and talent that MATTSA has to deliver great products and services through an innovating and disciplined approach to create added value with top quality and great customer service to our beloved Heat Treat industry “. Our great staff at MATTSA and our strategical alliances with great world wide companies like Afc-Holcroft (Now part of Aichelin) and Super Super Systems Inc have been a key part of our success. I am very proud to have the honor to lead this organization my father founded 35 years ago.”



Moses Garcia Appointed Sales Director at ALD TT, Mexico

Jul 15, 2019

Commercial heat treater ALD Thermal Treatment, one of the largest commercial vacuum carburizing company's in North America has just promoted **Moses Garcia** to the position of Sales Director for Mexico – Bajio Area. **Hector Ibarra**, Vice President Business Development North America said this about the



appointment; *“I am pleased to announce the following organizational change in our Ramos Arizpe facility. This change is effective on Monday, July 15, 2019 in the Department of Sales.*

Moises Garcia has been promoted to the position of Sales Director, Bajio region because of his strong contributions to the company since he joined the ALD Ramos Arizpe team may of 2015. Moses was previously our Metallurgical Manager in ALD TT Ramos, so now he will be moving with his family to the Queretaro area where we are establishing a sales office. I am sure that he will excel in his new position. In this new role Moises Garcia will report directly to Hector Ibarra, Vice President Business Development North America.”

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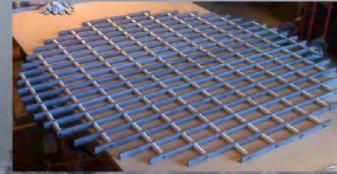
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South Tek Systems Expands

Jul 15, 2019

This press release tells us how **South Tek**, a supplier of nitrogen generating systems is expanding. To this press release we have to add our personal observation which is that we have always been a little puzzled as to why nitrogen generating systems are not more common in the heat treating industry than they actually are. The technology is proven, there are a number of real success stories in the industry but at the end of the day the technology is not as common in heat treating as we feel it should be.

“A major manufacturer of nitrogen generators which provides technology for heat treating applications, as well as for many other markets, recently announced plans to expand in Wilmington, North Carolina, into a higher capacity manufacturing facility. South-Tek Systems (STS), the nation’s highest volume manufacturer of N2GEN®, will be transitioning operations into a custom-designed 66,000-square-foot building — 10 times their current space — in order to accommodate growth in

production and improve workflow. The expansion (from 6,600 sq. ft to 66,000 sq. ft!!) will accomplish a few key developments:

- Increased space for 4 more new engineers in manufacturing/production, which will flesh out R&D;
- Inventory improvement, which will decrease lead times from order to shipping;
- Laboratory environment on site, which will enhance N2% purity and flow rate certification;”



Marmara Heat treatment Turkey Installs New Endo Generator

Jul 15, 2019



Commercial heat treater Marmara in Turkey is pretty pleased that they just added a new endothermic generator-so pleased that they sent us this photo. We know little about this company except that the generator appears to be made by Powermax in Taiwan and that it will be supplying several furnaces in the plant including a mesh belt furnace line.

Chris Dennis, H & S Heat Treating Retires

Jul 12, 2019

Many years ago Phil Dennis bought a tiny commercial heat treat in Port Robinson, Canada (very near Niagara Falls). Phil turned it into a \$10 million per year operation and in the process brought in many of his family including sons Colin and Chris, daughter Debbie and son in law Dave Orosz. Along the way Phil became one of the first investors in what was a fairly new technology, gas carburizing and the result was that he and his family started Nitrex in Burlington



which is now part of Bodycote. Phil passed away a few years back and his sons and son in law took over the business. Time passed and son Colin who was the President left the business and the family over a period of time sold their interests in the companies. Chris remained on for many years at H & S as Sales Manager and just recently retired making this an end of an era for the Dennis family which is a real shame. Chris grew up in the commercial heat treating industry and his retirement is truly a loss to the heat treating industry. Rather sad but Chris has earned a good retirement after 40 years in the business.

MB Aerospace Technologies (Poland)

Jul 12, 2019

We see that aerospace company MB Aerospace Technologies in Poland has achieved Nadcap accreditation for coatings at their Kalisz facility. Coating, while closely associated with heat treating is not a field that we spend much time on, however this company has a fairly large in house vacuum department as you can see in this fairly recent photo. MB Aerospace has several locations in Poland including two which they bought from Canada based Vac Aero a couple of years back.



Hardness testing And Surface Preparation By David Pye

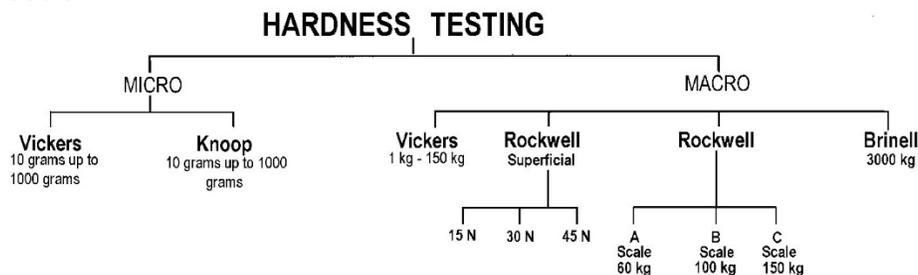
Jul 11, 2019

Introduction

The result of hardness testing is what will determine the success of the heat treatment procedure and the materials response to that heat treatment. The results of a hardness test can indicate to us:

- If the heat treatment was successful
- Give a possible indication as to the cause of a failure
- Give an indication of other mechanical properties of the metal
- If the metal is in a condition that will ensure the functionality of the metal
- A comparison to other hardness values

It is therefore most important that the test is conducted in the appropriate and accurate manner in order to achieve the 'real results.' The preparation of the metal surface for hardness testing is of as much importance as is conducting the test itself. The surface preparation of the steel to be tested is what we will be focusing on in this issue.



Steel Surface Preparation

The heat treatment process, or pre-condition of the steel will determine the surface condition to be tested at that point. The steel can be in a condition of having;

- Surface decarburization (loss of surface carbon due to unstable processing conditions)
- No surface decarburization
- Carburized
- Nitrided
- Other surface treatments

Surface Oxide and decarburized surface preparation

If the steel is decarburized, it means the surface of the steel has lost surface carbon. If either of the conditions exists as described above has occurred, then the steel will have been subjected to:

- Has the potential for an attack at the steel sample surface. Oxygen will most probably be the culprit to cause of a decarburization at the steel surface*
- A loss of surface carbon. (indicated by low hardness)*
- A change in the surface of the steel chemistry*
- A change in the mechanical properties of the steel surface in relation to the core/substrate steel*
- Change in the surface metallurgy because of carbon content variations*

If the steel has been through hardened and in order to achieve a good and true hardness result, it is necessary to test the substrate material by grinding beneath the oxide and decarburized layer.

The use of a fine grinding wheel with only a light surface pressure to remove the decarburized/oxide layer. When grinding, excessive pressure must NOT be applied to the surface grinding procedure, as this will create friction (thus generating heat) that will begin to adversely affect accuracy of the hardness result obtained.

The result of good surface grinding techniques will ensure that there will be a reasonably smooth surface without surface ridges. If surface ridges are present, this can cause the indenter to slip off the peak of the ridge and give a false reading. If the heat-treated surface is a previously ground/polished finished surface, then one cannot grind that surface. It is very likely that the surface may not be decarburized. If that is the case, then one should select an area where no indenter impression will affect the finished ground surface. This could be a sidewall face, or the reverse side of a die or a representative test coupon that has been treated with the product.

Surface treated component

If the steel part has been surface treated by:

- Carburizing*
- Carbonitriding*
- Austenitic Nitro Carburizing*

- *Ferritic Nitro Carburizing*
- *Nitriding*
- *Boronizing*

One cannot always grind into the finished surface. If this occurs then it will most likely mean that the treated surface will begin to be depleted in:

- *Carbon*
- *Nitrogen*
- *Boron*

And other induced surface treatment elements. The only thing that can be done, is to lightly polish the area that is to be tested with a fine grind paper.

Care must now be given to the load selection, particularly if the formed case is a thin case. A heavy load will penetrate the formed case and will result in a false/incorrect reading. A simple rule of thumb might be, 'the shallower the case, the lighter the hardness testing load should be.' If the objective of the hardness test is to measure the depth of case, it will be necessary for the test operator to understand the definition of case depth. Case depth is that formed case that has occurred to whatever depth was specified. This follows that there are two further definitions that will identify:

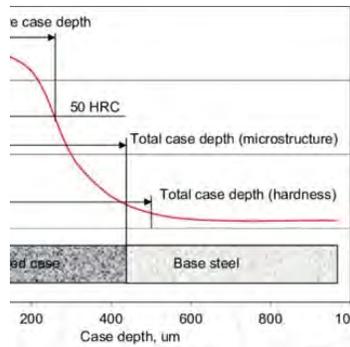
- *Effective case*
- *Total case*

Effective case

The effective case is that case that has been formed to a hardness depth from the surface to 513 Hardness Vickers Numeral (or approximately 50HRC scale)

Total Case

Total case is the case that has been formed to a depth of 'core hardness plus 50 Hardness Vickers Numeral. (Or approximately 5HRC scale) on the real core hardness value.



Test method

The method of testing is usually applied to a sample that has been cut, either from a test coupon or from a sample from the part being tested.

The hardness test loading is usually a micro hardness loading which can be varied from 10 grams up to 1000gram load mass. Depending on the thickness of the diffused case, will determine the load that is selected. Generally, it is usually a 200 – gram to 300 – gram load that is used to determine a total case depth.

The application of the test is performed on the test coupon across the formed case through to the core hardness. Another hardness testing method for micro hardness test (and some macro) is to use the Knoop hardness test unit. This will give the operator the tested values in Knoop Hardness units.

Unlike the Vickers test (which makes a ‘pyramidal’ square diamond impression and the measurement is made across the two axis), the Knoop method impression is a long-elongated diamond impression, the hardness value is ascertained by measuring the longitudinal axis.

Conclusion

Whichever test procedure is used for the process of hardness testing, it is necessary that the test method is chosen carefully, and that the test is conducted in an accurate and meaningful manner. It is this test that will determine the effectiveness of the heat treatment process that has been done. It is also very important that the quality assurance technician/heat treatment associated has a good understanding of both the test methods, the load/indenter selection and the interpretation of the results to produce accurate hardness values.



ALD Vacuum Technologies-North America

Jul 11, 2019

Based in Hanau, Germany ALD Vacuum Technologies is a very substantial player around the world when it comes to providing new thermal treatment systems and in particular when it come to vacuum furnace solutions and vacuum carburizing systems. The company has always had a strong presence in North America and recently they have been making some changes. First some background though; ALD-Holcroft (originally a joint venture between AFC-Holcroft and ALD) became ALD Vacuum Technologies a few years back while back when AFC-Holcroft sold their portion of the business to ALD. While this is ancient history the personnel changes at ALD are more recent. **Bill Gornicki** the “*main man*” at the company left to be CEO at furnace builder Diablo, and the President of the company, **Mr. Jason Sisler** recently left the industry completely. At the same time several of their heat treat reps have parted ways with the company meaning the company has gone through quite a number of changes in a short period of time.

None of this effects the **ALD Thermal Treatment** division (*commercial heat treating*). ALD TT remains one of the largest commercial heat treaters in North America with their two plants in **Port Huron, Michigan, USA** and **Ramos Arizpe, Mexico**. As a matter of fact if memory serves us correctly the company just received another award from **General Motors** as a supplier of the year. We have these photos for you of the ALD facilities in North America



Thermprocess, Dusseldorf, Germany

Jul 10, 2019

The recent Thermprocess (Brite World of Metals) fair is over and our coverage is finished, but we did receive this note about the attendance. Our impression and that of most of the exhibitors we spoke to was that the show was good but attendance was down. According to this report attendance was good but we notice there is no mention about attendance being up or down.

“After five eventful days at the trade fair, the Bright World of Metals concluded successfully on Saturday, June 29, 2019, fortifying its leading position as the world’s most important trade fair platform for metallurgy and casting technology. Results were excellent for both exhibitors and visitors at GIFA, METEC, THERMPROCESS & NEWCAST, particularly in terms of how international the demographic was in comparison to previous events: 70% of the exhibitors hailed from abroad (65% in 2015) and 66% of the visitors came from foreign countries (62% in 2015).

“With approximately 2,360 exhibitors from all over the world, GIFA, METEC, THERMPROCESS & NEWCAST have almost covered the entire international market. Global players, small, innovative newcomers, and providers of niche technology alike are all represented here,” said Friedrich-Georg Kehrer, the Global Portfolio Director for Metals and Flow Technologies at Messe Düsseldorf GmbH. Around 72,500 visitors from 118 countries were welcomed into the halls during the trade fair’s five-day run. “The mix of nations in our visitor and exhibitor demographics is a crucial factor for success of the Bright World of Metals; indeed, that’s what makes this quadruple trade fair so unique. GIFA, METEC, THERMPROCESS & NEWCAST are an



absolute must for metallurgy and casting professionals from all over the world,” added Kehrler.”

Gasbarre Announces New Team Member

Jul 9, 2019

*Gasbarre is pleased to announce that **Tom Spicer** has joined the organization as a Field Service Technician for Gasbarre Industrial Furnace Systems (OEM of J.L. Becker brand equipment), located in Plymouth, MI. Tom brings over 20 years of industry experience to Gasbarre; having previously worked with OEMs assembling and servicing equipment and in maintenance at a commercial heat treat facility. During his time in commercial heat treating, Tom gained extensive knowledge in processing and maintaining equipment for nitriding and ferritic nitrocarburizing applications.*

Says Ben Gasbarre, President of Industrial Furnace Systems, “With the addition



*of Tom, we gain yet another team member with many years of industry experience. Tom’s work as an equipment manufacturer and commercial heat treater gives him a perspective that will create more value for our customers. We are excited to have him on board!” Tom Spicer can be reached by telephone at **734.656.2000** or via email at tspicer@gasbarre.com.*

About Gasbarre. *Gasbarre is a full-service international OEM offering industry best equipment and services for powder compaction, thermal processing, and design and manufacturing technologies. Gasbarre **Thermal Processing Systems** provides top quality industrial heat treating equipment, engineering, and service to customers around the world. Gasbarre’s product offering, which includes the product lines of Sinterite, C.I. Hayes, and Industrial Furnace Systems, offers batch, continuous, atmosphere, and vacuum furnace systems, as well as a wide range of auxiliary equipment. Gasbarre can solve any application challenge with expertise and passion, and can deliver the right equipment to make any process consistently productive and profitable.*



Baker Furnace Installs Quench Tank for Supplier in the Heat Treatment Industry

Jul 9, 2019

***Baker Furnace**, a division of Thermal Product Solutions, announced the installation of a quench tank for a supplier in the heat treatment industry as part of their aftermarket services. The customer had two quench tanks and three drop bottom furnaces and needed the third quench tank in order to optimize quench loads per day. The quench tank has three impellers capable of 27,000 GM on a 15,000-gallon tank. This style of agitation allows for thick, large castings to dissipate heat faster. The system runs on VFD's, which allows for cost savings and the ability to adjust as needed when less agitation is required.*

"The customer had two existing quench tanks: one hot water and one cold water. Having only two tanks hindered quenching on all three drop bottoms, being that it takes 6 hours to heat or cool the tank. Adding the third, dedicated cool water tank, allows the customer to run two more loads per day, which is critical for a commercial heater." – Sergio Luevano, General Manager. Baker Furnace took on all parts of the project, including the civil engineering, city permitting, and installation. During the installation, three crane rail tracks were extended. To do so, Baker Furnace had to break the concrete, reinforce the concrete to accept the crane rail, and reinstall the crane rail. There was limited space in the facility for the third quench tank; the hoist required a 24' height and the building was 24'3". With

limited space and a low-profile quench tank design, the system was able to be installed.

Unique features of this hoist tank include:

- *Impellers*
- *VFD on each impeller*
- *Wireless remote to operate crane and quench tank*



Monday Morning Briefing

Jul 7, 2019

Regular readers of “The Monty” will be aware that over the course of the past year the name “**Härtha Hardening Industries**” has been popping up with increasing regularity in our news items which is really no surprise as we ranked the company as one of the larger commercial heat treaters in Europe <https://themonty.com/largest-european-commercial-heat-treaters-february-2019/>

After recent visits to their HÄNDLE location in Tübingen, Germany and their SABO plant in Boxtel, The Netherlands we had the opportunity just last week to see their headquarters in Aldenhoven, Germany where we learned more about the company as a whole which makes for a rather interesting story;

The HALEX Group, managed by the Halex Holding, Germany has two divisions; Halex Extrusion Dies and Härtha Hardening Industries- combined the company has 14 subsidiaries with a total of 550 employees, all based in Europe. As usual our interest starts and ends with the heat treating portion of the business, Härtha Hardening. The company entered the commercial heat treating business as a family business in 1993 with a facility in Weissenburg Germany and over the years other locations have been added including **HÄNDLE** in Tübingen, Germany (2016), **SABO** in Boxtel, The Netherlands (2016) a greenfield expansion of Härtha

in Verona, Italy (2018) and the acquisition of **Forte** in Stollerg, Germany (2018). The end result is a total of 9 independent heat treat shops in 4 countries.

Now that we have covered the Group as a whole let's have a look at the Aldenhoven location We would consider the plant to be larger than the average commercial heat treat in Europe with over 50 employees, a production floor of 1,625 m2 and sales of over 6.5 million Euros annually. The focus of this plant is largely on vacuum hardening and gas nitriding, though also offering various other processes And our impression-well these photos tell the story. A nice clean modern shop, with clean, quite new equipment-impressive in short and we look forward to seeing some of the other Härtha locations in the future.



Sven Killmer, CEO, Gord Montgomery, Ralf Einenkel, Engineering Manager

It is perhaps too soon say that “Hipping” (hot isostatic pressing) is a growing trend in the North American heat treating industry, however we have certainly run across more new or planned installations in the past year than we have in the past 30. One company which has been mentioned as getting into this field is the largest commercial heat treater in the US Northwest, **Stack Metallurgical** in Portland. In the photo below you see their new unit which is getting pretty close to completion. By the way we see that the founder of the company **Harald Stack** recently passed away; *“Harold E. Stack, age 103, passed away peacefully at his home in Madison Park on June 14, 2019. Seattle born and raised, Harold graduated Roosevelt HS in 1933 and from UW in 1937 lettering in Skiing and a member of Phi Sigma Kappa. Active sailor, skier, fisherman, served in US Navy for over 5 years during WWII, departed at rank of Cmdr., then rejoined family steel distribution business started by his father. Innovative, industrious and active locally and with the Steel Service Center Institute, Harold grew Stack Steel and Supply Co. with the help of*

many loyal employees to a regional business with branches in Seattle, Spokane, Anchorage and Portland.”



In people “stuff” we hear that **Harvey Hornung** who was General Manager at commercial heat treater **Nevada Heat Treating** in Carson City, Nevada, USA will be making a big change. Harvey is poised to become an **Ipsen** salesperson based in Nashville, Tennessee. Talking about Ipsen we should mention that last week was the 10th anniversary of the first “**Titan**” vacuum furnace. Apparently the company has now sold over 300 of their “**Titan**” vacuum furnaces in 28 countries around the world which jogs our memory about one of our favorite features of the furnace-the programmer is set up for something like 20 languages. Pick the one you want, English, German, French, Chinese whatever and you are away to the races-we always thought this was pretty cool.



Remember this news item about **Epiroc** in Sweden investing in an in house heat treating department? It sounds as though there will be two furnace lines (each is a different technology) and one will utilize salt quenching. *“Epiroc has held a groundbreaking ceremony for its new heat treatment plant for rock drills at one of its global manufacturing hubs in Örebro, Sweden. With heat treatment an essential part of rock drill manufacturing, the top-modern plant – to be built through an expansion of the current workshop building – will further boost rock drill quality and performance, according to Epiroc Production at the 1,400 m² heat treatment plant will be able to run 24 hours a day thanks to automation. It is expected to be up and running by late-2020.”*

Down in Texas commercial heat treater **Worldwide Heat Treat** is pretty pleased with the fact that they recently obtained ISO 9001:2015.



And to round things out we have this photo of **Mr. Udo Fiorini**, Publisher and Director of **S+F Editoria** down in Brazil. Amongst the magazines Udo publishes are Industrial Heating, Gear Magazine and Forge.



Sławomir Woźniak, SECO/WARWICK Groupa

Jul 5, 2019

Last week we met with the new CEO of furnace group SECO/WARWICK. As a follow up to that meeting we have this press release from the company which provides a few more details.

It has been a month, since the Supervisory Board at the SECO/WARWICK Group unanimously decided to entrust the function of President of the Management Board to Sławomir Woźniak. The new President has been appointed for the same period as the joint term of the new Management Board, which spans the next three full financial years. "The Group boasts strong financial foundations, promising growth prospects, a stable product portfolio, and an excellent team of specialists. We want to fully harness this tremendous potential and strengthen our position. In order to do so, we will work, among other things, on developing our product range and on further improving the entire production chain," says Sławomir Woźniak, the new President of the Management Board at the SECO/WARWICK Group. Sławomir Woźniak is a graduate of the Institute of Electrical Engineering at the University of Zielona Góra, and has been connected with the SECO/WARWICK Group since the beginning of his professional career. For 25 years, he has been observing the organisation's culture in various parts of the world, which has also allowed him to gain rich sectoral, industrial, and corporate experience. "We have entrusted the function of President of the Board not only to a man who has developed the company, but also to a highly experienced manager. I am convinced that his abilities and amazing competencies will contribute to the further intensive growth of SECO/WARWICK," comments Andrzej Zawistowski, Chairman of the Supervisory Board at the SECO/WARWICK Group.

"It is a great honour to assume leadership of the Company, which I have been associated with since the beginning of my professional career. We are facing the extremely important and ambitious task of determining the further directions in which the Company should go. Together, we will create a global culture of accountability throughout the entire SECO/WARWICK Group's organisation, and involve all the Group companies in the fulfilment of our objectives, which will allow us to increase our economy of scale. I believe that with such a professional

international team of specialists, stable foundations, excellent technologies, proven products, and excellent references, it will be possible to create the innovative and reliable solutions that the Group is known for, which, in turn, will strengthen our market and financial position,” says Sławomir Woźniak, the current president of SECO/WARWICK S.A., in a letter to employees.

Sławomir Woźniak’s career at SECO/WARWICK started with an apprenticeship as an electrician. After graduating from the Institute of Electrical Engineering at the University of Zielona Góra, he became a Service Engineer. After the CAB product segment was separated, he became the Deputy Manager of CAB. After 3 years, in 2005, he assumed full responsibility for this product group, this time as Head of CAB. 5 years later, he became Deputy Managing Director SECO/WARWICK Retech China. He was appointed Managing Director of SECO/WARWICK Allied in India for another 2 years, as well as Chief Operating Officer of the SECO/WARWICK Group. From 2014 to 2016, he again took the role of Managing Director of SECO/WARWICK Retech China. During this time the company stabilised its financial position and competitive advantage in that market. From 2016, he held the position of Managing Director of SECO/WARWICK Allied (India). By the end of 2016, he had been appointed Managing Director (Asia) and Member of the Management Board at SECO/WARWICK S.A., and in 2018 he became the Vice President of the Management Board at SECO/WARWICK S.A. and the Chief Operating Officer of the SECO/WARWICK Group.

Sławomir Woźniak has acquainted himself with nearly every aspect of SECO/WARWICK’s business by performing a number of functions and carrying out many projects that cut across a variety of fields in the Group’s key business areas – both product and geographic. From the very beginning, the company’s operating philosophy has been based on the development of products and technologies to meet the needs and expectations of customers. In reality, perhaps, not so much as to meet those requirements, as... to jointly define and create a technological empire of heat processing. “SECO/WARWICK owes its strength to people who have unity in their DNA, trust and respect in their hearts, and reliability in their blood. People who create with pride and courage, collaborate with commitment, work responsibly and honestly – this is the potential that we have

and which allows us to be a reliable partner and technological expert who is, and will be, trusted by hundreds of employees and thousands of customers,” concludes Mr Woźniak.



Kutz & Shulze Heat Treating, Hamburg, Germany

Jul 5, 2019

The correct name for this company is actually Kutz & Shulze Harterei und Zahnadtechnik however we have taken the liberty of translating into English. We mentioned KS last week in relation to a news item we did about a gear manufacturer and captive heat treater in Bremen, Germany by the name of Tandler-KS is a division in Hamburg which offers commercial heat treating. We would describe the company as a medium sized commercial shop offering nitriding, carburizing, salt processing and vacuum heat treating which has roughly 20 employees. KS obviously is a firm which believes in investing back into the company, we saw a couple of real nice Schmetz 10 bar vacuum furnaces, both of which are fairly new. The man in charge is a happy, happy guy by the name of Andreas Arany who we have met at various heat treating events over the years, he is shown with Joern Rohde of Rohde Furnaces of Hanau.



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Dowa Thermotech, Japan/Hightemp Furnaces, India/Meapforni, Italy

Jul 4, 2019

Dowa Thermotech. This past week we had the privilege of meeting the new President of **Dowa Thermotech Co., Ltd., Mr. Ryuji Tsuji** who took over from **Mr. Toshiro Sumida** a little while back. Dowa Thermotech is part of the Dowa Group of companies which is one of the largest conglomerates in Japan. The Dowa Thermotech division offers commercial heat treating on two continents, Asia and North America and in addition is quite possibly the largest furnace builder in Japan. To describe the scope of the company's involvement in the heat treating industry would take some time so we will summarize by saying they have multiple heat treating shops in Japan, Thailand, the USA and Mexico and the furnace manufacturing part of the company had installed thousands of furnaces over the years including at least 250 in the USA.

Hightemp Furnaces in India is part of the Dowa Group and is in turn far and away the largest commercial heat treater in the county and also the largest furnace builder. The president, **Mr. Gopal Mahadevan** can be seen in two of the photos below. We all know about the tremendous manufacturing growth in India-Hightemp is a perfect example as it adds new locations on what seems to be a continuous basis. You can see the new Sanand, India location under construction just 7 months ago.

Meapforni in turn is a furnace builder in Italy who formed a partnership with Dowa a few months ago as we see in this press release; "*April 2019 Press Release. If*

*you are a furnace manufacturer in Europe we would imagine that this news item about Japanese furnace builder **Dowa Thermotec** and Italian furnace manufacturer **Italstart/Meapforni** will be of a great deal of interest; “Dowa Thermotec Ltd., one of the top Furnace manufacturers and heat treaters globally is pleased to announce that Dowa will be entering the European market to offer their latest state of art cutting edge technologies in the field of heat treating for the European market. The equipment’s offered to the European market will take into account user preferences in terms of makes/ assemblies complying with European standards in terms of furnace operation. This initiative by Dowa will be supported on ground by a new relationship and partner Italstart supported by Italstart subsidiary Meapforni for furnace parts, after sales and maintenance. Technology by Dowa with active support from Italstart on sales and service will offer unmatched quality of service and support. Dowa and Italstart are confident that technically advanced heat treat systems supported by an efficient sales and service support will bridge a long felt need of European customers.”*

With this background out of the way we show you two photos which were taken just last week. The one shows the Dowa/Hightemp group at the recent Thermprocess show in Germany, the second shows the Dowa/Hightemp team visiting Meapforni in Italy just a few days ago. In addition to these photos we also include one from the Dowa, Hamda, Japan which we visited a few years ago. All of this serves to remind us about how the worldwide heat treating industry has become a very tight knit group.



Mr. Ryuji Tsuji, President, Dowa Thermotech Co., Ltd., second from right.



Second from left Francesco Pieropan (Meapforni, Italy), third from right, Ryuji Tsuji (Dowa, Japan), second from right, Gopal Mahadevan (Hightemp Furnaces, India)



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Where Are They Now-Eddie Wright

Jul 3, 2019

We're reaching a long way back with this news item. Back in 2003 Spicer Manufacturing (Dana Corp.) had a plant in Jonesboro, AR, USA which had a large captive heat treating department. When it was announced that the facility was closing we worked with the fellow in charge of the heat treating department, Mr. Eddie Wright to help sell the surplus furnaces. The equipment was sold, the plant closed and we lost track of Eddie. As we all know few leave this industry and this proved to be the case with Eddie. As it turns out he recently joined a foundry by the name of Southwest Steel in Newport, AR where he is in charge of the heat treating department where we understand that he is involved in some furnace projects. Good man Eddie by the way.



Jens Baumann & Edgar Falkowski

Jul 3, 2019

Back in March of this year we mentioned that Jens Baumann & Edgar Falkowski in Germany had parted ways with controls company UPC (the UPC ad can be found on the right side of this page). We lost touch with them, however we learned that they both very recently started with a company by the name of Millivolt GmbH also in Germany about whom we know nothing. The original press release is below.

“March 2019; One of the world’s largest and best known suppliers of controls for the heat treat industry, United Process Controls has seen a couple of personnel changes in Europe; “United Process Controls GmbH and Messrs Edgar Falkowski (previously Director Engineering) and Jens Baumann (previously Director Sales)

parted company on 25 February 2019. As current contact person in place of Mr. Falkowski in the Engineering Division please contact our Ms. Soldani, phone +49 7161 94888-38, e-mail; Emily.soldani@group-upc.com. Our existing team will continue to work with you in a professional and uninterrupted manner; the replacement of both positions is already in progress.”



Thermprocess, Germany

Jul 3, 2019

Yes we did say that we had completed our coverage of the recent heat treat exhibition in Germany however we came across these final two photos.



“Fluke Process Instruments. Fluke was demonstrating a really cool thermal imaging camera at the Thermprocess show. On the left side of this photo we have **Dr. Martin Budweg** and on the right the “ZZ Top” guy is **Stewart Griffiths** of Bodycote and Hauck fame.”



*“Russia’s largest furnace manufacturer, “Nakal” has over 14,000 furnaces installed and roughly 300 employees. In this photo we see **Mr. Ilichev Evgeny**, Commercial Director and Gord Montgomery.”*

Bruce Hynes, Services, Ovens & Baths

Jul 2, 2019

Yesterday we mentioned the passing of Bruce Hynes, founder of used furnace equipment company Furnaces, Ovens and Baths in Michigan. The obituary mentioned the rather unusual way that he entered the industry-from barber to used equipment dealer which is a new one on us. In spite of the fact that he entered the industry by accident he proved to be a natural and he turned Furnaces Ovens and Baths into probably the largest dealer in the North American heat treat industry.

The company continues to prosper under the leadership of his son Jeff and daughter Jennifer. Proving once again how this industry is so family oriented we should add that Bruce, Jeff and Jennifer are not the only Hynes in the heat treating business. Bruce’s nephews Steve and Brad own



one of the largest commercial heat treaters in the state, Heat Treating Services based in Pontiac, Michigan. We searched through our file photos and found this picture showing Steve Hynes at his facility in Michigan just a few years back.

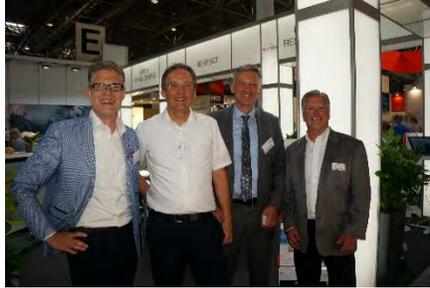
Thermprocess, Dusseldorf, Germany

Jul 2, 2019

We have some final photos from the heat treat exhibition in Germany last week.



No show is complete without temperature profiling company Phoenix TM. In this photo we see from the left; Bastian Sulinski, Michael Taake, Carola Konitzer and Dr. Steve Offley. Steve is holding a PTM 1220 datalogger.



Furnace Builder Aichelin of Austria. First on the left Carsten Stoelting. Mr. Thomas Dopler (who we will be interviewing in October), Hugo Bosio and Bill Disler of the AFC-Holcroft division.



Italian furnace builder IVR.

Bruce Hynes, Furnaces Ovens and Baths

Jul 1, 2019

We regret to mention the passing of Mr. Bruce Hynes, founder of Furnaces, Ovens and Baths in Michigan, USA. Furnaces, Ovens and Baths has become one of the largest used equipment dealers in North America and we will have more to say about, Bruce, his background and his history in the industry tomorrow. For today lets just remember Bruce as a super nice guy.

“Bruce D. Hynes; of Davisburg; age 78; Bruce was born May 25, 1941 to Roy and Marjorie Hynes in Pontiac, MI. After losing his father at the age of 2, his grandmother ,Lizzie Kehrl, helped raise him while his mother worked; loving husband of Karen; loving father of Jeffrey (Paula) Hynes & Jennifer (Jim) Calhoun all of Davisburg; grandpa of Mitchell & Ella Hynes, Caden & Kylie Calhoun and

Chatfield & Brittany Summers; also survived by his dog Mattie, who never left his side; preceded in death by his brother Dennis; brother in law of Bill (Sharon) Rice, Mike (Sue) Rice & Constance Hynes; also survived by many loving nieces, nephews, cousins and friends.

After graduation from Pontiac Northern High School, Bruce attended barber school. He was a barber in the U.S. Navy aboard the USS Randolph Aircraft Carrier with his forever friend, Paul Palace. He returned home to open Continental Barber Salon at the 300 Bowl. He loved being a barber until his brother convinced him to venture off together into opening a Heat Treating Equipment/Service Company in Pontiac. This further led him to create a successful business selling Heat Treating Equipment. Bruce owned and operated his Clarkston business for 39 years: Furnaces, Ovens & Baths, Inc., which will continue in his honor. Through the years, Bruce enjoyed his loud and fast Donzi's, restoring his Davisburg farm



house and his 49 Ford. Nothing brought him greater joy than his loving family and President Trump being elected. Special thanks to all the family and friends who helped care for Bruce: Kindred Hospice, A Caring Hand, Neighborhoods of White Lake, Springfield Fire Dept and Dr. James Gibson. Friends may visit at Lewis E. Wint & Son Funeral Home, Clarkston

on Tuesday, July 2nd from 4:00 pm-9:00 pm. Funeral Service Wednesday, July 3rd at 10:00 am at the funeral home. Interment Ottawa Park Cemetery, Clarkston. In lieu of flowers, donations may be made to Clarkston Community Schools for Team RUSH robotics (c/o Kyle Hughes, Clarkston High School, 6093 Flemings Lake Road, Clarkston, MI 48346). Please leave a condolence or memory on his online guestbook at www.wintfuneralhome.com

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Item#IQ469 Lindberg Batch IQ Furnace

Lindberg Model 13-ERT-122412-18AQ-3. Serial #A030602. Pacemaker SL Electrically heated integral quench multi-purpose furnace. Working dimensions of 12" wide X 24" deep X 12" high. Maximum operating temperature of 1800F. Maximum load of 150 pound. Input power rating of 23.5 kW. 150 gallon quench tank. Set up for endothermic atmosphere. Oxygen probe with Honeywell controls. Also included is an S & S temper.

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<https://themonty.com/project/itemiq469-lindberg-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. 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, currently installed and in operation. Furnaces will be available September 2019.

For Pricing Please Contact Jordan@themonty.com

<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.

For Pricing Please Contact Jordan@themonty.com

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

Item#IQ466 Beavermatic Batch IQ Furnace 36" X 48" X 36"

Built in 2012 by Beavermatic this is a gas fired batch IQ furnace with working dimensions of 36" X 48" X 36" and a load capacity of 4,000 pounds. Updated SSI controls including touch screens added in 2015. Redundant probe system and Atmosphere Engineering electronic flowmeters. SBS quench oil cooler and oil filter. Footprint 12' wide X 16' deep. Rollers on 22" centres. Installed but not in operation. Currently set up for endothermic atmosphere. Also available is a Beavermatic temper and dunk/spray washer. Excellent condition and ready to go.

Asking Price \$125,000 USD

<https://themonty.com/project/itemiq466-beavermatic-batch-iq-furnace-36-x-48-x-36/>

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#IQ464 Ipsen T-4 Batch IQ Furnace

Ipsen Model: T-4 Batch IQ Furnace, Serial # 52506

Type: Straight Through Atmosphere Integral Quench Furnace

Processes: Carburizing, Neutral Hardening and Carbonitriding

Heat Input: Natural Gas-Fired (8 ceramic radiant tubes)

Work Zone: 24"W x 36"D x 18"H

Max. Temp: 1850°F (Typically operated at 1750°F)

Max. Load Wt.: 850 lb at 1550F

Quenchant Heating and Cooling: Yes (SBS Oil Cooler)

Loading/Unloading: Ipsen 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 3 & 7 controllers, Digital data logging (currently tied into plant-wide SSI Super Data system), SSI eFlo Electronic Flowmeters for natural gas and air.

Insulation Type: Brick-lined

Included: Any available spare parts, Ammonia Tank.

Footprint: 5'5" Wide x 17'-10" Long x 13'-2" High per literature (We measure 93"W x 21'L x 14'H)

Alloy: Grids and baskets may be available

Asking Price \$39,000 USD

<https://themonty.com/project/itemb464-ipsen-t-4-batch-iq-furnace/>

Item#IQ462 Beavermatic Batch IQ Furnace

Beavermatic Batch IQ Furnace. Standard "Beavermatic" Integral Quench Furnace which includes top cool chamber, dunk & spray wash, 1400°F atmosphere temper, charge car and air to oil heat exchanger. This furnace has a total of eight (8) single ended radiant tubes with recuperators, four (4) on each sidewall. Quench tank is heated. Natural gas fired with a max temperature of 1950°F. Model # 46-26-I.G.LQ.F and Serial # 1192-50-1. Voltage 460/3/60. Working dimensions of 24"W x 24"H x 36"L and external dimensions of 100"W x 12'5"H x 18'L. Controls Mounted & wired in a free standing panel includes a Honeywell UDC 3000 digital controllers for control and high-limit, Honeywell UDC 5000 for carbon control and Honeywell digital round chart recorder. Very good condition and available immediately.

Asking Price \$55,000 USD

<https://themonty.com/project/itemb462-beavermatic-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 overtemp. Honeywell circular chart recorder for recording temperature. Carbon control system.

Description: Furnace has (4) "U" shaped radiant tubes mounted vertically, (2) on each side wall. Heated by recuperated burners. Alloy roller rail hearth, alloy circulating fan, dual quench cylinders, top cool chamber and heated quench tank. Brick lined with fiber roof. Rear handler system, 1998 vintage. Installed, complete and operational. Condition: Very Good. Availability: Immediate.

Asking Price \$150,000 USD

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

Item#IQ439 Surface Combustion Batch IQ Furnace

Surface Combustion "Allcase" batch IQ furnace with working dimensions of 36" X 48" X 30" high. Natural gas heating, 1 MBTU's/Hour. Maximum operating temperature of 1750F, voltage 460/3/60. External Dimensions: 10'W x 12'H x 15'L. Controls: All mounted in a panel attached to the furnace includes motor starters relays, pushbuttons, signal lights etc. Honeywell digital strip chart recorder for recording temperature, indicating controller and overtemp. Partlow controls for oil heating/cooling. Description: Surface Combustion Allcase Furnace

with (6) "U" shaped radiant tubes mounted vertically 3 on each side wall. Fiber lined. Alloy roller rail hearth, alloy circulating fan, dual quench cylinders, top cool chamber and heated quench tank. Furnace has some missing components (temperature controls, pressure switches, ignition transformers, regulator) which will be replaced prior to shipment. Condition: Very Good.

Asking Price \$80,000 USD

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

Item#IQ438 Holcroft Batch IQ Furnace Line

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

Asking Price \$60,000 USD

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

Item#IQ398 Sauder Batch IQ Line

Sauder Batch IQ Line. Serial Number 881978-83. Electrically heated 480/3/60/150kW total load. Maximum operating temperature of 1850F. Working dimensions of 24" Wide X 24" high X 36" long. Controls; Mounted and wired in an enclosure attached to the right hand side of the furnace includes a Marathon 10 Pro digital temperature controller, Marathon Carbpro digital carbon controller, Barber Colman analog high limit and a Honeywell digital strip chart recorder. Three power meters are face mounted to the same enclosure which monitor power in each zone of the furnace. A Halmar "SCR" power controller controls power to the heating elements. Two (2) Allen Bradley PLC controllers are mounted in the same enclosure. Standard In/Out Integral Quench Furnace w/Top Cool. This line consists of IQ furnace with top cool, heated quench tank, charge

car, dunk & spray washer, temper furnace, SBS oil cooler, scissors table, atmosphere flow panel and several spare parts. Very good condition. Asking \$125,000 USD for the complete line. Shipping Dimensions:

Temper Oven: 72"W x 11'H x 72"L

Washer: 80"W x 10'3"H x 120"L

Furnace: 109"W x 11'H x 96"L

Quench: 106" x 10'H x 72"

Top Cool: Skid – 5' x 5' x 6'H

Charge Car: 78"W x 60"H x 86"L

Misc. skids, flow panel, SBS, spare parts

Asking Price \$125,000 USD

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

BATCH FURNACES

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

Item#B473 Pit Carburizing Furnaces (2 available)

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

Asking \$150,000 USD Each Loaded On A Truck

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

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

Ionitech's Plasma nitriding Cold-Wall furnace ION-75CWI, with 2 Chambers and one control. The furnace is capable of Plasma Nitriding, Plasma nitrocarburising, and Post-oxidation, processing big and small parts and tools. The furnace has been used for 4 years at Ionitech's facility and has been taken care of perfectly – it is good as new. It still works daily. It has been retrofitted to work with our absolutely user-friendly 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 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 in a steel support when not in use. Electrically heated with a voltage of 230/3/60/105 kW. Model # 3896-E12 and serial # 14030. Max operating temperature is 1250°F. Working dimensions of 36” diameter x 84” deep with external dimensions of 5’w x 9’4”H x 7’l – Furnace Only. Controls mounted and wired in a free standing panel includes all necessary controls for proper operation.

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

Item#B452 AHT Fluidized Bed Furnace

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

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

Item#B448 Kleenair Products Tip Up Style Furnaces

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

Asking Price \$55,000 USD Each

or

\$150,000 USD For All Three

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

Item#B436 Lindberg Pit Gas Nitrider

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

Asking Price \$50,000 USD

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

Item#B426 Plateg Plasma Nitriding Unit

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

Asking Price \$98,000 Euro

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

Item#B415 J.L.Becker Car Bottom

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

Asking Price \$95,000 USD

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

Box Furnaces

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

Item#BOX468 eSierraTherm Elevator Hearth Box Furnace

LTCC-16-24-4A. 240V 3Ph 109A 60Hz. 1050 degrees C.

Process Applications:

- o Low Temperature Co-fired Ceramic (LTCC)
- o Other high-temperature long-cycle air atmosphere applications

General Application Parameters:

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

Advantages:

- Precise Temperature Stability
- Twenty Segment Temperature & Gas Flow Programming
- Energy and Space Saving Efficiency
- Unmatched Innovation and Performance

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.

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.

For Pricing Please Contact Jordan@themonty.com

<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.

For Pricing Please Contact Jordan@themonty.com
<https://themonty.com/project/itemb464-lindberg-box-furnace/>

Item#BOX463 Lindberg Box Furnace

Lindberg Box Furnace. This furnace has an air operated vertical lift door with foot pedal control. "Rod Overbend" heating elements are located in the hearth and both sidewalls. An Alloy hearth with brick piers supports the work load. The atmosphere system consists of a "Waukee" Nitrogen flowmeter and flame

curtain. Atmosphere enter the furnace chamber through the rear wall. Manuals and drawings are included with this furnace. Electrically heated with a max temperature of 2000°F. Model # 11-ROMT243618-20A and serial # 859266. Voltage is 460/3/60/40 kW, 92V Secondary. Working dimensions of 24"W x 18"H x 36"L with external dimensions of 6'W x 9'H x 8'L. Controls Mounted in a free standing panel includes a Honeywell UDC digital temperature controller, Honeywell Dial-a-Trol high limit and a Honeywell strip chart recorder. The step down transformer for the heating elements is mounted in the same enclosure. Power to the heating elements is controlled through a "Halmar" SCR. This electrical enclosure is air conditioned to prevent overheating of the SCR.

For Pricing Please Contact Jordan@themonty.com
<https://themonty.com/project/itemb463-lindberg-box-furnace/>

Item#BOX458 Noble Furnaces Box Furnace

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

Asking Price \$80,000 USD

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

Item#BOX449 Lindberg Atmosphere Box Furnace

Lindberg/MPH air atmosphere box. Model Number: 11-ROMT-243624-20, Job Number: 224745. Chamber Dimensions: 24" W x 36" D x 24" H. Electrically heated 40KW. Max Temp: 2,000°F. Capacity: 1,200 lbs. @ 2,000°F. Elect. Input: 480/3/60. SCCR Rating: 65 KW. F.L.A.: 5 AMPs. Elect. Drawing: 7315-1134-

OOA. Largest Motor/Load: 40 KW. Control Panel is included. Manufactured Date: September 2016. Never used this unit is available for immediate delivery with a full warranty.

Asking Price \$60,000 USD

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

Item#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

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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

Asking Price \$69,500 USD

<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" thick 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#C340 CI Hayes Mesh Belt Brazing Furnace

Manufactured by CI Hayes this is a continuous mesh belt brazing furnace with working dimensions of 6" wide X 54" long X 3" high. Model LACMB 030654, Serial number 16101 Electrically heated-47KW. Operating temperature of 2100F. Mesh belt is a tight Weave mesh. Includes; belt, full alloy muffle, NiChrome ribbon heating elements, built-in 150 CFH ammonia dissociator, 8' water cooled exit zone and Vari-speed belt drive. Temperature controls, furnace mounted. Panel with Honeywell digital controls and overtemps. Includes spare elements. Very good condition.

Asking Price 25,000 USD

<https://themonty.com/project/itemc340-ci-hayes-mesh-belt-brazing-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 I 800 mm x H 1250 mm. Perfect condition, II 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. Mitsubishi variable speed AC drive on salt conveyors, 900 gallon wash tank with 30" conveyor and 280 gallon rust inhibitor tank with 32" conveyor. Currently installed but not in production. System is in reasonable condition but has not been used for some time.

Asking Price \$20,000 USD

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

Item#C314 Wellman Roller Hearth Furnace

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

Asking Price \$225,000 USD

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

Item#C308 AFC Mesh Belt Hardening Furnace

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

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

Asking Price \$75,000 USD

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

Item#C301 Rogers Engineering Cast Link Furnace Line

Manufactured by Rogers Engineering 4,000 pounds/hour cast link belt furnace line consisting of a 1750F high heat furnace and 1700F temper furnace. Serial # CC-3977-0 (1997). High Heat Furnace: 48"W Omega Cast Link Belt, 4" pitch, 3" sides. Furnace has a 30'L heating section. Four (4) zones of control with three (3) roof mounted in the last three (3) zones. Maximum operating temperature of the hardening furnace is 1750°F. Furnace is radiant tube heated with recuperators. Furnace is currently set up for Endothermic w/Enriching Natural Gas & Air. Total BTU's for hardeneing furnace is 3,180,000 BTU/HR. Controls; All mounted in a free standing panel includes Allen Bradley PLC w/HMI Touchscreen, Honeywell UDC Digital Temperature Controls, SSi Carbon Controls. Voltage 480/3/60/200kW.

Tempering/Anneal Furnace: 60"W mesh belt with support rollers. Furnace has a 35'L heating section. Four (4) zones of control with four (4) roof mounted fans. Maximum operating temperature is 1700°F. Total BTU's for the tempering/annealing furnace 3,790,000 BTU/HR. Please note that this furnace has two (2) different modes of operation. Click on 'PDF" below for more information on the different modes of operation.

The sequence of this furnace is as follows:

- Load parts into pre-wash dump loader
- Pre-Wash, 190°F, Gas Heat
- Parts vibrate onto mesh (soft load) then onto cast link belt.
- High heat cycle
- Quench cycle, 200°F, Gas Heat, 8000 Gallon
- Wash cycle, 190°F, Gas Heat
- Temper cycle
- Oil blackening cycle

Includes:

- 5600 CFH Air Cooled Endothermic Gas Generator
- SBS Air to Oil Heat Exchanger which consists of three (3) 5 H.P. fans.-

Manuals & Drawings

Very good condition, available immediately.

Asking Price \$650,000 USD

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

Item#C269 C.I. Hayes Mesh Belt Furnace

Working dimensions of 5" over belt, 12" wide X 120" of heated length. Electrically heated 230/3/60, operating temperature of 2100F. Model LAC. Temperature controls are new state of the art, control panel with Honeywell solid 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#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.

For Pricing Please Contact Jordan@themonty.com

<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, horizontal 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#T363 Despatch Tempering Furnace

TYPE OF EQUIPMENT: Box Tempering Furnace

MANUFACTURER: Despatch

MODEL NO: WB-73

SERIAL NO: 102835

EFFECTIVE WORKING DIMENSIONS: 42" Wide x 72" Deep x 36" High

FUEL: Electric – 460/3/60 – 120 KW

TEMPERATURE RANGE: 1350° F

DESCRIPTION: Stainless Steel Lined Recirculating Box Tempering Furnace complete with (2) Top-Mounted Alloy Recirculating Fans each with 5 H.P. Fan Motors, Alloy Conveyor Roller Hearth, complete New Set of Heating Elements, and Vertical Rising Pneumatic Front Door.

INSTRUMENTATION: Side-Mounted Control Panel complete with Koyo Digital Temperature Controller, Allen Bradley High Limit, and Magnetics SCR Power Controller (210 Amps).

CONDITION: Very Good

OVERALL DIMENSIONS: 103" Wide x 93" Deep x 11'8" High

APPROX. WEIGHT: 9,000 lbs.

Asking Price \$54,500 USD

<https://themonty.com/project/itemt363-despatch-tempering-furnace/>

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

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

Asking Price \$19,500 USD

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

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

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

Asking Price \$17,500 USD Each

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

Item#T360 Wisconsin Oven

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

Asking Price \$7,900 USD

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

Item#T359 Seco Warwick Vacuum Temper Furnace

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

Asking Price \$50,000 USD Or Best Offer!

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

Item#T358 Wisconsin Oven Like New (2 Available)

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

Asking Price \$29,500 USD Each

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

Item#T357 Surface Combustion Electric Tempering Furnaces (3 available)

Surface Combustion Electric Tempering Furnaces (3 available). Bricked Lined Box Tempering Furnace complete with Alloy Roller Rail Hearth, Stainless Steel Air Baffles, Top-Mounted Recirculating Fan, and Vertical Rising Pneumatic Door. Model # BX41758-1. Serial # BX41758-1. Working dimensions of 30" Wide x 48" Deep x 30" High. Electric – 460/3/60 – 81 KW. Max operating temperature of 1400° F. Controls consist of Side-Mounted Control Panel complete with Love Series 2500 Digital Temperature Controller, Love Series 16 Digital High Limit Controller, and Honeywell Truline 12" Round Chart Recorder. Overall dimensions of 8' Wide x 7' Deep x 11'8" High. Approximate weight of 8,000 lbs.

Asking Price \$39,500 USD Each

<https://themonty.com/project/itemt357-surface-combustion-electric-tempering-furnaces-3-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: 850°F with a Uniformity of +/- 25°F (Center area of 12"W x 20"L x 10"H meets +/-10°F). 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 Tempering 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 60Hz. 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

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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-endothemic-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 through 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#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/item181-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/item180-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/item179-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/item178-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/item177-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/item174-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#L11 Leco Metallagraph

Leco Metallagraph.

Asking Price \$8,500 USD

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

Item#L1 Spectra-Tech Infrared Microscope

Model WHK 10X 201, Reflected & Transmitted light, multiple objectives, Polaroid 4x5 attachment.

Asking Price \$6,500 USD

<https://themonty.com/project/iteml1-spectra-tech-infrared-microscope/>

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#M433 Surface Combustion Charge Car 36x48

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.

For Pricing Please Contact Jordan@themonty.com

<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

Best Offer

<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, approx. 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#VF358 Abar Ipsen 10-Bar Vacuum Furnace

Manufacturer: Abar Ipsen

Type: 10-Bar Vacuum Furnace, Internal Quench

Furnace Model: H-66x48

Date: 1994

Work Zone Size: 48"W x 50"L x 48"H

Max. Temperature: 2300F (operated 900F-2220F)

Temperature Uniformity: +/-15F

Hot Zone: All Metal

Control Thermocouple: Type S

Process: Used for Steels and Titanium

Cooling Gas: Argon and Nitrogen

Quench: 10 Bar Quench with Internal Cooling Fan

Blower motor: Recent rebuild/upgrade to VFD, 350HP

Typical vacuum level: 10^{-6} Torr with 2 micron leak rate reported

Diffusion Pump: Varian 35"

Mechanical Pump: Stokes 412J-14

Vacuum Booster Pump: Edwards 900-615-MHRR 09/16

Furnace Footprint: 21'W; 22'L door closed; 27'L door open; +10'L Loader and Rails

Panel Footprint: 8'W x 3'L x 7'H

Included: Loader, (2) ea. Serpentine Load Support Grids

Description: Metal shielded hot zone, needs new elements and shield repairs, or you can convert to graphite insulated hot zone.

Controls: Honeywell AC90 recipe controller, Honeywell UDC 2000 over-temperature controller, Televac MC300 vacuum gauge, SSi Touchscreen Digital

Chart Recorder, Dewpoint Panametrics Moisture Monitor Series 35, SSi Series 7
diffusion pump oil temperature controller

Asking Price \$250,000 USD

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

Item#VF357 Abar Ipsen Rebuilt Vacuum Furnace

- Manufacturer: Abar Ipsen
- Model: HR 46X72
- Condition: Rebuilt in 2015, used through 2016. Very good.
- Hot Zone: 36”W x 24”H x 72” deep, Moly, New in June 2015
- Elements: Moly
- Controls: New Ipsen control panel, new in 2015.
- Temperature: 2400F
- Diffusion Pump: 32” Varian Diffusion Pump (new in 2015).
- Pumps: Stokes 212 mechanical pump was rebuilt in early 2016. Welch 1398 holding pump was rebuilt in 2015. Stokes 615 blower recently rebuilt.
- Estimated Footprint: 21’ Wide (+ water surge tank which could be relocated 4’x10’x6’H). 24’ Deep (+10’ deep loader). 12’ High. Spool piece adapter added to remove need for diffusion pump pit.
- Power: 480 Volts, 3 Phase, 60 Hz
- Loader Included, 10’ Long x approx. 3.5’ Wide.
- 2-Tier TZM Moly Grid Fixture, 36” Wide x 72” Long x 18.5” Tall.
- Cold Trap: Liquid N2 fed Cold Trap
- Status: Furnace is currently disassembled in storage. Furnace was in production until January 1st, 2017.

Asking Price \$350,000 USD

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

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

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

- Built in Mid 1990's
- Working dimensions of 1100x1100x2200 (2600kg load)
- 390 kW
- 2 bar quenching with nozzles
- Diffusion pump
- Vacuum pumps are in good shape
- Hot zone newly rebuilt
- Suitable for the aerospace industry, furnace was originally hardening parts for Sikorsky and Liebherr aviation parts
- There are approximately 900kgs of alloy fixtures which most of them are almost new (see photos) (2.4879 material)
- Lots of spare parts for virtually all graphite components.
- Is under power and can be seen, sample parts can be heat treated.
- Located in Turkey

Asking Price \$62,000 Euros

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

Item#VF355 Vacuum Furnace Control Panel

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

Asking Price \$26,000 USD

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

Item#VF354 ALD Degussa Bottom Loader Vacuum Furnace

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

Asking Price \$110,000 Euro

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

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

Vac Aero Rebuilt Bottom Load Vacuum Furnace, working dimensions of 60" x 60". Model: VAV-6060-BL. Hot Zone: Moly face with graphite insulation. Vacuum Pumps: 35" Diffusion Pump, Stokes 1722 Package. Quench System: 125 HP external quench. Rebuild in progress: Complete exterior reconditioning. Interior of pipes, fna house and vessel receive sand blasting and new high temp white epoxy paint. New hosing. New hot zone. New quench heat exchanger. Rebuilt 125 HP motor. Rebuilt mechanical pump and blower. (New controls available at extra cost). PHOTO BELOW SHOW FURNACE BEFORE REBUILD.

Asking Price \$495,000 USD

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

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

MANUFACTURER: AVS/VACUUM INDUSTRIES

TYPE: VACUUM FURNACE I.D.: 12"W X 36"D X 12"H

SERIAL#: 42093 MODEL: WORK HOUSE 3040

MAX. TEMP: 3000 F

ELECTRICS: 460V/77KW/3PHASE

CONTROLS: HONEYWELL DCP 700 DIGITAL PROGRAM CONTROLLER, HONEYWELL OVER TEMP CONTROL, HONEYWELL CHART RECORDER MOUNTED IN AN ENCLOSED PANEL.

GENERAL: HORIZONTAL DOUBLE WALL WATER COOLED VESSEL WITH SIDE SWING DOOR, FAN IN REAR, METALLIC HOT ZONE, AND STAINLESS INNER WALL. OUMPING SYSTEM INCLUDES A WELSCH MECHANICAL PUMP AND A 6" DIFFUSION PUMP.

Asking Price \$22,500 USD

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

Item#VF350 Ipsen Bottom Load Vacuum Furnace

Model VVFC, Serial number #57411. Working dimensions of 48" X 48". Max. temp 2300F. 225KW heating power. 2 speed 25 HP cooling fan. Increased internal heat exchanger coils. Insulated hot zone with moly hot face. Stokes 412 mechanical pump with ROOTS CONNERSVILLE 1016 booster. New SSI

programmer/controller. Built 2/6/78. Graphite heating elements and graphite hearth. Installed but not in use. Good condition.

Asking Price \$99,000 USD

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

Item#VF348 C.I. Hayes Vacuum Furnace

C.I. Hayes Vacuum Furnace. The front door is mounted on an I-Beam trolley and slides to the side for access to the interior. Quench section is located directly in front of the heat chamber with a hydraulically operated door separating the chambers. Hot zone is lined with graphite felt backed up with ceramic fiber blanket. Six graphite rod elements are mounted horizontally across the chamber, 3 over and 3 under the work area. Hearth rails support 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 $\pm 10^{\circ}\text{F}$ ($\pm 6^{\circ}\text{C}$) 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 : 5×10^{-2} mbar. Leak Rate : 5×10^{-3} mbar l/s. Heating Zone : 120 kW, 2 zones. Plasma Chamber : 60 kW, 1 zone. Diffusion Zone : 180 kW, 3 zones. Max. Temperature : 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-elnic-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, Cryogenic 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 relined, 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 is 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/>

Item#VF266 Vacuum Pump

Kinney 75 CFM Vacuum Pump. Warranty Rebuilt Kinney Model KTC-75, Part No. 804982-D, S/N 1105-Y 7710-5 mechanical vacuum pump. 12 Month warranty on rebuild. Will be repainted at rebuilders shop. Running without problems when removed from service.

Asking Price \$5,700 USD

<https://themonty.com/project/itemvf266-vacuum-pump/>

Item#VF243 Diffusion Pump

35" Diffusion Pump. CVC Model PMC-32C, 35" Diffusion Pumps (Today this is the Varian HS-35. Varian purchased CVC rights to this pump.) Rebuilt condition with a 12 Month warranty. 35" Throat Diameter. Bolt Circle is approx. 38-3/4" with 14 Holes on approx. 8-9/16" Centers. Flange O.D. is 41-3/4". O-Ring Center Diameter is 36-1/8". Approx. 72-3/4" Overall Height (79" on 48" x 48" shipping pallet). Note: Mating 35" Cryo-Baffle is also available for improved low-range vacuum and elimination of backstreaming (See Item# 3161 Below). 6" Foreline with approx. 9-1/2" Bolt Circle with 8 Holes on approx. 3-5/8" Centers. 1/4" dia. O-ring is approx. 8-7/8" diameter to center. Shipping Wt. with pallet approx. 2050 lb. Price in Warranty Rebuilt Condition, Painted: (with existing working elements. Add \$6,000 if you want brand new elements.)

Asking Price \$12,250 USD

<https://themonty.com/project/itemvf243-diffusion-pump/>

Item#VF242 Diffusion Pump

35" Diffusion Pump. CVC Model PMC-32C, 35" Diffusion Pumps (Today this is the Varian HS-35. Varian purchased CVC rights to this pump.) Can be purchased either in As-Is condition or in Rebuilt condition with a warranty. 35" Throat Diameter. Bolt Circle is approx. 38-3/4" with 14 Holes on approx. 8-9/16" Centers. Flange O.D. is 41-3/4". O-Ring Center Diameter is 36-1/8". Approx. 72-3/4" Overall Height (79" on 48" x 48" shipping pallet). Note: Mating 35" Cryo-Baffle is also available for improved low-range vacuum and elimination of backstreaming (See Item# 3161 Below). 6" Foreline with approx. 9-1/2" Bolt Circle with 8 Holes on approx. 3-5/8" Centers. 1/4" dia. O-ring is approx. 8-7/8" diameter to center. Shipping Wt. with pallet approx. 2050 lb. Price in Warranty Rebuilt Condition, Painted: \$ 12,250.00 (with existing working elements. Add \$4,500 if you want brand new elements.)

Asking Price \$6,400 USD

<https://themonty.com/project/itemvf242-diffusion-pump/>

WASHERS

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

Item#W431 Surface Combustion Dunk Spray Washer 36x48x30

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

Asking Price \$25,000 USD

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

Item#W430 Surface Combustion Super 30 Dunk/Spray Washer

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

Asking Price \$19,000 USD

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

Item#W429 AFC-Holcroft Washer

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

Asking Price \$29,900 USD

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

Item#W428 Abar Ipsen Parts Washer

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

Asking \$19,900.00 USD.

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

Item#W426 Mart Corporation Table Washer

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

Asking Price \$49,000 USD

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

Item#W425 Proceco Rotary Table Washer

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

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

Asking Price \$55,000 USD

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

Item#W422 Surface Combustion Dunk/Spray Washer

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

Asking Price \$22,500 USD

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

Item#W415 Surface Combustion Parts Washer

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

For Pricing Please Contact Jordan@themonty.com

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

Item#W348 Ipsen Automatic Dunk/Spray Washer

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

Asking Price \$35,000 USD

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

Item#W314 Holcroft Dunk/Spray Washer

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

Asking Price \$18,500 USD

<https://themonty.com/washers/>

EMPLOYMENT OPPORTUNITIES ADVERTISING

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

Item#O374 Heat Treat Tech

Phoenix Heat Treating is looking to add dynamic individuals to our growing production team. For over 50 years this family owned, and operated heat treater has established itself as a leader in aerospace and defense industries known as the company who takes on the most challenging orders. Customers from across the country send their work to Phoenix Heat Treating for our wide range of processing capabilities and a reputation of excellence.

The Heat Treat Tech will be responsible for safe operation of equipment. Additionally, this position is responsible for load set up, setting correct programs per specification, and maintaining production and quality expectations. The tech is required to follow written shop order instructions and maintain a high level of quality. It is essential that the heat treat tech exhibit ownership of department and quality of work. Additionally, effectively communicate across departments and with management to meet department and company goals. It is critical that heat treat techs be able to function as an independent worker and self-starter. Ability to utilize computers and read line charts is essential. All heat treat techs report to their department supervisor.

The ideal candidate will have minimum 2 years of previous heat treat experience. We have openings in multiple departments which include Endothermic Atmosphere, Aluminum, Salt Bath, Straightening, and Vacuum. Salary: \$16.00 to \$30.00 (based on experience and shift)

While performing the duties of this job, the employee is regularly required to: be able to work in various positions, including but not limited to, stooping, standing, kneeling and squatting, be able to lift, pull and push at least 50 pounds. EOE
Email resumes to ereamer@phxht.com

Item#O373 Endo / Aluminum Supervisor

Phoenix Heat Treating is looking to add dynamic individuals to our growing production team. For over 50 years this family owned, and operated heat treater has established itself as a leader in aerospace and defense industries known as the company who takes on the most challenging orders. Customers from across the country send their work to Phoenix Heat Treating for our wide range of processing capabilities and a reputation of excellence.

The Endo / Aluminum Supervisor is responsible for ensuring the effective operation of the Endo and Aluminum Departments through the communication, training and delivery of established goals and objectives. While maintaining effective work processes, this position will also be responsible for the development of employees while monitoring their performance. This position also has functional responsibility for productivity, KPI's, maintaining the daily operations and driving continuous improvement. Management of production and quality targets to meet daily, weekly, and monthly department goals.

ESSENTIAL JOB FUNCTIONS:

- Supervise daily work assignments and follow up on the delivery of the expected performance results
- Schedule the correct number of staff to ensure production goals are met within the budgeted labor cost
- Set up work to ensure a seamless transition.
- Assign and follow up with operators and department staff on the length of time required for tasks
- Monitor department and plant schedules with the Production Management
- Hold direct employees accountable for ensuring proper procedures are followed
- Flag priority orders and revise schedules to meet outbound orders
- Work with Purchasing to maintain component stock levels to coincide with production schedules.

- Ensure customer specific requirements are met.
- Monitor and manage workload levels and availability of equipment
- Assess and determine overtime requirements on a timely basis to ensure an effective meeting of budgeted costs
- Communicate and cooperate with Operations and Management teams on a regular basis to ensure overall priorities are met. Act as an additional supporting resource to the other departments
- Create and maintain an environment that promotes positive communication while fostering teamwork within the department and the company.
- Monitor, analyze and report daily/weekly departmental performance through effective KPI tracking and data collection
- Maintain accurate daily and weekly timekeeping and attendance records to ensure proper payment of employee and temporary employee payroll submissions.
- Ensure operation procedures, equipment & facilities follow company policies & legislative requirements
- Take a proactive approach to Health and Safety to promote accident avoidance.
- Hold employees accountable for the completion and filing of safety inspection forms to ensure all obligations are met.
- Provide daily feedback to employees through coaching and administer performance appraisals.
- Handle all disciplinary situations appropriately and in a timely manner with appropriate supporting documentation.
- Strive for continuous improvement by soliciting employee suggestions and feedback and making recommendations.
- Assist in the development of facility goals and strategies to support the business plan.
- Implement and actively champion compliance with company policies & procedures.
- Performs any other duties as may be assigned.

SUPERVISORY RESPONSIBILITIES

Will be reasonable for direct reports in the department.

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 minimum of a High School Education / GED. Minimum of Three years of managing and leading people in a production environment. Three years working in a manufacturing environment with Lean manufacturing and 5S. Computer literacy essential Proficiency in MS-Office suites. A team player, ability to work on own initiative, strong understanding of the expectations associated with leading a production team.

LANGUAGE SKILLS

Ability to read and interpret documents such as safety rules, operating instructions and procedure manuals. Ability to write routine reports and correspondence. Must be able to read and write English.

MATHEMATICAL SKILLS

Ability to add, subtract, multiply, and divide in all units of measure, using whole numbers, common fractions, and decimals. Ability to compute rate, ratio, and percent and to make and interpret excel and graphs.

REASONING ABILITY

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

CERTIFICATES, LICENSES, REGISTRATIONS

Green Belt in Lean / Six Sigma, MTI training certificate for Supervision and Heat Treating

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 stand; use hands to finger, handle, or reach with hands and arms and talks or hears. The employee frequently is required to walk and stoop, kneel, crouch. Visual Acuity: Near acuity and accommodation are required for reading blueprints, and Computers. Specific vision abilities required by this job include close vision, distance vision, color vision, peripheral vision, depth perception, and ability to adjust focus.

Hearing Ability: Ability to hear safety devices on forklifts, machines and fire alarms.

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 employee may be required to follow other job-related instructions and to perform other job-related duties as requested, subject to all applicable state and federal laws.

While performing the duties of this job, the employee is regularly required to: be able to work in various positions, including but not limited to, stooping, standing, kneeling and squatting, be able to lift, pull and push at least 50 pounds. EOE

Email resumes to ereamer@phxht.com

Item#O372 Account Manager/Sales Person

HI TecMetal Group Headquartered in Cleveland OH is looking to add a talented Account Manager/Sales Person to join our team! Our Sales personnel play a critical role in our business to uphold our commitments to our customers, providing the best possible quality and service we can achieve.

KEY RESPONSIBILITIES

To develop and maintain new and existing accounts for our brazing and heat treating operations located in northeast Ohio. Accounts should be developed across North America to meet the needs and abilities of the corporation.

- Serve as the lead point of contact for customer account management matters
- Develop new business with existing & perspective clients and/or identify

areas of improvement to meet sales quotas

- Assist in negotiation of contracts and close agreements to maximize profits
- Conduct sales calls, receive and respond to phone inquiries from customers and potential customers
- Conduct customer feedback interviews / surveys
- Develop and deliver quotations, provide clarification of customer requirements
- Partnering with employees at the plant level to monitor progress of work to meet customer expectations
- Exercise tact and ability to partner with customer to resolve issues
- Must be able to effectively cultivate and develop customers from diverse backgrounds including small entrepreneurial businesses to large multinational corporations
- This position must satisfy ITAR compliance requirements, therefore candidates must be U.S. Citizens or Permanent Resident Card Holder.

QUALIFICATIONS

- Education –four year degree, or equivalent experience
- Experience necessary – 10 years in sales, customer service or related field
- Experience in Brazing & Heat Treating preferred
- Experience with CRM software
- Experience using MS Office including Word, Excel and PowerPoint
- Ability to read and interpret Blueprints
- Ability to travel

LICENSE(S)/CERTIFICATION(S) REQUIRED:

- Must have a valid driver's license.

Pay will be commensurate with experience. Company benefits after probation period including health insurance, life insurance, 401 and other benefits.

Company-paid Drug Screen required upon hire. Proud to be an Equal Opportunity Employer.

Please send resume to kboyd@htg.cc

Item#O371 Combustion/Control Service Technician

Combustion/Control Service Technician. Full Time Employment. Established Industrial Combustion Service Company located in North Central Illinois, seeks an experienced combustion/control technician for field service work.

Requirements:

- Prior experience with industrial furnaces and ovens typically used in heat treat, coating and food processing industries.
- Strong electrical background.
- Welding, fabrication and piping skills a bonus.
- Individual must be a self-starter and work under minimal supervision.
- Experience in Industrial Environment.
- Valid Driver's License.
- Good Driving Record.

Daily Tasks:

- Troubleshooting, installation, start up, repair, and tuning of industrial burner systems and related controls. Candidate must have experience in an industrial environment, a valid driver's license, vehicle, and good driving record.

Benefits:

- \$25-\$35.00/per hour (compensation based on experience).
- Medical Insurance.
- 401K plan.

Please forward emails to: dawnc@cliffsoper.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
