

INDUSTRIAL HEATING

The International Journal of Thermal Processing

JULY 2018

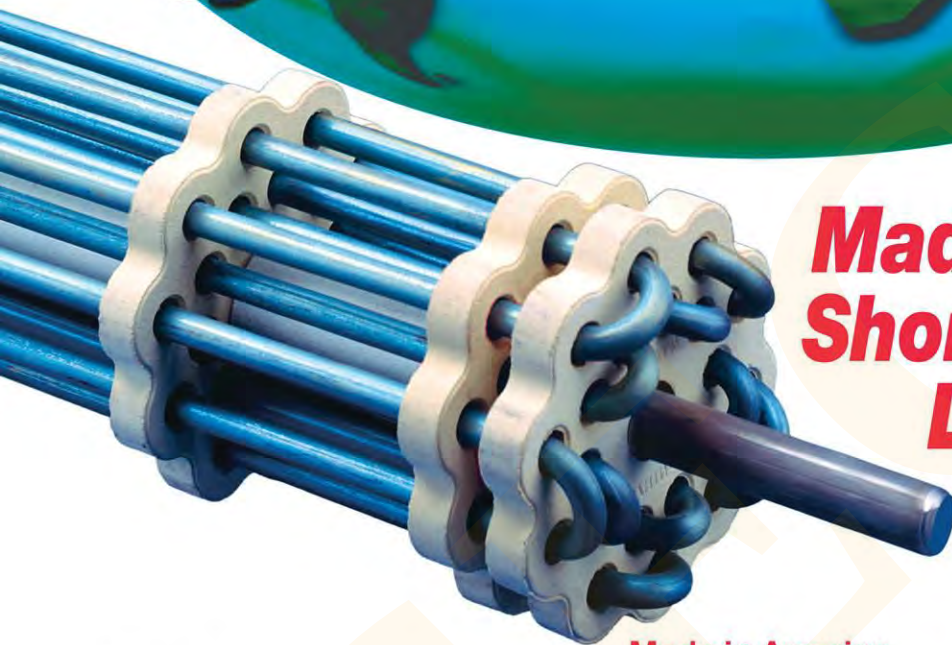
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Revised and Updated for 2018

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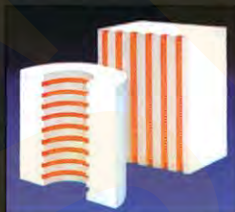
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Buyers Guide

CONTENTS

JULY 2018

30 **Manufacturers Directory**

This section provides an alphabetical listing – complete with contact information – of companies in the thermal-technology field.

46 **Product Index**

Come here to begin your product search. This section serves as a guide to find each product listed throughout the pages of *Industrial Heating's* Product Directory. Every product category – with the page number where they can be located – can be found here. Please note that the Product Index is color-coded so that individual product categories correspond with the tab color of the product subsection.

50 **Product Directory**

Industrial Heating's comprehensive Product Directory is where you will find the products you need and the companies that provide them. It is broken down into four main subsections for your convenience – Furnaces, Ovens & Kilns; Components, Supplies & Materials; Refractories & Insulation; and Controls, Instrumentation & Test Equipment. There are also smaller subsections dedicated to Furnace Atmospheres & Gases and Parts Washing Equipment/Supplies & Services.

50 **Furnaces, Ovens & Kilns**

75 **Furnace Atmospheres & Gases**

78 **Components, Supplies & Materials**

94 **Controls, Instrumentation & Test Equipment**

104 **Parts Washing Equipment/Supplies & Services**

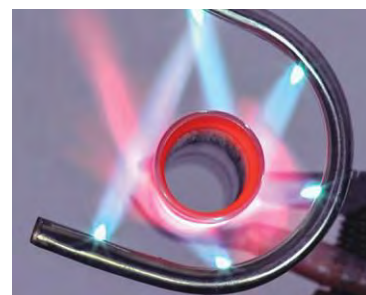
106 **Refractories & Insulation**

113 **Commercial Heat Treaters Directory**

This section gives an alphabetical listing of commercial heat treaters throughout the United States (by state) and around the world (by country). Current MTI members are noted.

Online – Trade Associations Directory

This section can be found online only at www.industrialheating.com/industrylinks.





18



20



14



22

CONTENTS

JULY 2018

10 Editor's Page Despite Change, Buyers Guide Remains the Same

A lot has changed over the course of nearly three decades, both in the thermal-processing and publishing industries. Through it all, however, *Industrial Heating's* annual Buyers Guide – despite some minor tweaks here and there – has remained the same. This issue serves the same purpose as it did 28 years ago: help readers make better purchasing decisions.

12 Federal Triangle Help Needed for Critical Minerals

The Pentagon has stated publicly that we “have an amazing amount of dependency on China” when it comes to rare-earth minerals. The U.S. cannot minimize the economic damage when China leverages its mineral monopolies against us, but let's not limit our discussion to rare earths.

14 The Heat Treat Doctor™ A Heat Treater's Book Guide

When it comes to understanding any subject, heat treatment in particular, having sources you can trust is invaluable. With that in mind, we present the top-5 books in major heat-treatment categories that are considered must-have references.

18 Heat Treat 5.0 Why Does the Big Picture Change so Fast?

Tom Morrison wants you to pay close attention to shifts in technology and tap into the Internet of Things. He also highlights a couple of major consumer buying habits that will cause significant shifts in manufacturing in the next decade: share economy and swap commerce.

20 MTI Profile

MTI Launches New Courses and P.E.A.K. Performance Program

22 IHEA Profile

Sigma Thermal

DEPARTMENTS

24 Literature Showcase

132 The Aftermarket

134 Classified Marketplace

140 Industry News/Economic Indicators

141 Advertiser Index



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A collection of articles by Dan Herring, The Heat Treat Doctor™

ONLINE

1 Web Exclusive

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Industrial Heating, in cooperation with Metal Treating Institute, invites you to nominate an MTI member heat treater for the 2018 Commercial Heat Treater of the Year award. You can nominate any company you feel is qualified – including your own if you are a commercial heat treater. This honor will be given to one business that demonstrates it is “making a positive impact on their community and their industry.” www.industrialheating.com/cht2018

2 VIDEO

eBook: A Comprehensive Guide to Heat Treatment

Dan Herring gives a quick introduction to this two-volume eBook, which is a compilation of “The Heat Treat Doctor” columns and technical articles written by him for *Industrial Heating* over the last 20 years. Get Volume I for free today. Volume II will be available in December. www.industrialheating.com/ebooks

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Despite Change, Buyers Guide Remains the Same



BILL MAYER

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A lot has changed over the course of nearly three decades, both in the thermal-processing and publishing industries. Through it all, however, *Industrial Heating's* annual Buyers Guide – despite some minor tweaks here and there – has remained the same.

This edition serves the same purpose as it did 28 years ago: help readers make better purchasing decisions. We accomplish this goal by compiling the industry's leading equipment manufacturers in one issue and providing a simple way for readers to find the products they need and contact the companies they want to talk to.

The Manufacturers Directory provides an alphabetical listing of companies that manufacture and sell thermal-processing equipment. Each company listing includes full contact information. The Products Directory is where you can find the products you need and the companies that provide them. The section is broken down into four main categories for convenience: Furnaces, Ovens & Kilns; Components, Supplies & Materials; Refractories

& Insulation; and Controls, Instrumentation & Test Equipment.

You can begin your product search at our Product Index page, which lists every product and service in the directory by page number. This index is color-coded so that the product categories correspond with the color of the tabs at the top of each page. The process is simple: find the product you want, go to the page where it's listed and see a list of companies that offer that product for sale. You can then go back to our Manufacturers Directory to

find a particular company's contact information.

Perhaps the most important change that has occurred over the past 28 years is the addition and subsequent redesign (in 2016) of our online Buyers Guide at www.industrialheating.com/buyersguide. You can search our website by company, product or keyword to find exactly what you're looking for quickly and efficiently. If you don't know what you're looking for, you can browse the product categories. You can also search for companies by state.

Here are some other important things to think about this summer.

FNA 2018

It's July, which means that the biggest industry event of the year is right around the corner. Furnaces North America 2018, presented by the Metal Treating Institute (MTI) in partnership with *Industrial Heating*, will be held Oct. 8-10 in Indianapolis, Ind. FNA 2018 brings attendees from all around world together for learning/training via technical sessions, business opportunities via the trade show and networking events.

eBooks

Over the last several years, there have been numerous calls to gather and distribute all of "The Heat Treat Doctor" columns and the many technical articles Dan Herring has written for *Industrial Heating* over the last 20 years. As a fulfillment of these requests, we are pleased to announce two new eBooks: "A Comprehensive Guide to Heat Treatment" Volume 1 and Volume 2. Volume 1 is available for free at www.industrialheating.com/ebooks. Look for Volume 2 in December.

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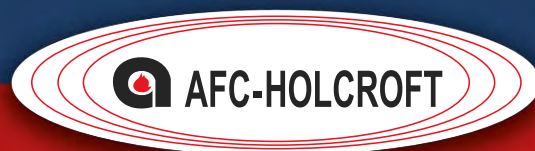


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Help Needed for Critical Minerals



BARRY ASHBY

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According to the USGS, there are 20 different items that the U.S. has no capacity to mine, refine or process.

In this space two months ago the topic of entrepreneurship, citing several examples, prompted some (but not enough) reader interest. When mentioning FastShip, I forgot to cite the fact that the UN's International Maritime Organization (IMO) will outlaw high-sulfur (3.5%) bunker fuel in 2020, which will trigger a low-sulfur distillate shortage that may drive crude to ~\$150/barrel.

Thank the "green guys," and it probably is a good idea to eliminate the heavy-polluting fuel. As a result, comparatively expensive LNG, which is already 12% cheaper than bunker fuel, will drive efficiency efforts in the near-term, according to consensus views.

In another expected change, the Maritime Security Program and Department of Defense are looking at greatly improving ship efficiency via hulls of titanium (40% lighter) versus steel. An Australian low-cost process now makes titanium powders that cost only 25% more than steel powders. Add to this the 3D printability of large parts and you can see where the industrial forefront is today. A 50% weight reduction of ship hulls is entirely feasible and at an affordable price. See www.metalysis.com and www.titomic.com for a quick view.

Let's move on to a different area where help is needed and you are urged to explore: critical minerals. The Pentagon has stated publicly that we "have an amazing amount of dependency on China" when it comes to rare-earth minerals. According to the USGS, there are 20 different items that the U.S. has no capacity to mine, refine or process. The sole U.S. rare-earth producer was forced into 2015 bankruptcy when China suddenly restricted exports and then flooded markets. The U.S. cannot minimize the economic damage when China leverages its mineral monopolies against us. But let's not limit our discussion to rare earths.

Lithium is a primary ingredient in laptop computer batteries, electric cars and power-grid storage capabilities. Its price has tripled in the past year to about \$20,000 per MT. Indeed, lithium has battery challenges, so design changes, while reducing efficiency, diminish "issues" such as possible battery fires. A potential alternative to these lithium products is an aluminum-ion-based

alternative. That may be swell for car batteries, but we aren't there yet, and the world still does not have all the lithium it wants and needs (at least from a reliable and honest source).

John Bosma (410-446-8198) and I are working to form a (small) consortium to address the matter of critical metals availability via field recovery. Consider that most aging oil and gas wells, especially those depleted, fill with brine that is often laden with the metals and minerals we seek. It is now estimated that over 80% of innovative manufacturing and production will involve partnering and that 60% of future industrial growth will be driven by new technology. Furthermore, it costs \$100,000-\$300,000 to reclaim or close the 75,000 inactive, brine-containing wells in Canada (especially Alberta). So, we have relationships with friends that have access to these brine wells and with another group that has new "membrane technology" that easily extracts and concentrates the minerals we seek.

This is all accomplished with patented procedures that employ corrosion-resistant, non-woven fibrous membranes and non-contaminating conductive ceramic electrodes using very cost-effective, low-power, on-site electric power procedures. Channelized membranes include layered, porous and capillary structures that can "commoditize" metals and remediate isotopes from sites without leaching of toxics into surface and subsurface soils and water tables. There are no known adverse environmental impacts for this process in field application.

What is suggested to interested readers is that you contact Bosma and submit credentials that describe your (corporate) interests together with suggested project participation. He and I will guide parties to the team leaders, where each player bringing something to the table can define and agree with all team members on roles, responsibilities and rewards.

This abbreviated introduction to several new technologies near the focus of most readers' business interests is intended to spur participation. If not your company, then whose business and national interests are served? This raw-materials availability and foreign manipulation are quickly becoming matters of national concern. ■

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A Heat Treater's Book Guide



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There is an old adage that says, “If you don’t know it, know where to find it.” Given the information age in which we live, with the Internet at our fingertips and “ask Siri” or “Alexa, what is...” at our beck and call, solving problems and getting answers to our questions seems faster and easier than ever before. As heat treaters, metallurgists and engineers, however, we know the information we find must be filtered, checked and verified as to its accuracy and applicability. As such, we must also have reference books available to us. Let’s learn more.

When it comes to understanding any subject, and heat treatment in particular, having sources you can trust is invaluable. Establishing a good technical reference library (Fig. 1), whether at work or at home (or both), is a good way to research the information you find, because solving everyday problems requires both an understanding of the root cause and an understanding of the underlying principles behind it. In addition, one must be able to uncover the entire scope of technical issues confronting us so as to find practical solutions and know why a particular phenomenon took place so that corrective action may be taken to avoid its reoccurrence in the future.

Presented here are at least the top-5 books in each category that are considered must-have references. Newer editions may exist in some cases, but exercise caution to ensure their contents are equal to or better than the originals. A more comprehensive listing can be found in the online Reference 1.

General Reference^[1,2,3]

1. Herring, Daniel H., *A Comprehensive Guide to Heat Treatment*, Volumes 1 & 2, e-Books, Industrial Heating/BNP Media, 2018, (www.industrialheating.com)
2. *Handbook of Mechanical Alloy Design*, George E. Totten, Lie Xie and Kiyoshi Funatani (Eds.), Marcel Dekker Inc., 2004, ISBN 0-8247-4308-3, 734 pages
3. *Mark's Standard Handbook for Mechanical Engineers*, 9th Ed., Eugene A. Avallone and Theodore Baumeister III (Eds.), McGraw Hill Book Co., 1978, ISBN 0-07-004127-X
4. *Metals Handbook*, 1948 Ed., ASM International, 1948, 1,332 pages
5. Wegst, C. W., *Stahlschlüssel (Key to Steel)*, 20th Ed., Verlag, 2004, ISBN 3-922599-20-6, 720 pages

Atmosphere Heat Treating^[1,2,3]

1. Herring, Daniel H., *Atmosphere Heat Treatment, Volume I*, BNP Media Group, 2014, ISBN 978-0-692-28393-6, 714 pages
2. Herring, Daniel H., *Atmosphere Heat Treatment, Volume II*, BNP Media Group, 2015, ISBN 978-0-692-51299-9, 803 pages
3. *Steel Heat Treatment Handbook: Equipment and Process Design*, 2nd Ed., George E Totten (Ed.), CRC Press, 2007, ISBN 978-0-8493-8454-7, 713 pages
4. Parish, Geoffrey, *Carburizing: Microstructure and Properties*, ASM International, 1999, ISBN 0-87170-666-0, 247 pages
5. Haga, L. J., *Practical Heat Treating*, Metal Treating Institute

Furnace Atmospheres – Generation (old but relevant)^[11,12]

1. *Metals Handbook*, Vol. 2, *Heat Treating, Cleaning and Finishing*, 8th Ed., ASM International, 1964,



Fig. 1. A few bookshelves with some of The Doctor's favorite reference books.



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LOC 27-12046, 708 pages

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- ASM Handbook, Volume 4A: Steel Heat Treating: Fundamentals and Processes*, Jon L. Dossett and George E. Totten (Eds.), ASM International, 2013, ISBN 978-1-62708-011-8, 768 pages
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- Alloying Elements and Their Effect on Hardenability: Republic Alloy Steels Handbook*, Booklet Adv. 1009, 1961, 46 pages

Final Thoughts

Readers are encouraged to contact the writer (dherring@heat-treat-doctor.com) with other reference books that they have found to be particularly helpful in solving heat-treating, metallurgy and engineering problems associated with the subjects listed (or others). As we update the list in the future, our library will continue to grow to the benefit of all. 🇺🇸

Many more references can be found in the online version of this article at www.industrialheating.com/ref.

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Why Does the Big Picture Change so Fast?



TOM MORRISON

CEO MTI Management
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My first two columns in 2018 focused on the 10 key emerging technologies being used to disrupt every industry and the five elements of the Internet of Things (IoT) every manufacturer needs to leverage to maximize production and minimize costs.

Now I want to share with you why paying close attention to the shifts in technology and tapping into IoT is so important.

Because we are so interconnected from consumer through the entire supply chain – coupled with social media – consumer buying habits change in an instant ... both up and down. This instantaneous shift by consumers can rock your production overtime if you aren't agile and able to make shifts.

What looks like a steady flow of production now could begin to decline or increase within months given how fast consumers change what and how they purchase. If you want to understand how fast it now takes to reach a broad base of mass consumers, take a look at how quickly it took the following to reach 50 million people:

- Telephone – 75 years
- Radio – 38 years
- TV – 18 years
- Internet – 4 years
- Facebook – 3.5 years
- Angry Birds game – 35 days

Did you get that? It only took 35 days for the video game Angry Birds to connect with 50 million users!

It is crucial for your heat-treat company or division to have the ability to ramp up or dial down production, maintenance and operations in a more predictive fashion with the pace of consumer buying habits in today's manufacturing economy. Doing so will minimize your costs, equipment requirements and labor demands.

A simple example is the new wave of "mattress in a box" products being sold online. Who would have thought consumers

would spend \$700-\$1,300 on a mattress they never touched? Well, they are today with roughly 10% of the market in five short years. If you are a heat-treating operation on the wrong side of the change in mattress demand, your business will begin to quickly erode.

There are a couple of major consumer buying habits that will cause significant shifts in manufacturing in the next decade. All are picking up steam, and you need to look into their impact on your product mix.

Share Economy

This is business models like Airbnb, Uber and Turo (formerly RelayRides), where people pay to share someone else's lodging, transportation or automobile. The danger in a sharing economy is once two people begin to share one product, a new one is not produced. For example, if two people share houses for vacations, no hotel is needed. If two people share cars, a new car isn't needed. Today's generation is becoming more accepting of a sharing economy. How will it impact what you manufacturer or heat treat?

Swap Commerce

Swap commerce is similar to the share economy except we are renting someone else's stuff. We are actually swapping two products we both own and both need. There are a number of trading websites online. The danger in swap commerce is that when two people swap or trade two products they each need, NOTHING new is made. Do you heat treat or manufacture products that could be impacted by swap commerce?

Conclusion

Don't get me wrong. Every shift in the economy creates new opportunity at the same pace as taking away opportunity. My point is that you, as a heat-treating company, need to do your homework to make sure you are processing products that are growing in capacity and demand, not declining. A great resource can be found at www.TrendHunter.com. They constantly track consumer buying habits in most major industries.

Don't be left behind. Get informed and get in front of the wave of change coming in the 2020s. 🇺🇸



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MTI Launches New Courses and P.E.A.K. Performance Program



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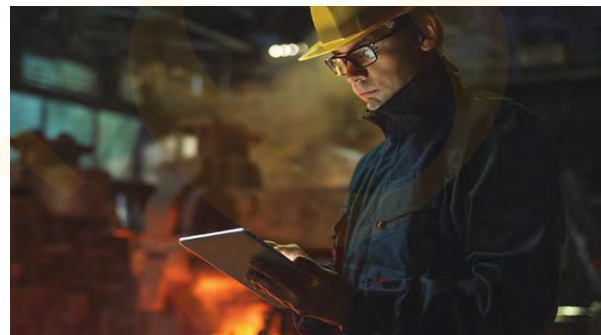
Having adequate training in any heat-treating operation is a must in today's low labor pool and fast-paced environment. Having production-line staff with a "full understanding" of heat-treating operations, technical knowledge and how each element of production is connected is important to minimize micromanagement and error rates and maximize productivity.

The Metal Treating Institute (MTI) is pleased to announce it has launched nine new technical courses, along with its Heat Treat P.E.A.K. Performance Certificate program. The P.E.A.K. program is an online apprenticeship-style program that will take four to six months (approximately 80 hours) to complete. The goal of the program is to enhance your employees' knowledge and maximize their capabilities as a heat-treating professional.

The acronym P.E.A.K., in the certificate name, is for the four major areas that MTI feels are important in any employee's professional development: performance, education, advancement and knowledge.

The program includes nine new technical courses developed by industry experts in the areas of:

- Brazing
- Induction
- Vacuum
- Pyrometry
- Audit compliance
- Endothermic gas management
- Principles of operating a heat-treat plant
- Reading blueprints
- Process and atmosphere controls



These courses, combined with the following current courses, make up the P.E.A.K. Performance Certificate program:

- ABCs of Heat Treating (materials, equipment, processes, quality/inspection, metallurgical theory)
- General plant safety
- Surface treatments
- Furnace maintenance
- Troubleshooting

What makes the P.E.A.K. program unique is that it includes 12 Knowledge Application Exercises (KAEs). The KAEs are case-study-style exercises, where learners apply their knowledge gained on the shop floor through essay questions and processes. The program is administered through the MTI Online Academy for Heat Treaters, which offers 24/7 access and is available on any computer or mobile device. In addition, all transcripts and certificates are maintained online.

Learners are able to enroll in any of the individual courses or the full P.E.A.K. program all at once. The cost for the full program is \$1,495 per person for non-members and \$995 for MTI members. MTI is offering a special introductory discount of 30% to anyone who enrolls prior to Aug. 31, 2018. If your company has a subscription to MTI's online academy, you will have access to the P.E.A.K. program at no additional charge.

For more information on the P.E.A.K. program or MTI's Academy subscription, visit www.MTIAcademy.com or email MTI Academy Administrator Niki Peterson at niki@heattreat.net.

Commercial Heat Treater of the Year

Industrial Heating, in cooperation with Metal Treating Institute, invites you to nominate an MTI member heat treater for the 2018 Commercial Heat Treater of the Year award. You can nominate any company you feel is qualified – including your own if you are a commercial heat treater. This honor will be given to one business that demonstrates it is "making a positive impact on their community and their industry." Visit www.industrialheating.com/cht2018 for more information.

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Sigma Thermal is an industrial process-heating systems manufacturer and service provider. This new IHEA member offers a wide variety of heating systems, including direct-fired heaters and electric process heaters, designed for use within industrial processes that require heat energy.

Sigma Thermal also provides automation, system maintenance, retrofits, upgrades and optimization services to help maintain and support ideal process performance. The Marietta, Ga.-based company is dedicated to supplying the highest-quality and best-performing process-heating systems available.

For more than a decade, Sigma Thermal has engineered heat energy systems for industries including oil and gas, chemical and power generation. Typical applications include manufacturing, gas processing, ammonia heating, condensate stabilization, fuel-gas conditioning, liquid-gas vaporization, jacketed reactor heating and cooling, process air heating and steam superheating.

Sigma Thermal's full range of packaged heating systems includes: thermal fluid/hot oil, electric, water-glycol, indirect water bath,

direct-fired convection, waste-heat recovery and biomass energy. Each heating system is reviewed for quality and safety prior to shipment. Company certifications include: ISO 9001:2008 certified with design and ASME Section I & VIII (NB, U, R and S code stamps).

The company is a supplier with an integrated full-service facility that includes a 15,000-square-foot engineering office, 40,000-square-foot fabrication facility (with 50 tons of lifting capacity in bay #1 and 60 tons of lifting capacity in bay #2), 1,500-square-foot UL-listed panel shop and 5,000-square feet of warehouse space. For most projects (schedule permitting), Sigma Thermal can design, manufacture, assemble and test a complete scope of supply entirely on its 10-acre campus.

Visit www.sigmathermal.com for more information on Sigma Thermal.

Fall Seminars Coming to FNA 2018 in October

IHEA will offer three concurrent technical seminars in conjunction with MTI's Furnaces North America (FNA) in Indianapolis, Ind. Held Oct. 8-10, this will present an opportunity for manufacturers to expand their technical knowledge and spend time on the exhibit floor.

IHEA will conduct its Combustion Seminar, Safety Standards and Codes Seminar and Induction Seminar on Monday, Oct. 8 and the mornings of Tuesday, Oct. 9 and Wednesday, Oct. 10 at the Indiana Convention Center. This schedule will provide the benefit of classroom education and ample time to visit with FNA exhibitors, which include IHEA members and companies represented by IHEA seminar speakers that provide instruction during the seminars.

Visit www.ihea.org for more information.

FNA 2018

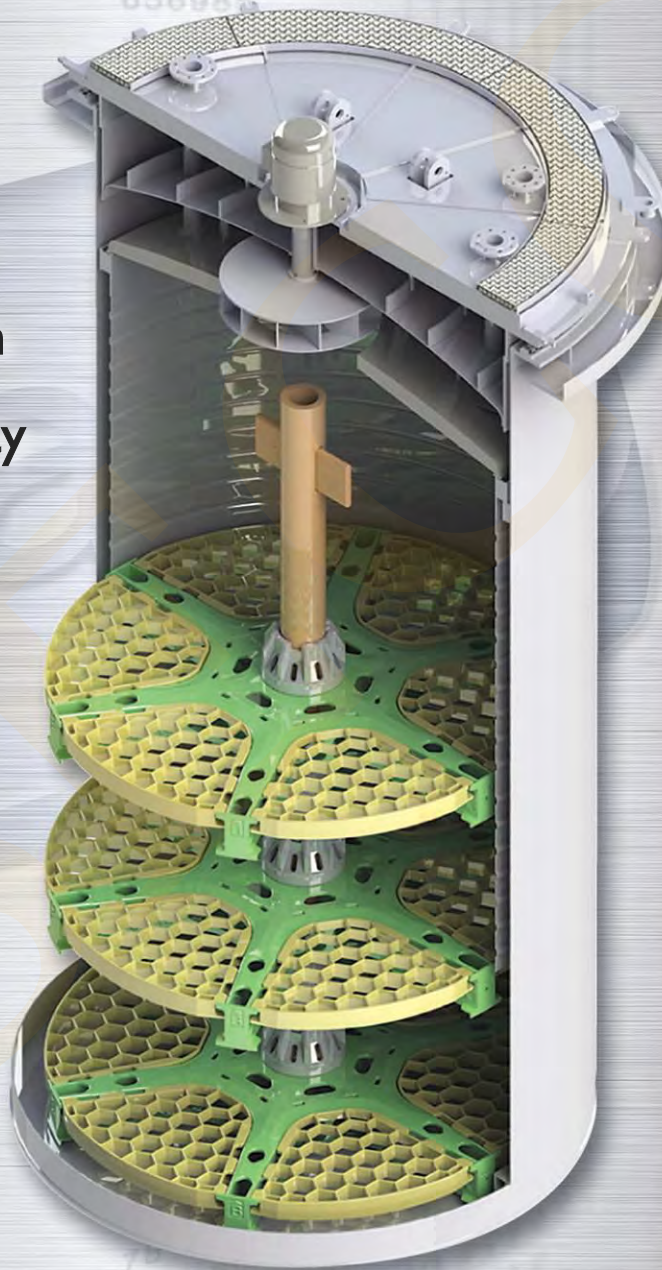


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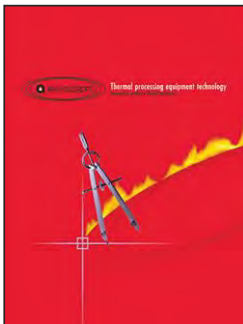
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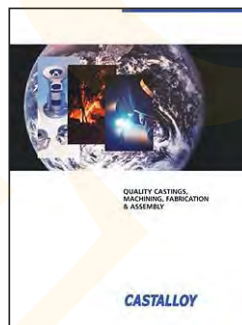
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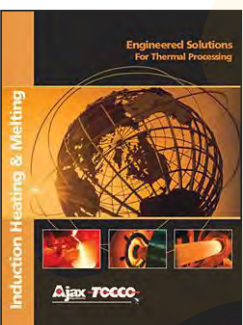
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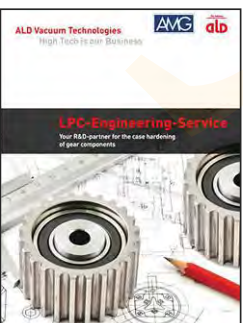
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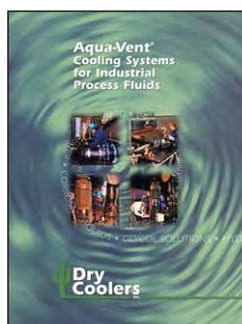
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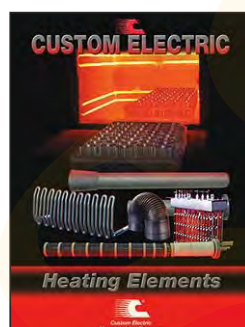
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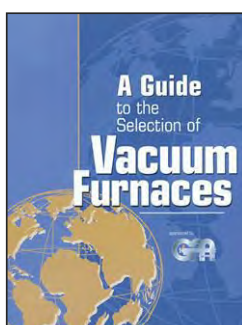
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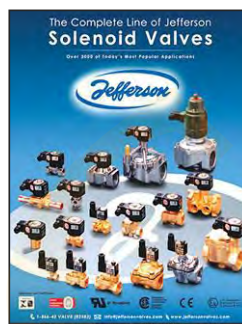
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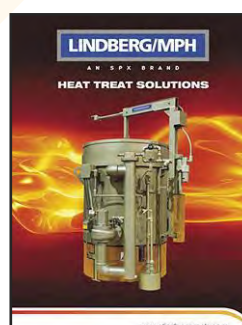
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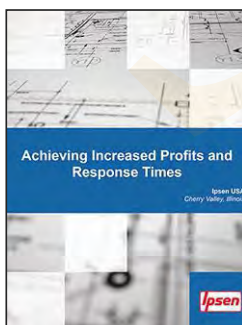
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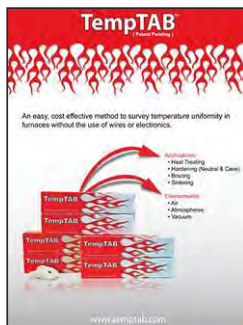
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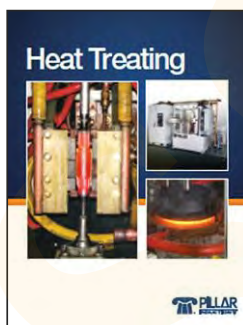
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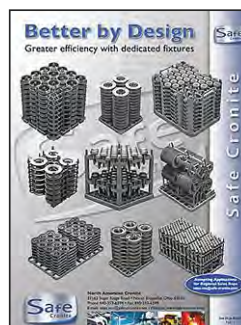
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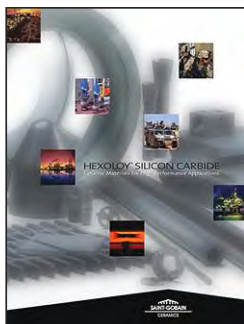
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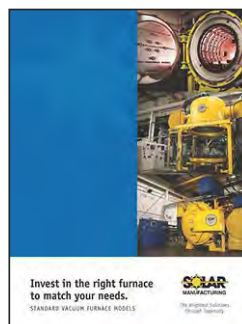
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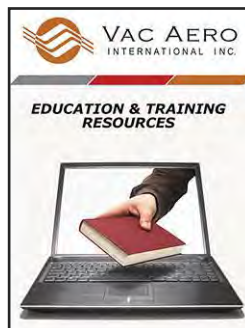
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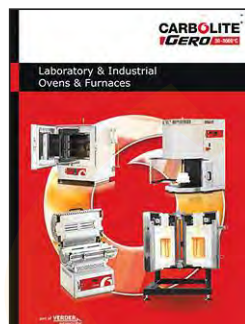
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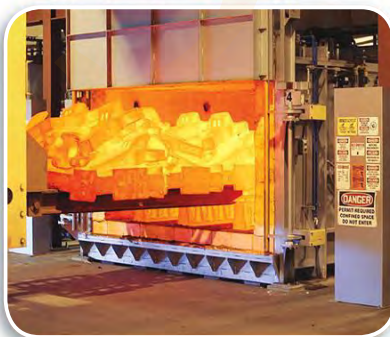


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SEE OUR AD ON PAGE 78

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russells
technical products

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SEE OUR AD ON PAGE 84

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SEE OUR AD ON PAGE 23

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SEE OUR AD ON PAGE 21



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SEE OUR AD ON PAGE 17

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SEE OUR AD ON PAGE 89

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SEE OUR AD ON PAGE 99

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SEE OUR AD ON PAGE 62

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SEE OUR AD ON PAGE 69

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SEE OUR AD ON PAGE 86



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SEE OUR AD ON PAGE 103

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SEE OUR AD ON PAGE 49



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SEE OUR AD ON PAGE 64

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SEE OUR AD ON PAGE 73



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SEE OUR AD ON PAGE 91



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SEE OUR AD ON PAGE 65

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SEE OUR AD ON PAGE 19



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SEE OUR AD ON PAGE 59

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ZAR-TECH

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SEE OUR AD ON PAGE 107



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PRODUCT INDEX

Furnaces, Ovens & Kilns.....	Page 50
Furnace Atmospheres & Gases	Page 75
Components, Supplies & Materials	Page 78
Controls, Instrumentation & Test Equipment	Page 94
Parts Washing Equipment/Supplies.....	Page 104
Services.....	Page 104
Refractories & Insulation	Page 106

FURNACES, OVENS AND KILNS

Aging	50
Aluminum Brazing	50
Atmosphere	50
Salt Bath	50
Vacuum	50
Aluminum Homogenizer	50
Aluminum Solution Heat Treating.....	50
Annealing	50
Atmosphere Furnaces	50
Austempering.....	50
Batch	51
Bell	51
Belt	52
Bench	52
Billet.....	53
Blast.....	53
Blueing.....	53
Boilers.....	54
Bonding, Structural	54
Box.....	54
Brazing.....	54
Burn-Off.....	54
Cabinet.....	54
Car Bottom.....	54
Carburizing.....	55
Atmosphere.....	55
Ion.....	55
Nitrocarburizing.....	55
Vacuum.....	55
Continuous.....	55
Caster.....	56
Conveyor.....	56
CVD.....	56
Drop Bottom.....	57
Drum - Rotating.....	57
Dryers.....	57
Electric Arc.....	58
Electric Resistance.....	58
Electron Beam.....	58
Flexible Heat-Treating Cells	58
Fluidized Bed.....	58
Fluoride Ion Cleaning	58
Forging.....	58
Galvanizing.....	58
Gantry.....	59
Gas.....	59
Fired.....	59
Quench.....	59
Quench, High Pressure.....	60
Glass Melting (Lehrs).....	60
Gradient.....	60
Harden, Quench & Draw/Temper.....	60
Hearth.....	60
Elevator Hearth.....	60
Open Hearth	60
Reciprocating Hearth.....	60
Roller Hearth	60

Rotary Hearth	61
Shaker Hearth.....	61
Walking Hearth.....	61
Heat Treat.....	61
Heaters.....	62
Cartridge.....	62
Electric, Infrared	62
Gas, Infrared.....	62
Immersion.....	62
Wrap-Around.....	62
High-Speed Steel	62
Holding.....	63
In-Line Heating Stations.....	63
Incinerators.....	63
Rotary.....	63
Induction.....	63
Annealing	63
Coils	63
Heating	64
Melting	64
Power Supplies, Generators, Inverters	64
Power Supplies, Solid State	64
Scanners	64
Skull Melting	65
Transformers	65
Vacuum	65
Integral Quench.....	65
Kiln.....	65
Electric.....	65
Gas-Fired	65
Roller Hearth	66
Shuttle.....	66
Tunnel.....	66
Laboratory	66
Laser.....	66
Lead Bath.....	66
Magnetic Field Heating.....	66
Martempering	66
Melting.....	67
Mesh Belt.....	67
Microwave & Accessories	67
Muffle.....	67
Neutral Hardening	67
Nitriding	68
Gas	68
Ion	68
Salt	68
Oil-Fired	68
Ovens.....	68
Oxidizers	68
Fume	68
Thermal	68
Panel.....	68
Pit	68
Plasma.....	68
Pot	68
Powder Atomization.....	68
Preheating.....	68
Pusher	69

PVD Coating Equipment.....	69
Radiant Tube	69
Recuperative	69
Reheating	70
Remelting.....	70
Resistance	70
Retort.....	70
Reverberatory	70
Rotary Retort	70
Salt Bath	70
Austenitizing	70
Blueing	70
Carbide Brazing Conditioning	70
Curing.....	70
Glass Strengthening	70
Patenting	70
Precipitation Hardening	70
Shape Setting Ni-Ti Memory Wire	70
Silver Annealing.....	70
Temper/Draw	70
Tool & Die.....	70
Waste Treatment Systems	70
Sintering	70
Slab.....	70
Slot Forge	71
Soaking Pit.....	71
Solution Annealing.....	71
Spheroidizing	71
Strip	71
Temper/Draw.....	72
Temper Furnace (Draw).....	72
Tip-Up	72
Tool Room	72
Tube	72
Vacuum.....	73
Brazing	73
Degassing.....	74
Melting/Casting	74
Vacuum Furnace.....	74
Convection-Assisted Heating.....	74
Hardening.....	74
High-Pressure Gas Quench (3+ Bar)	74
Hot Zone.....	74
Low-Pressure Gas Quench (0 to 2 Bar).....	74
Semi-Continuous.....	74
Sintering	74
Tempering	74
Tool Room	74
Walking Beam	74

FURNACE ATMOSPHERES & GASES

Acetylene	75
Ammonia	75
Argon	75
Carbon Dioxide	75
Carburizing Gases	75
Helium	75
Hydrogen	75
Inert Gases.....	75
Methane	75
Nitrogen	76
Liquid	76
Membrane	76
PSA Generators	76
Oxidizing Gases.....	76
Oxygen.....	76
PSA Generators	76
Propane	77
Reducing Gases	77
Steam.....	77

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**COMPONENTS, SUPPLIES
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Alarms	78	Elements	83	Powders, Brazing	90
Alloys	78	Electric	83	Power Supplies, RF	90
Castings	78	Graphite	83	Presses	90
Fabricators	78	Molybdenum	84	Compacting	90
Heat-Resistant	78	Molybdenum Disilicide	84	Extrusion	90
Low Melting	78	Ribbon	84	Isostatic	90
Baffles	78	Silicon Carbide	84	Pressure Vessels	90
Baskets	78	Tungsten	84	Pumps	90
Bearings	79	Fans	84	Cryogenic	90
Belts	79	Fasteners	85	Oil	90
High-Temperature	79	Fiber Optics	85	Vacuum	90
Wire Mesh	79	Filters	85	Vacuum Fluids	90
Woven Wire	79	Air	85	Quench	90
Billet Feeders	79	Gas	85	Agitators	90
Blowers	79	High Temperature Glass	85	Fans	90
Boronizing Powder & Paste	79	Oil	85	Nozzles, Gas	90
Brazing Suppliers	79	Fittings, Molybdenum	85	Oil Coolers	90
Alloys	79	Fixtures	85	Oil Heaters	90
Nickel Alloy Preforms	79	Fixtures, Carbon/Carbon	85	Presses	90
Paste	79	Flooring, High-Temperature	85	Tanks	90
Paste, Fluxes	79	Foil Wrap	85	Quenchant Cooling Systems	90
Powder	79	Freezers	85	Quenchants	91
Burner Nozzles	79	Flux Field Concentrators	85	Air	91
Burners	79	Furnace Loaders	85	Gas	91
Atomizing	79	Gas Generators	85	Oil	91
Dual-Fuel	80	Ammonia Dissociators	86	Polymer	91
High-Velocity	80	Endothermic Generators	86	Salt	91
Low-NOx	80	Exothermic Generators	86	Water	91
Low-Velocity	80	Hydrogen Generators	86	Racks	91
Luminous Flame	80	Plasma	86	Radiant Tubes	91
Oxy-Fuel	80	Gas Recovery	86	Radiant Tubes, Ceramic	91
Pre-Mix	80	Gaskets	86	Rails	92
Radiant Cup	80	Gaskets, High-Temperature	86	Rails, Overhead	92
Radiant Tube	80	Graphite	86	Reactors	92
Recuperative	80	Grids	87	Reactors, Variable	92
Regenerative	80	Grinders	87	Recuperators	92
Ribbon	80	Hearth Plates	87	Regenerators	92
Temperature Flame	80	Heat Exchangers	87	Rollers	92
Catalyst, Endothermic/Exothermic	80	Heat Transfer Fluids	87	Heat Transfer / Thermal	92
Ceramic Parts/Supplies	81	Heaters	87	Silicon Carbide	92
Chains	81	Cartridge	87	Salt	92
Chillers	81	Immersion Heater	87	Heat Treating	92
Chilling Chambers	81	Vacuum Diffusion Pump	88	Pots	92
Cladding	81	Wrap-Around Heaters	88	Pumps	92
Cleaning Equipment	81	Hoists	88	Reclamation Systems	92
Aqueous	81	Hoods	88	SCRs, Thyristors	92
Blast	81	Hot Zones, Vacuum Furnaces	88	Screens, Wire Mesh	92
Ultrasonic	81	Impellers	88	Shields, Molybdenum	92
Coatings	81	Joints, Expansion	88	Sight Glass	92
Ceramic	81	Kiln Furniture	88	Solder	92
CVD	81	Ladles	88	Spark Igniters	92
Diamond	81	Liners, Wire Mesh	88	Steels	92
High-Temperature	81	Lubricants	88	Alloy	92
Composites	81	Marking Systems	88	Carbon	92
Compounds	82	Material Handling Equipment	88	Specialty	92
Caustic	82	Membranes	89	Stainless	92
Corrosion-Preventive	82	Metal Injection Molding (MIM)	89	Tank Fabrications	92
Degreasing	82	Debinding	89	Tantalum Products	92
Descaling	82	Equipment	89	Tool Wrap	92
Rust-Removing	82	Sintering	89	Transformers	92
Stop-Off	82	Sintering (P/M)	89	Transistors, IBGTs	92
Computers/Computer Software	82	Molds	89	Trays	92
Conveyors	82	Molybdenum Products	89	Tubes	93
Cooling Systems, Closed Loop	82	Motors	89	Electron	93
Cooling Towers	82	Muffles	89	Oscillator	93
Cranes	82	Oil Filtration/Purification	90	Power	93
Crucibles	82	Oil Skimmers	90	Tungsten Products	93
Cryogenics	82	Oil/Water Separator	90	Ventilation Equipment	93
Curtains	83	Parts Feeders	90	Vibratory Trays	93
Metallic	83	Parts Loaders	90	View Ports	93
Refractory	83	Parts Sorters	90	Washers, Parts, Water Based	93
Dampers	83	Piers	90	Waste Water Reclamation	93
Doors, Water-Cooled	83	Pollution Control Equipment	90	Water Treatment Chemicals	93
Ducting, Flexible High-Temperature	83	Pots	90	Weldments	93
Electrodes	83	Powder Metals	90	Wheel Assemblies, Powered	93
		HIP Furnaces	90	Wire, High-Temperature	93
		Hot Isostatic Press	90	Wire Cloth	93
		Injection Molding	90		

PRODUCT INDEX

CONTROLS, INSTRUMENTATION AND TEST EQUIPMENT

Actuators	94
Air-Gas Proportional Mixer	94
Analizers	94
Ammonia	94
Chemical	94
Flue Gas	94
Gas	94
Hydrogen	94
Infrared	94
NOx	94
Oxygen	94
Particle Size	94
Power	94
Quench Rate	94
Sulphur Dioxide	94
Bond Testers	94
Calibration	94
Instruments	94
Management Software	94
Capacitors	94
Ceramic	94
Oil-Filled	94
Vacuum	94
Controllers	94
Carbon Potential	94
Multi-Loop	94
Power	94
Programmable	94
Proportional	95
Single Loop	95
Controls	95
Adapters, Retrofit	95
Atmosphere	95
Combustion	95
Computerized	96
Energy Optimization	96
Flame Safeguard	96
Fuel/Air Mix	96
Gas Nitriding	96
Motor	96
Pressure	96
Remote Data Acquisition	97
Solid State	97
Temperature	97
Crack Detection, Automatic	97
Creep Testing Devices	97
Dew Point Instruments	97
Dew Point/Moisture Transmitters	97
Digital Indicators	97
Dilatometers, Quench	97
Eddy Current	97
Extensometers	97
Fatigue Testing Devices	97
Flame Detectors	97
Flame Safeguard	97
Flow Meters	97
Flow Meters, Electronic Readout	97
Fuel Meters	97
Gas Metering Panels	97
Gauges	97
Air Velocity	97
Thickness	97
Vacuum	97
Hardness Testers	98
Accessories	98
Automatic	98
Brinell	98
Micro	98
Portable	98
Rockwell	98
Hygrometers	98

Imaging Systems, Infrared	98
Leak Detectors	98
Metallographic Supplies	98
Grinders/Polishers	98
Metallographs	98
Meters, Gas Flow	98
Recorder Supplies	99
Microprocessors	99
Microscopes	99
Accessories	99
Mixers - Air-Fuel	99
Nondestructive Testing Instruments	99
PID Tuning Software	99
Off-Line	99
On-Line	99
Positioners	99
Potentiometers	99
Pressure Transducers	99
Probes	99
Process Monitors	100
Programmers	100
Pyrometers	100
Quench Testing Devices	100
Recorders	100
Computerized	100
Video	100
Regulators	100
Air	100
Gas	100
Oil	100
Resistors	100
Semiconductors	100
Sensors	100
Analytical	100
Carbon	100
Oxygen	101
Temperature	101
Software	101
Simulation	101
Complete Systems	101
Switches	101
Tensile Testing Devices	101
Thermal	101
Conductivity Devices	101
Imagers	101
Thermocouple Wire	102
Thermocouples	102
Thermometers	102
Thermometers, Infrared	102
Thermostats	102
Thyristors	102
Transmitters	102
Tubes, Protection	102
Ultrasonic Testing Instruments	102
Valves	102
Butterfly	102
Flow Control	102
High-Temperature	103
Shut-Off	103
Slide Gate	103
Solenoid Control	103
Vacuum	103
Weighing Systems	103

PARTS WASHING EQUIPMENT/SUPPLIES

Alkaline Cleaners	104
Dunk Washers	104
Semiaqueous Cleaners	104
Shot Blasting/Peening	104
Spray and Dunk Washers	104
Spray Washers	104

SERVICES

Construction/Contractors	104
Consulting	104
Energy Audit	104
Energy Conservation	104
Energy Recovery	104
Furnace Audit	104
Furnace Rebuild/Repair	104
Heat Recovery	104
Helium Leak Detection	104
Industry Association	104
Installers	104
Oil Recovery & Recycling	104
Solvent Recovery	104
Training	104

REFRACTORIES & INSULATION

Insulation	106
Ceramic Fiber	106
Felt, Graphite	106
Fiberglass	106
Fire Retardant	106
Fireproof	106
Furnace	106
High Temperature	106
Mica	106
Microporous Silica	106
Mineral Fiber Block	106
Structural	106
Alumina	106
Mortar	106
Mullite	106
Patching Material	106
Refractories	106
Alumina	106
Binders	106
Bonded	106
Brick	106
Castables	106
Cement	106
Ceramic Fiber	106
Coatings, Glazing and Energy Savings	107
Cordierite	107
Fiber Block	107
Firebrick	107
Fireclay	107
Foam, Ceramic/Graphite/Carbon	107
Fused Alumina	107
Fused Cast	107
Fused Silica	107
Graphite/Carbon	107
Gunning Material	107
Ladle	107
Monolithic	107
Plastic	107
Pre-Cast Shapes	107
Ramming Mixes	108
Refractory Adhesives, High-Temperature	108
Refractory Anchors	108
Refractory Guns & Pumps	108
Refractory Mixers	108
Refractory Systems, Suspended	108
Shotcrete	108
Silica	108
Silicon Carbide	108
Specialty	108
Steel Fibers	108
Silicon Nitride	108
Textiles, High-Temperature	108
Yttria	108
Zirconia	108

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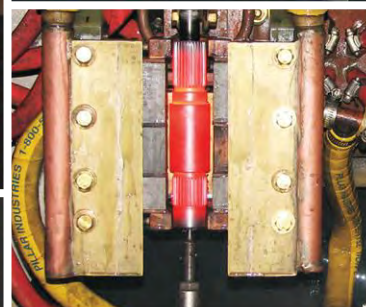
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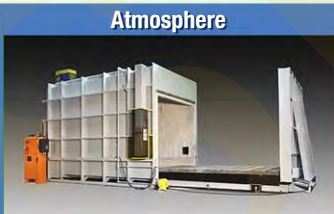
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Case Tool Inc.
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Induction Systems Inc.
Inductoheat Inc.
 - **International Thermal Systems**
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Lone Star Induction
O'Brien & Gere
Phoenix Induction Corp.
 - **Pillar Induction**

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Tucker Induction
 - **Ultraflex Power Technologies**
 - **Verder Scientific Inc.**

Coils

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Alpha 1 Induction
Ambrell Induction Heating Solutions

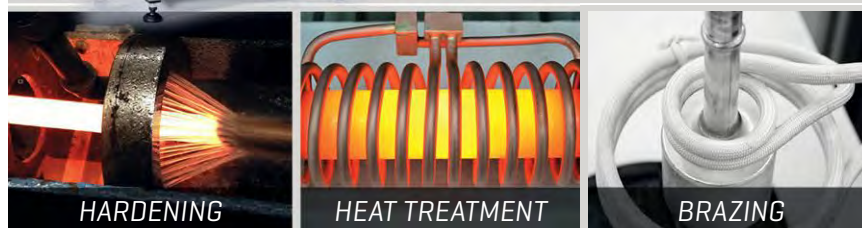


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- Induction Tooling Inc.
- Inductoheat Inc.
- Interpower Induction USA
- **Jackson Transformer Co.**
- Lone Star Induction
- **Pillar Induction**
- SMS Elotherm North America LLC
- **Taylor-Winfield Technologies Inc.**
- Tucker Induction
- **Ultraflex Power Technologies**

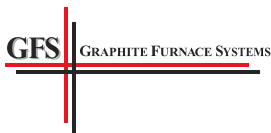
Heating



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- Chromalox
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- ELECTROHEAT
- Fluke Process Instruments
- Furnace Brokers International



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- Inductoheat Inc.
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- Interpower Induction USA
- **Jackson Transformer Co.**
- Lone Star Induction
- Mokon
- Mowry Enterprises Inc.
- O'Brien & Gere
- Phoenix Induction Corp.



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- Powerblanket
- **PVT Inc.**
- SMS Elotherm North America LLC
- **Taylor-Winfield Technologies Inc.**

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Tucker Induction



- **Ultraflex Power Technologies**

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- **Clark Power Systems Inc.**
- Consarc
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- **EFD Induction Inc.**
- ELECTROHEAT
- Furnace Brokers International
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- Interpower Induction USA
- **Jackson Transformer Co.**
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- Phoenix Induction Corp.
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- Interpower Induction USA
- Lone Star Induction
- **Pillar Induction**
- **Taylor-Winfield Technologies Inc.**
- Tucker Induction
- **Ultraflex Power Technologies**

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- Interpower Induction USA
- **Pillar Induction**
- **Taylor-Winfield Technologies Inc.**
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- ▶ **PVT Inc.**
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Inductoheat Inc.
Interpower Induction USA
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Magnetic Specialties Inc.
Phoenix Induction Corp.
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SMS Elotherm North America LLC
- ▶ **Taylor-Winfield Technologies Inc.**
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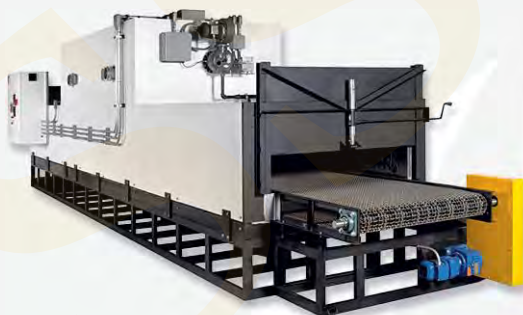
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- Pyradia Inc.
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- **Wisconsin Oven Corp.**

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- PVA Industrial Vacuum Systems GmbH
- Retch Systems LLC
- **Surface Combustion Inc.**

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- **CMI Industry Americas Inc.**
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- Thermaltek Inc.
- **Thermcraft Inc.**
- **TRENT Inc.**
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- **International Thermal Systems**
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- **JPW Industrial Ovens & Furnaces**
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- Langly Co.
- LEWCO Inc.
- **Lindberg/MPH**

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- **Pillar Induction**
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- **Taylor-Winfield Technologies Inc.**
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Thermal Product Solutions (TPS LLC)
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Thermo Transfer Inc.
- **TRENT Inc.**
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- **W.H. Kay Co.**
- **Wisconsin Oven Corp.**

Pusher

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- **International Thermal Systems**
- **J.L. Becker**
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Lanly Co.
- **Lindberg/MPH**
- **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
Noble Industrial Furnace Co. Inc.
- **Pillar Induction**
Premier Furnace Specialists Inc.
Sargeant & Wilbur Inc.
- **SECO/WARWICK Corp.**
Sinterite
- **Surface Combustion Inc.**
Tenova Inc. (LOI Thermprocess)
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Wellman Furnaces Inc.

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- **Applied Test Systems**
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CoorsTek
- **Custom Electric Manufacturing Co.**
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Lanly Co.
- **Lindberg/MPH**
- **McLaughlin Furnace Group LLC**
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Noble Industrial Furnace Co. Inc.
Premier Furnace Specialists Inc.
Pyradia Inc.
- **Qual-Fab Inc.**
RAD-CON Inc.

- Sargeant & Wilbur Inc.
- **SECO/WARWICK Corp.**
- **Surface Combustion Inc.**
Tenova Inc. (LOI Thermprocess)
Thermaltek Inc.
- **Thermcraft Inc.**
Thermo Transfer Inc.
Unitherm Furnace LLC
Upton Industries Inc.
Wellman Furnaces Inc.
- **W.H. Kay Co.**
- **Wisconsin Oven Corp.**
- **WS Thermal Process Technology Inc.**

Recuperative

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Babcock & Wilcox MEGTEC
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- **Consolidated Engineering Co.**
Consolidated Equipment
- **Epcon Industrial Systems LP**
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- **Applied Test Systems**
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BeaverMatic Inc.
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- **Can-Eng Furnaces International Ltd.**
Casso-Solar Technologies LLC
- **Clark Power Systems Inc.**
- **CMI Industry Americas Inc.**
- **Consolidated Engineering Co.**
Consolidated Equipment
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Harrop Industries Inc.
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Inductoheat Inc.
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 - **J.L. Becker**
Kanthal
 - **L & L Special Furnace Co. Inc.**
 - **Lindberg/MPH**
 - **National Element Inc.**
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 - **PVT Inc.**
Pyradia Inc.
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 - **T-M Vacuum Products**
 - **Taylor-Winfield Technologies Inc.**
Thermaltek Inc.
 - **Thermcraft Inc.**
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 - **TRENT Inc.**
Unitherm Furnace LLC
Upton Industries Inc.
 - **Wisconsin Oven Corp.**

Retort

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Applied Heat Technologies Pty. Ltd.
- **Applied Test Systems**
Arnil CFS
BeaverMatic Inc.
BOSIO d.o.o.
 - **C.I. Hayes**
 - **Can-Eng Furnaces International Ltd.**
 - **Clark Power Systems Inc.**
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DOWA THT America Inc.
Elnik Systems LLC
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 - **G-M Enterprises**
 - **Graphite Furnace Systems LLC**
Harper International
Harrop Industries Inc.
 - **Heat Treat Equipment Co.**
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 - **J.L. Becker**
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Sinterite
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 - **Thermcraft Inc.**
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 - **CMI Industry Americas Inc.**
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Harper International
 - **Heat Treat Equipment Co.**
 - **Ipsen**
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 - **Lindberg/MPH**
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 - **Qual-Fab Inc.**
 - **SECO/WARWICK Corp.**
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 - **Thermcraft Inc.**
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 - **W.H. Kay Co.**

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Upton Industries Inc.

Waste Treatment Systems

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Upton Industries Inc.

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- **BTU International**
- **C.I. Hayes**
Fluke Process Instruments
- **Ipsen**
- **JPW Industrial Ovens & Furnaces**
- **McLaughlin Furnace Group LLC**
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PVA Industrial Vacuum Systems GmbH
- **SECO/VACUUM Technologies LLC**
Sinterite
SOLO Swiss SA
TAV VACUUM FURNACES
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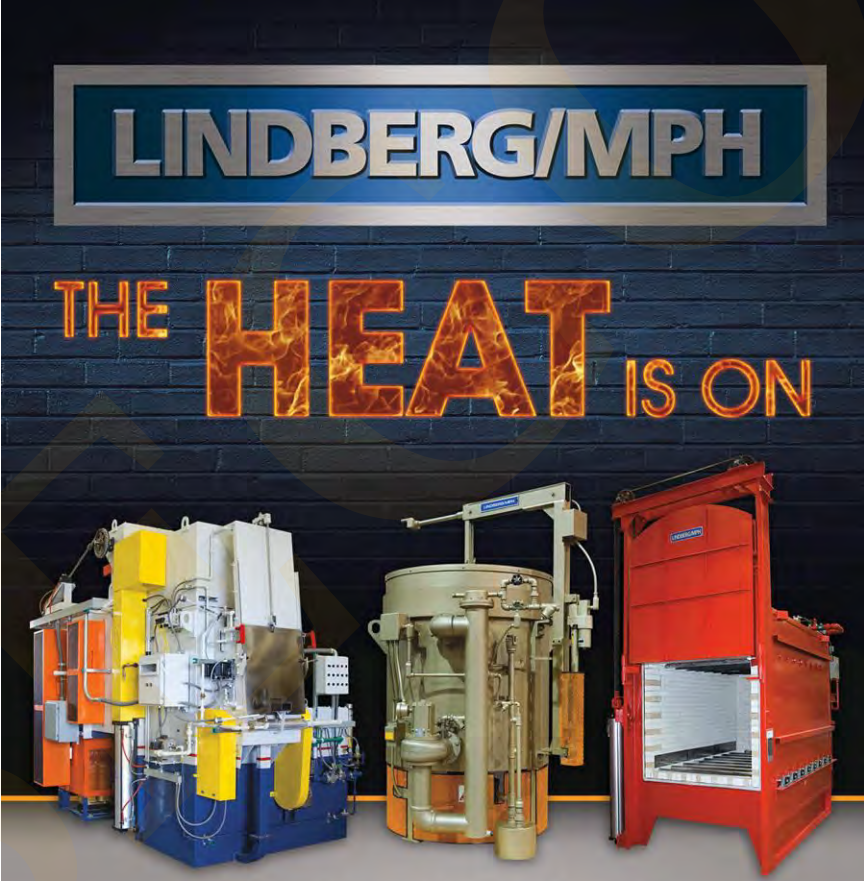
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- **Ajax TOCCO Magnethermic**
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- **International Thermal Systems**
- **Ipsen**
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Pyradia Inc.
- **SECO/WARWICK Corp.**
- **Surface Combustion Inc.**
Tenova Inc. (LOI Thermprocess)
Thermo Transfer Inc.
Tim Bolduan Equipment LLC
Upton Industries Inc.
- **W.H. Kay Co.**
- **Wisconsin Oven Corp.**

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- **Lindberg/MPH**
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Pyradia Inc.
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Upton Industries Inc.
Wellman Furnaces Inc.
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- **C.I. Hayes**
- **Centorr Vacuum Industries**
Consolidated Equipment
- **DMP CryoSystems**
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The Grieve Corp.
- **Heat Treat Equipment Co.**
- **Ipsen**
- **L & L Special Furnace Co. Inc.**
- **Lindberg/MPH**
Noble Industrial Furnace Co. Inc.
Premier Furnace Specialists Inc.
Procedyne Corp.
Sinterite
- **Surface Combustion Inc.**
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Tube

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- Tenova Inc. (LOI Thermprocess)
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- ▶ **Thermcraft Inc.**

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- Consarc
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- Engineered Product Sales Corp.



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- Mowry Enterprises Inc.
- Nitrex Inc.
- Noble Industrial Furnace Co. Inc.
- Oxy-Gon Industries Inc.
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- Retech Systems LLC
- Signature Vacuum Systems Inc.
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- Grammer Vacuum Technologies Inc.
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
- Mercer Technologies Inc.
- Oxy-Gon Industries Inc.
- ▶ **Pillar Induction**
- Premier Furnace Specialists Inc.

PVA Industrial Vacuum Systems GmbH



PVT

An Inductotherm Group Company

- ▶ **PVT Inc.**
- ▶ **SECO/VACUUM Technologies LLC**
- SGL Carbon
- Signature Vacuum Systems Inc.



- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
- TAV VACUUM FURNACES
- ▶ **Taylor-Winfield Technologies Inc.**
- VAC AERO International Inc.
- ▶ **Verder Scientific Inc.**
- ▶ **W.H. Kay Co.**



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Mntce. & Ops. Costs	Mntce. & Ops. Costs
Purchase Costs	Purchase Costs

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PRODUCT DIRECTORY FURNACES, OVENS & KILNS

Degassing

- A-VAC Industries
- ▶ **Ajax TOCCO Magnethermic**
Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Consarc
Consolidated Equipment
Grammer Vacuum Technologies Inc.
- ▶ **McLaughlin Furnace Group LLC**
- ▶ **PVT Inc.**
Retch Systems LLC
Signature Vacuum Systems Inc.
- ▶ **Solar Manufacturing**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES

Melting/Casting

- Ace Industrial Manufacturing
- ▶ **Ajax TOCCO Magnethermic**
Busch Vacuum Pumps and Systems
- ▶ **Centorr Vacuum Industries**
- ▶ **Clark Power Systems Inc.**
Consarc
Consolidated Equipment
- ▶ **McLaughlin Furnace Group LLC**
- ▶ **Pillar Induction**
PVA Industrial Vacuum Systems GmbH
- ▶ **PVT Inc.**
Retch Systems LLC
Signature Vacuum Systems Inc.
- ▶ **T-M Vacuum Products**
- ▶ **Ultraflex Power Technologies**
ULVAC Technologies

Vacuum Furnace

Convection-Assisted Heating

- ALD Vacuum Systems Inc.
- BeaverMatic Inc.
- Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Clark Power Systems Inc.**
Consolidated Equipment
- ▶ **ECM USA Inc.**
Grammer Vacuum Technologies Inc.
- ▶ **Ipsen**
Nettec Corp.
Premier Furnace Specialists Inc.
SGL Carbon
Signature Vacuum Systems Inc.
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES

Hardening

- Ace Industrial Manufacturing
- ACROSS USA Inc.
- ▶ **ALD Thermal Treatment Inc.**
ALD Vacuum Systems Inc.
BeaverMatic Inc.
Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
- ▶ **Clark Power Systems Inc.**
Consolidated Equipment
- ▶ **ECM USA Inc.**
Elnik Systems LLC
Grammer Vacuum Technologies Inc.
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
- ▶ **Lindberg/MPH**
- ▶ **McLaughlin Furnace Group LLC**
Nitrex Inc.
Premier Furnace Specialists Inc.
- ▶ **SECO/VACUUM Technologies LLC**
SGL Carbon
Signature Vacuum Systems Inc.
- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**

- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES
- Tim Bolduan Equipment LLC
- ▶ **VAC AERO International Inc.**
- ▶ **W.H. Kay Co.**

High-Pressure Gas Quench (3+ Bar)

- ▶ **ALD Thermal Treatment Inc.**
ALD Vacuum Systems Inc.
Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Consolidated Equipment
- ▶ **ECM USA Inc.**
Furnace Brokers International
Grammer Vacuum Technologies Inc.
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
Nitrex Inc.

SECO/VACUUM

The North American Vacuum Furnace Company

- ▶ **SECO/VACUUM Technologies LLC**
SGL Carbon
Signature Vacuum Systems Inc.

SOLAR MANUFACTURING

- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES

VAC AERO INTERNATIONAL INC.

- ▶ **VAC AERO International Inc.**

Hot Zone

- ACROSS USA Inc.
- Busch Vacuum Pumps and Systems
- ▶ **Clark Power Systems Inc.**
Consarc
Consolidated Equipment
Elmet Technologies LLC
Grammer Vacuum Technologies Inc.
- ▶ **Graphite Furnace Systems LLC**
H.C. Starck Inc.
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
Mowry Enterprises Inc.
- ▶ **Pillar Induction**
Premier Furnace Specialists Inc.
- ▶ **SECO/VACUUM Technologies LLC**
SGL Carbon
Signature Vacuum Systems Inc.
- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES
- ▶ **VAC AERO International Inc.**

Low-Pressure Gas Quench (0 to 2 Bar)

- ALD Vacuum Systems Inc.
- BeaverMatic Inc.
- Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Consarc
Consolidated Equipment
- ▶ **ECM USA Inc.**
Elnik Systems LLC

- Furnace Brokers International
- Grammer Vacuum Technologies Inc.
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
- ▶ **Lindberg/MPH**
- ▶ **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
Nitrex Inc.
Oxy-Gon Industries Inc.
- ▶ **PVT Inc.**
- ▶ **SECO/VACUUM Technologies LLC**
SGL Carbon
Signature Vacuum Systems Inc.

SOLAR MANUFACTURING

- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES



VAC AERO INTERNATIONAL INC.

- ▶ **VAC AERO International Inc.**

Semi-Continuous

- ▶ **Ajax TOCCO Magnethermic**
Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Consarc
- ▶ **ECM USA Inc.**
- ▶ **Graphite Furnace Systems LLC**
- ▶ **Ipsen**
Mowry Enterprises Inc.
Premier Furnace Specialists Inc.
- ▶ **SECO/VACUUM Technologies LLC**
SGL Carbon
Signature Vacuum Systems Inc.
- ▶ **Surface Combustion Inc.**
TAV VACUUM FURNACES
- ▶ **W.H. Kay Co.**

Sintering

- ACROSS USA Inc.
- ▶ **Ajax TOCCO Magnethermic**
BeaverMatic Inc.
Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Cober Inc.
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Consolidated Equipment
- ▶ **ECM USA Inc.**
Elnik Systems LLC
Furnace Brokers International
Grammer Vacuum Technologies Inc.
- ▶ **Graphite Furnace Systems LLC**
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
Mowry Enterprises Inc.
Oxy-Gon Industries Inc.
- ▶ **PVT Inc.**
- ▶ **SECO/VACUUM Technologies LLC**
SGL Carbon
Signature Vacuum Systems Inc.
- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES
- ▶ **VAC AERO International Inc.**
- ▶ **Verder Scientific Inc.**

Tempering

- Ace Industrial Manufacturing
- ▶ **ALD Thermal Treatment Inc.**
ALD Vacuum Systems Inc.

- BeaverMatic Inc.
- Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Consolidated Equipment
- ▶ **ECM USA Inc.**
Fluke Process Instruments
Furnace Brokers International
Grammer Vacuum Technologies Inc.
- ▶ **Graphite Furnace Systems LLC**
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
Mowry Enterprises Inc.
Premier Furnace Specialists Inc.
- ▶ **PVT Inc.**
- ▶ **SECO/VACUUM Technologies LLC**
Signature Vacuum Systems Inc.
- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES
- ▶ **VAC AERO International Inc.**

Tool Room

- Ace Industrial Manufacturing
- ALD Vacuum Systems Inc.
- BeaverMatic Inc.
- Busch Vacuum Pumps and Systems
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Consolidated Equipment
Elnik Systems LLC
Furnace Brokers International
Grammer Vacuum Technologies Inc.
- ▶ **Graphite Furnace Systems LLC**
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
Mowry Enterprises Inc.
Premier Furnace Specialists Inc.
Signature Vacuum Systems Inc.
- ▶ **Solar Manufacturing**
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
TAV VACUUM FURNACES
- ▶ **VAC AERO International Inc.**

Walking Beam

- ▶ **AFC-HOLCROFT**
- ▶ **Ajax TOCCO Magnethermic**
Aihern-Martin Indl. Furnace Co.
Andritz Metals Inc.
Armil CFS
BeaverMatic Inc.
BOSIO d.o.o.
- ▶ **C.I. Hayes**
- ▶ **Can-Eng Furnaces International Ltd.**
- ▶ **CMI Industry Americas Inc.**
- ▶ **Consolidated Engineering Co.**
Consolidated Equipment
Despatch - ITW EAE
Fives North American Construction Services, Ltd.
- ▶ **Heat Treat Equipment Co.**
- ▶ **Ipsen**
Irwin Car and Equipment
Lanly Co.
- ▶ **Lindberg/MPH**
Noble Industrial Furnace Co. Inc.
O'Brien & Gere
- ▶ **Pillar Induction**
Premier Furnace Specialists Inc.
- ▶ **PVT Inc.**
Sargeant & Wilbur Inc.
- ▶ **SECO/WARWICK Corp.**
- ▶ **Surface Combustion Inc.**
Tenova Inc. (LOI Thermprocess)
- ▶ **Thermcraft Inc.**
Thermo Transfer Inc.
Wellman Furnaces Inc.
- ▶ **Wisconsin Oven Corp.**

PRODUCT DIRECTORY

FURNACE ATMOSPHERES & GASES

FURNACE
ATMOSPHERES
& GASES

Acetylene

- Harper International
- ▶ Ipsen
- ▶ Linde LLC
- Noble Industrial Furnace Co. Inc.

Ammonia

- Alhern-Martin Indl. Furnace Co.
- Harper International
- ▶ Ipsen
- ▶ Linde LLC
- ▶ McLaughlin Furnace Group LLC

Argon

- ▶ Air Products and Chemicals Inc.
- Harper International
- Hi-Tech Furnace Systems Inc.
- ▶ Ipsen

- ▶ Linde LLC
- ▶ McLaughlin Furnace Group LLC
- Noble Industrial Furnace Co. Inc.
- Oxy-Gon Industries Inc.
- ▶ Praxair Inc.

Carbon Dioxide

- Harper International
- ▶ Ipsen
- ▶ Linde LLC
- Noble Industrial Furnace Co. Inc.
- ▶ Praxair Inc.

Carburizing Gases

- Alhern-Martin Indl. Furnace Co.
- Harper International
- ▶ Ipsen
- ▶ J.L. Becker
- ▶ Linde LLC
- ▶ McLaughlin Furnace Group LLC
- Noble Industrial Furnace Co. Inc.
- ▶ SECO/WARWICK Corp.
- ▶ Surface Combustion Inc.

Helium

- ▶ Air Products and Chemicals Inc.
- Harper International
- ▶ Ipsen
- ▶ Linde LLC
- Oxy-Gon Industries Inc.
- ▶ Praxair Inc.

Hydrogen

- ▶ Air Products and Chemicals Inc.
- Elnik Systems LLC
- Harper International
- Hi-Tech Furnace Systems Inc.
- ▶ Ipsen
- ▶ Linde LLC
- Nel Hydrogen
- Noble Industrial Furnace Co. Inc.
- Oxy-Gon Industries Inc.
- ▶ Praxair Inc.
- RAD-CON Inc.
- Sargeant & Wilbur Inc.
- ▶ Surface Combustion Inc.

Inert Gases

- ▶ Air Products and Chemicals Inc.
- Alhern-Martin Indl. Furnace Co.
- ▶ Applied Test Systems
- Elnik Systems LLC
- The Grieve Corp.
- Harper International
- ▶ Ipsen
- ▶ J.L. Becker
- ▶ Linde LLC
- ▶ McLaughlin Furnace Group LLC
- Nel Hydrogen
- Noble Industrial Furnace Co. Inc.
- ▶ Praxair Inc.
- ▶ Surface Combustion Inc.
- Thermo Transfer Inc.

Methane

- Harper International
- ▶ Ipsen
- ▶ Linde LLC

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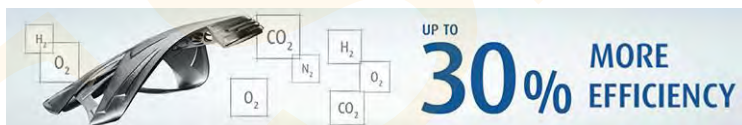
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Nitrogen

Liquid

- ▶ Air Products and Chemicals Inc.
- ▶ DMP CryoSystems



- ▶ Linde LLC



- ▶ Praxair Inc.

Membrane

- ▶ Air Products and Chemicals Inc.
- ▶ Linde LLC
Nel Hydrogen
- ▶ Praxair Inc.

PSA Generators

- ▶ Air Products and Chemicals Inc.
- ▶ Linde LLC
Nel Hydrogen
Wellman Furnaces Inc.

Oxidizing Gases

- ▶ Air Products and Chemicals Inc.
Harper International
- ▶ Linde LLC
- ▶ Surface Combustion Inc.

Oxygen



- ▶ Air Products and Chemicals Inc.
Harper International
- ▶ Linde LLC
- ▶ Praxair Inc.

PSA Generators

- ▶ Air Products and Chemicals Inc.
- ▶ Linde LLC

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Propane

- Harper International
- Linde LLC
- McLaughlin Furnace Group LLC
- Wellman Furnaces Inc.

Reducing Gases

- Air Products and Chemicals Inc.
- Harper International
- Linde LLC
- Nel Hydrogen
- Oxy-Gon Industries Inc.
- Sargeant & Wilbur Inc.
- Surface Combustion Inc.

Steam

- Air Products and Chemicals Inc.
- Harper International
- Linde LLC
- Sinterite
- Thermo Transfer Inc.
- Wellman Furnaces Inc.



2018
Buyers Guide
In Print and
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COMPONENTS, SUPPLIES & MATERIALS

COMPONENTS,
SUPPLIES &
MATERIALS

Alarms

- Conrad Kacsik Instrument Systems Inc.
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- **Protection Controls Inc.**
Rockwell Automation Inc.

Alloys

- Alhern-Martin Indl. Furnace Co.
BeaverMatic Inc.
- **Castalloy Inc.**
Elmet Technologies LLC
- H.C. Starck Inc.
Heat Treat Central
Heat Treating Services Unlimited Inc.
Hi-Tech Furnace Systems Inc.
Hyndman Industrial Products Inc.
- **J.L. Becker**
Johnson Bros. Roll Forming Co.
- **McLaughlin Furnace Group LLC**
Performance Industrial Products LLC
Premier Furnace Specialists Inc.
- **Qual-Fab Inc.**
Rolled Alloys
- **SAFE Cronite Inc.**
Thermo Transfer Inc.

Castings

Alcon Industries Inc.
BeaverMatic Inc.

- **Castalloy Inc.**
- **Ferralloy Inc.**
Heat Treat Central
Hi-Tech Furnace Systems Inc.
- **J.L. Becker**
Performance Industrial Products LLC
Premier Furnace Specialists Inc.
Pro-Tech Co. Inc.
- **SAFE Cronite Inc.**

Fabricators

- **Ajax Electric Company**
Alcon Industries Inc.
Alhern-Martin Indl. Furnace Co.
AMECO USA (American Manufacturing & Engineering Co.)
Elmet Technologies LLC
- **Ferralloy Inc.**
Fives North American Construction Services, Ltd.
- **G-M Enterprises**
Grammer Vacuum Technologies Inc.
H.C. Starck Inc.
Hi-Tech Furnace Systems Inc.
Industrial Furnace Interiors Inc. (IFI Inc.)
- **J.L. Becker**
Johnson Bros. Roll Forming Co.
- **National Element Inc.**
Performance Industrial Products LLC
Premier Furnace Specialists Inc.
Pro-Tech Co. Inc.
- **Qual-Fab Inc.**
- **SAFE Cronite Inc.**
Sargeant & Wilbur Inc.

Sticker Corp.
Thermo Transfer Inc.

Heat-Resistant

Alcon Industries Inc.
Alhern-Martin Indl. Furnace Co.
AMECO USA (American Manufacturing & Engineering Co.)
BeaverMatic Inc.



- **Castalloy Inc.**
- **Ferralloy Inc.**
Fives North American Construction Services, Ltd.
Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
- **Hi-Temp Products Corp.**
Industrial Furnace Interiors Inc. (IFI Inc.)
- **J.L. Becker**
Johnson Bros. Roll Forming Co.
Kanthal
- **National Element Inc.**
Performance Industrial Products LLC
Premier Furnace Specialists Inc.
Pro-Tech Co. Inc.



- **Qual-Fab Inc.**

Rolled Alloys



- **SAFE Cronite Inc.**

Low Melting

Johnson Bros. Roll Forming Co.

Baffles

- Agilent Technologies
Alhern-Martin Indl. Furnace Co.
AMECO USA (American Manufacturing & Engineering Co.)
BeaverMatic Inc.
Bloom Engineering Co. Inc.
Ceramic Solutions Inc.
Fives North American Construction Services, Ltd.
- **J.L. Becker**
Johnson Bros. Roll Forming Co.
- **McLaughlin Furnace Group LLC**
Nettec Corp.
Premier Furnace Specialists Inc.
- **Qual-Fab Inc.**
SGL Carbon
Wellman Furnaces Inc.

Baskets

- Alcon Industries Inc.
Alhern-Martin Indl. Furnace Co.
AMECO USA (American Manufacturing & Engineering Co.)
BeaverMatic Inc.
- **Castalloy Inc.**

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- ➔ SPECIALTY BASKETS
- ➔ RETORTS
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- ➔ ANY TYPE OF ALLOY FABRICATION

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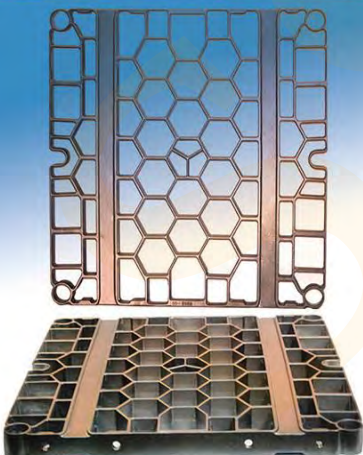
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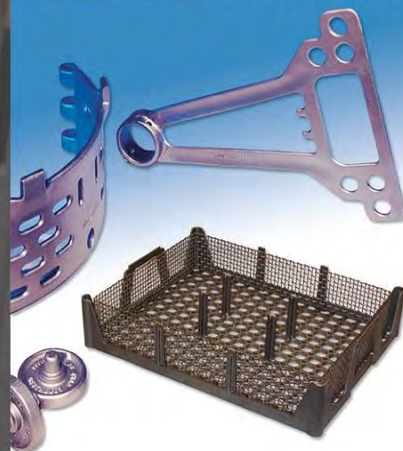
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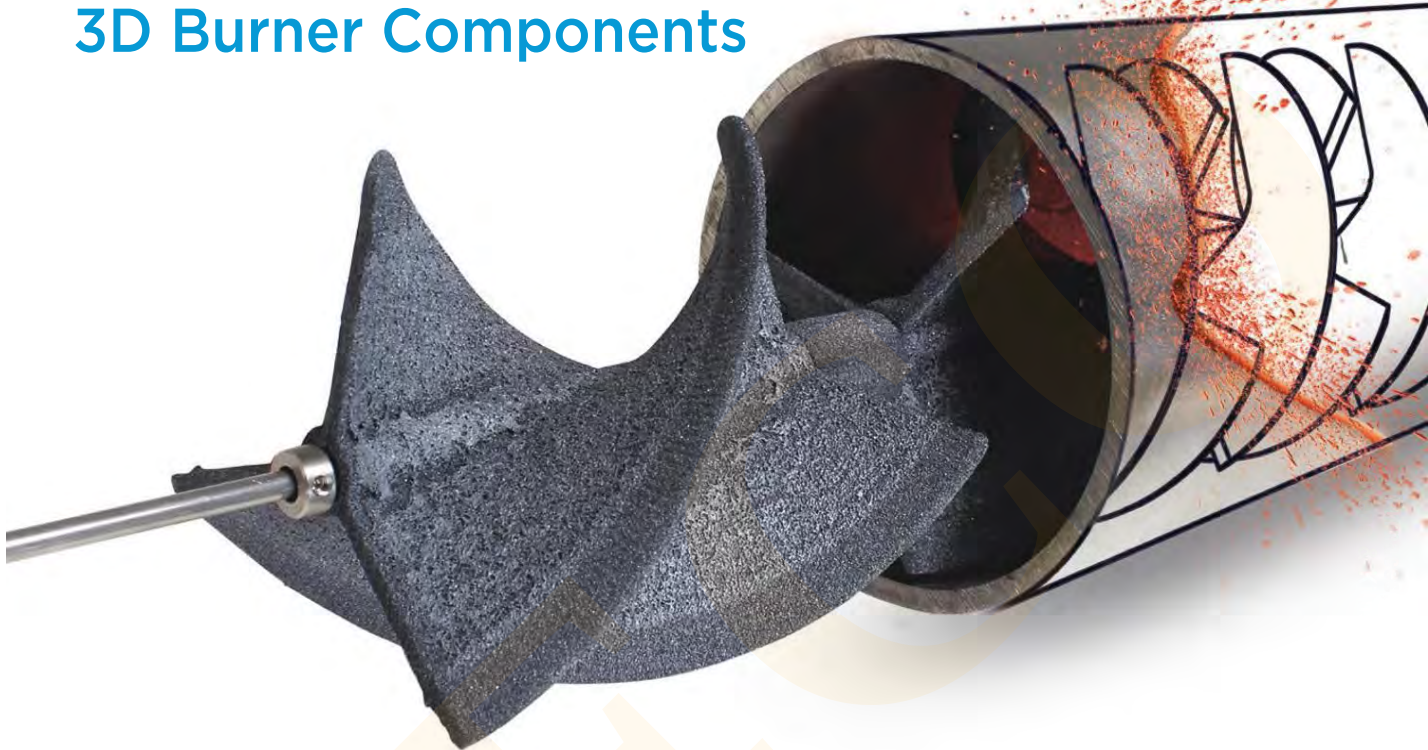


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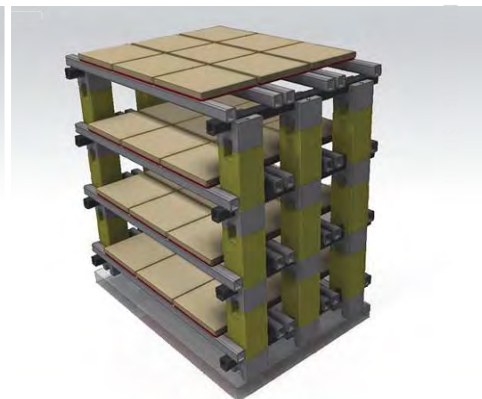
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- ▶ **Ferralloy Inc.**
Fives North American Construction Services, Ltd.
- ▶ **G-M Enterprises**
Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
- ▶ **Ipsen**
- ▶ **J.L. Becker**
- ▶ **Lindberg/MPH**
- ▶ **McLaughlin Furnace Group LLC**
Premier Furnace Specialists Inc.
Pro-Tech Co. Inc.
- ▶ **Qual-Fab Inc.**
- ▶ **SAFE Cronite Inc.**
SGL Carbon
Sinterite
- ▶ **Surface Combustion Inc.**

Bearings

- AirPro Fan & Blower Co.
BeaverMatic Inc.
CoorsTek
- ▶ **DeKalb Blower Inc.**
Graphite Metallizing Corp.,
GRAPHALLOY
Induction Systems Inc.
- ▶ **Ipsen**
Irwin Car and Equipment
- ▶ **J.L. Becker**
- ▶ **McLaughlin Furnace Group LLC**
Wellman Furnaces Inc.

Belts

High-Temperature

Alhern-Martin Indl. Furnace Co.

- AMECO USA (American Manufacturing & Engineering Co.)
BeaverMatic Inc.
- ▶ **Castalloy Inc.**
- ▶ **Centorr Vacuum Industries**
- ▶ **J.L. Becker**
- ▶ **McLaughlin Furnace Group LLC**
Mid-Mountain Materials Inc.
- ▶ **National Element Inc.**
Neftec Corp.
Performance Industrial Products LLC
Premier Furnace Specialists Inc.
Pro-Tech Co. Inc.
- ▶ **Qual-Fab Inc.**
- ▶ **SAFE Cronite Inc.**
Sinterite
Wellman Furnaces Inc.

Wire Mesh

- Alhern-Martin Indl. Furnace Co.
BeaverMatic Inc.
Hi-Tech Furnace Systems Inc.
- ▶ **J.L. Becker**
- ▶ **McLaughlin Furnace Group LLC**
- ▶ **National Element Inc.**
Premier Furnace Specialists Inc.
- ▶ **Qual-Fab Inc.**
Sargeant & Wilbur Inc.
Sinterite

Woven Wire

- Alhern-Martin Indl. Furnace Co.
BeaverMatic Inc.
Hi-Tech Furnace Systems Inc.
- ▶ **J.L. Becker**
- ▶ **McLaughlin Furnace Group LLC**
- ▶ **National Element Inc.**
Premier Furnace Specialists Inc.
- ▶ **Qual-Fab Inc.**
Sinterite

Billet Feeders

- ▶ **Ajax TOCCO Magnethermic**
Fives North American Construction Services, Ltd.
Induction Systems Inc.
- ▶ **Pillar Induction**

Blowers

- A-VAC Industries
AirPro Fan & Blower Co.
Alhern-Martin Indl. Furnace Co.
BeaverMatic Inc.
- ▶ **DeKalb Blower Inc.**
Fives North American Combustion, Inc.
Induction Systems Inc.
- ▶ **Ipsen**
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- ▶ **McLaughlin Furnace Group LLC**
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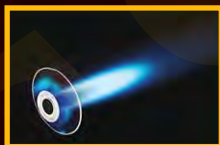
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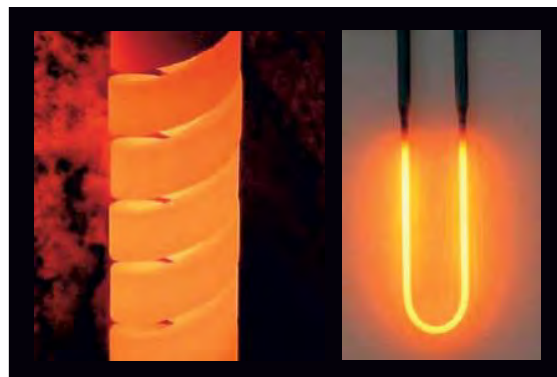


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- **McLaughlin Furnace Group LLC**
Premier Furnace Specialists Inc.
- **Qual-Fab Inc.**
Signature Vacuum Systems Inc.
Sinterite
- **Surface Combustion Inc.**

Gas Generators

- **AFC-HOLCROFT**
- **Air Products and Chemicals Inc.**
Alhern-Martin Indl. Furnace Co.

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COMPONENTS, SUPPLIES & MATERIALS

- BeaverMatic Inc.
 ▶ **C.I. Hayes**
 ▶ **Can-Eng Furnaces International Ltd.**
 ▶ **J.L. Becker**
 ▶ **Lindberg/MPH**
 ▶ **McLaughlin Furnace Group LLC**
 Mercer Technologies Inc.
 Nel Hydrogen
 Premier Furnace Specialists Inc.
 Sargeant & Wilbur Inc.
 ▶ **SECO/WARWICK Corp.**
 ▶ **Surface Combustion Inc.**
 Thermo Transfer Inc.
 Wellman Furnaces Inc.

Williams
Industrial
Service, Inc.

- ▶ Williams Industrial Service Inc.

Ammonia Dissociators

- Alhern-Martin Indl. Furnace Co.
 BeaverMatic Inc.
 ▶ **C.I. Hayes**
 ▶ **J.L. Becker**
 ▶ **Lindberg/MPH**
 ▶ **McLaughlin Furnace Group LLC**
 Nitrex Inc.
 Premier Furnace Specialists Inc.
 Sargeant & Wilbur Inc.
 ▶ **SECO/WARWICK Corp.**
 Sinterite
 ▶ **Surface Combustion Inc.**
 Thermo Transfer Inc.
 Wellman Furnaces Inc.

Endothermic Generators

- ▶ **AFC-HOLCROFT**
 Alhern-Martin Indl. Furnace Co.
 BeaverMatic Inc.
 ▶ **C.I. Hayes**
 ▶ **Can-Eng Furnaces International Ltd.**
 DOWA THT America Inc.
 Grammer Vacuum Technologies Inc.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **Lindberg/MPH**
 ▶ **McLaughlin Furnace Group LLC**
 Premier Furnace Specialists Inc.
 Sargeant & Wilbur Inc.
 ▶ **SECO/WARWICK Corp.**
 Sinterite
 ▶ **Surface Combustion Inc.**
 Tenova Inc. (LOI Thermprocess)
 Thermo Transfer Inc.
 Unitherm Furnace LLC
 Wellman Furnaces Inc.

Exothermic Generators

- ▶ **AFC-HOLCROFT**
 Alhern-Martin Indl. Furnace Co.
 BeaverMatic Inc.
 ▶ **C.I. Hayes**
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **Lindberg/MPH**
 ▶ **McLaughlin Furnace Group LLC**
 Premier Furnace Specialists Inc.
 Sargeant & Wilbur Inc.
 ▶ **SECO/WARWICK Corp.**
 Sinterite
 ▶ **Surface Combustion Inc.**

Tenova Inc. (LOI Thermprocess)
 Thermo Transfer Inc.
 Unitherm Furnace LLC
 Wellman Furnaces Inc.

Hydrogen Generators

- ▶ **Air Products and Chemicals Inc.**
 ▶ **Linde LLC**
 Nel Hydrogen
 ▶ **Praxair Inc.**
 ▶ **Surface Combustion Inc.**

Plasma

- ▶ **EFD Induction Inc.**

Gas Recovery

- ▶ **Air Products and Chemicals Inc.**
 ULVAC Technologies

Gaskets

- Agilent Technologies
 AirPro Fan & Blower Co.
 BeaverMatic Inc.
 ▶ **G-M Enterprises**
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 Kurt J. Lesker Company
 ▶ **McLaughlin Furnace Group LLC**
 ▶ **Metallurgical High Vacuum Corp.**
 Mid-Mountain Materials Inc.
 ▶ **National Element Inc.**
 Premier Furnace Specialists Inc.

Specialty Gaskets Inc.
 Wellman Furnaces Inc.
 ZAR-TECH

Gaskets, High-Temperature

- Agilent Technologies
 AirPro Fan & Blower Co.
 Alhern-Martin Indl. Furnace Co.
 BeaverMatic Inc.
 CoorsTek
 ▶ **G-M Enterprises**
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 Mid-Mountain Materials Inc.
 Morgan Advanced Materials
 Premier Furnace Specialists Inc.
 SGL Carbon
 Specialty Gaskets Inc.
 Tim Bolduan Equipment LLC
 ZAR-TECH
 ▶ **ZIRCAR Ceramics Inc.**

Graphite

- ACROSS USA Inc.
 ▶ **Ajax TOCCO Magnethermic**
 ▶ **Avion Manufacturing Co.**
 ▶ **Clark Power Systems Inc.**
 Hi-Tech Furnace Systems Inc.
 ▶ **Ipsen**
 ▶ **McLaughlin Furnace Group LLC**
 Neftec Corp.
 SGL Carbon
 Specialty Gaskets Inc.
 Tim Bolduan Equipment LLC



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Grids

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- Alcon Industries Inc.
- Alhern-Martin Indl. Furnace Co.
- AMECO USA (American Manufacturing & Engineering Co.)
- **Castalloy Inc.**
- **G-M Enterprises**
- Hi-Tech Furnace Systems Inc.
- **Ipsen**
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- Pro-Tech Co. Inc.
- **Qual-Fab Inc.**
- **SAFE Cronite Inc.**
- SGL Carbon

Grinders

- Allied High Tech Products Inc.
- LECO Corp.
- Struers Inc.

Hearth Plates

- Alcon Industries Inc.
- Alhern-Martin Indl. Furnace Co.
- AMECO USA (American Manufacturing & Engineering Co.)
- BeaverMatic Inc.
- **C.I. Hayes**
- Ceramic Solutions Inc.
- Elmet Technologies LLC
- Elnik Systems LLC
- **G-M Enterprises**
- H.C. Starck Inc.
- Harrop Industries Inc.
- Hi-Tech Furnace Systems Inc.

Holland Manufacturing Corp.

- **Holland Manufacturing**
- **Ipsen**
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- **National Element Inc.**
- Neftec Corp.
- Performance Industrial Products LLC
- Premier Furnace Specialists Inc.
- Pro-Tech Co. Inc.
- **Qual-Fab Inc.**
- **Saint-Gobain High Performance Ceramics & Refractories**
- Sargeant & Wilbur Inc.
- Wellman Furnaces Inc.

Heat Exchangers

- Alhern-Martin Indl. Furnace Co.
- AMECO USA (American Manufacturing & Engineering Co.)
- BeaverMatic Inc.
- Bloom Engineering Co. Inc.
- Chromalox
- Convectronics Inc.
- **Delta Cooling Towers**



- **Dry Coolers Inc.**
- Durex Industries
- East Coast Induction Inc.
- **Epcor Industrial Systems LP**
- Fives North American Combustion, Inc.

Fives North American Construction Services, Ltd.

- **G-M Enterprises**
- Harbridge Systems LLC
- Honeywell Thermal Solutions
- HydroThrift Corp.
- Induction Systems Inc.
- **INEX Inc.**
- **Ipsen**
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- Mokon
- Neftec Corp.
- **Pillar Induction**
- Premier Furnace Specialists Inc.
- **Qual-Fab Inc.**
- Sentry Equipment Corp.
- Signature Vacuum Systems Inc.
- Specialty Gaskets Inc.
- Sticker Corp.
- Thermal Care Inc.
- **TRENT Inc.**
- Wellman Furnaces Inc.

Heat Transfer Fluids

- Chemtool Inc.
- Induction Systems Inc.
- Kurt J. Lesker Company
- Mokon

Heaters

- ACROSS USA Inc.
- Casso-Solar Technologies LLC
- Conrad Kacsik Instrument Systems Inc.
- Convectronics Inc.
- Dalton Electric Heating Co. Inc.
- Harbridge Systems LLC

Heraeus Sensor Technology USA

- Hyndman Industrial Products Inc.
- Induction Systems Inc.
- **McLaughlin Furnace Group LLC**
- **Metallurgical High Vacuum Corp.**
- Selas Heat Technology Co. LLC
- Watlow Electric Manufacturing Co.

Cartridge

Conrad Kacsik Instrument Systems Inc.

- Dalton Electric Heating Co. Inc.
- Durex Industries
- Induction Systems Inc.
- **Ipsen**
- **Thermocouple Technology LLC**
- Watlow Electric Manufacturing Co.

Immersion Heater

- **Ajax Electric Company**
- Alhern-Martin Indl. Furnace Co.
- BeaverMatic Inc.
- Chromalox
- **Clark Power Systems Inc.**
- Conrad Kacsik Instrument Systems Inc.
- Dalton Electric Heating Co. Inc.
- Durex Industries
- Induction Systems Inc.
- **Ipsen**
- **J.L. Becker**
- **L & L Special Furnace Co. Inc.**
- **Lindberg/MPH**
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PRODUCT DIRECTORY

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Vacuum Diffusion Pump

- BeaverMatic Inc.
- Dalton Electric Heating Co. Inc.
- Ipsen
- McLaughlin Furnace Group LLC
- Metallurgical High Vacuum Corp.

Wrap-Around Heaters

- Chromalox
- Clark Power Systems Inc.
- Conrad Kacsik Instrument Systems Inc.
- Durex Industries
- Thermcraft Inc.
- TRENT Inc.
- Watlow Electric Manufacturing Co.

Hoists

- Ajax Electric Company
- Elnik Systems LLC

Hoods

- AMECO USA (American Manufacturing & Engineering Co.)
- BeaverMatic Inc.
- McLaughlin Furnace Group LLC
- Qual-Fab Inc.
- Sinterite
- Sticker Corp.
- Wellman Furnaces Inc.

Hot Zones, Vacuum Furnaces

- ACROSS USA Inc.
- Ajax TOCCO Magnethermic
- BeaverMatic Inc.

- C.I. Hayes
- Centorr Vacuum Industries
- Clark Power Systems Inc.
- Consarc
- Elmet Technologies LLC
- H.C. Starck Inc.
- Ipsen
- McLaughlin Furnace Group LLC
- Mercer Technologies Inc.
- Neftec Corp.
- Oxy-Gon Industries Inc.
- SECO/WARWICK Corp.
- SGL Carbon
- Signature Vacuum Systems Inc.
- Solar Manufacturing
- Surface Combustion Inc.



VAC AERO
INTERNATIONAL INC.

- VAC AERO International Inc.

Impellers

- Alcon Industries Inc.
- AMECO USA (American Manufacturing & Engineering Co.)
- G-M Enterprises
- Induction Systems Inc.
- Ipsen
- McLaughlin Furnace Group LLC
- Neftec Corp.
- Qual-Fab Inc.
- Surface Combustion Inc.

Joints, Expansion

- AMECO USA (American Manufacturing & Engineering Co.)

- Mid-Mountain Materials Inc.
- Qual-Fab Inc.
- Specialty Gaskets Inc.

Kiln Furniture

- AMECO USA (American Manufacturing & Engineering Co.)
- Ceramic Solutions Inc.
- LECO Corp.
- Morgan Advanced Materials
- Saint-Gobain High Performance Ceramics & Refractories
- ZIRCAR Ceramics Inc.

Ladles

- AMECO USA (American Manufacturing & Engineering Co.)
- LECO Corp.
- Qual-Fab Inc.

Liners, Wire Mesh

- Alcon Industries Inc.
- AMECO USA (American Manufacturing & Engineering Co.)
- Castalloy Inc.
- G-M Enterprises
- Hi-Tech Furnace Systems Inc.
- J.L. Becker
- McLaughlin Furnace Group LLC
- National Element Inc.
- Premier Furnace Specialists Inc.
- Pro-Tech Co. Inc.
- Qual-Fab Inc.

Lubricants

- Allied High Tech Products Inc.
- Chemtool Inc.
- G-M Enterprises
- Ipsen
- Kurt J. Lesker Company
- McLaughlin Furnace Group LLC
- Midwest Vacuum Pumps Inc.
- Struers Inc.

Marking Systems



- Infosight Corp.

Material Handling Equipment

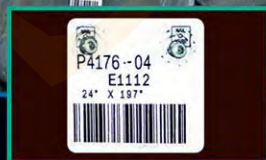
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- Ajax Electric Company
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- Dura-Pack Inc.
- EFD Induction Inc.
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- Induction Systems Inc.
- Infosight Corp.
- Ipsen
- Irwin Car and Equipment
- J.L. Becker
- McLaughlin Furnace Group LLC



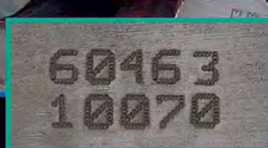
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Rockwell Automation Inc.
- ▶ **SKAKO Vibration A/S**
Tenova Inc. (LOI Thermprocess)



WONDER WELD INDUCTION LLC
Wonder Weld Induction LLC

Membranes

- ▶ **Air Products and Chemicals Inc.**

Metal Injection Molding (MIM)

- Elnik Systems LLC
- ▶ **T-M Vacuum Products**
- ▶ **Verder Scientific Inc.**

Debinding

- ▶ **Centorr Vacuum Industries**
- ▶ **G-M Enterprises**
Harrop Industries Inc.
- ▶ **T-M Vacuum Products**

Equipment

- ▶ **Centorr Vacuum Industries**
- ▶ **Ipsen**
- ▶ **Linde LLC**
- ▶ **T-M Vacuum Products**
- ▶ **ZIRCAR Ceramics Inc.**

Sintering

- BeaverMatic Inc.
- ▶ **Centorr Vacuum Industries**
- ▶ **G-M Enterprises**
Harrop Industries Inc.
- ▶ **T-M Vacuum Products**

Sintering (P/M)

- Alhern-Martin Indl. Furnace Co.
- American Isostatic Presses Inc.
- ▶ **C.I. Hayes**
- ▶ **Centorr Vacuum Industries**
Elnik Systems LLC
- ▶ **G-M Enterprises**
Harrop Industries Inc.
- ▶ **International Thermal Systems**
- ▶ **J.L. Becker**
- ▶ **L & L Special Furnace Co. Inc.**
Premier Furnace Specialists Inc.
- ▶ **PVT Inc.**
Sargeant & Wilbur Inc.
- ▶ **SECO/WARWICK Corp.**
Sinterite
- ▶ **Surface Combustion Inc.**
- ▶ **T-M Vacuum Products**
Thermo Transfer Inc.
- ▶ **Thermo-Stack LLC**

Molds

SGL Carbon

Molybdenum Products

- AMECO USA (American Manufacturing & Engineering Co.)
- ▶ **Clark Power Systems Inc.**
Convectronics Inc.
Elmet Technologies LLC
- ▶ **GeoCorp Inc.**
Grammer Vacuum Technologies Inc.
H.C. Starck Inc.
Hi-Tech Furnace Systems Inc.
Industrial Furnace Interiors Inc. (IFI Inc.)

- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**

Motors

- ▶ **G-M Enterprises**
Induction Systems Inc.
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
Midwest Vacuum Pumps Inc.
Premier Furnace Specialists Inc.
Rockwell Automation Inc.

Muffles

- ACROSS USA Inc.
- Alcon Industries Inc.
- Alhern-Martin Indl. Furnace Co.
- AMECO USA (American Manufacturing & Engineering Co.)
- BeaverMatic Inc.
- ▶ **C.I. Hayes**
- ▶ **Can-Eng Furnaces International Ltd.**
Ceramic Solutions Inc.
- ▶ **Clark Power Systems Inc.**

- ▶ **G-M Enterprises**
- ▶ **Ipsen**
- ▶ **J.L. Becker**
Kanthal
- ▶ **Lindberg/MPH**
Mercer Technologies Inc.
Neftec Corp.
Performance Industrial Products LLC
Premier Furnace Specialists Inc.
- ▶ **Qual-Fab Inc.**
- ▶ **Saint-Gobain High Performance Ceramics & Refractories**

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VIBRATION

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- Sargeant & Wilbur Inc.
 ▶ **SECO/WARWICK Corp.**
 Sinterite
 Wellman Furnaces Inc.

Oil Filtration/Purification

- A-VAC Industries
 BeaverMatic Inc.
 Cashvac
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 ▶ **Metallurgical High Vacuum Corp.**
 Mokon

Oil Skimmers

- Alhern-Martin Indl. Furnace Co.
 BeaverMatic Inc.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 Premier Furnace Specialists Inc.

Oil/Water Separator

- BeaverMatic Inc.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 ▶ **Metallurgical High Vacuum Corp.**
 Premier Furnace Specialists Inc.

Parts Feeders

- BeaverMatic Inc.
 ▶ **Clark Power Systems Inc.**
 Dura-Pack Inc.
 Goessling USA Inc.
 Induction Systems Inc.
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**

SKAKO

VIBRATION

- ▶ **SKAKO Vibration A/S**

Parts Loaders

- BeaverMatic Inc.
 Blasdel Enterprises Inc.
 ▶ **Clark Power Systems Inc.**
 Dura-Pack Inc.
 ▶ **G-M Enterprises**
 Goessling USA Inc.
 Induction Systems Inc.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 ▶ **SKAKO Vibration A/S**
 ▶ **Surface Combustion Inc.**

Parts Sorters

- BeaverMatic Inc.
 ▶ **Clark Power Systems Inc.**
 Dura-Pack Inc.
 Induction Systems Inc.
 ▶ **McLaughlin Furnace Group LLC**

Piers

- Alcon Industries Inc.
 Alhern-Martin Indl. Furnace Co.
 AMECO USA (American Manufacturing & Engineering Co.)
 BeaverMatic Inc.
 ▶ **Castalloy Inc.**
 Induction Systems Inc.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 Performance Industrial Products LLC
 Premier Furnace Specialists Inc.

Pollution Control Equipment

- Babcock & Wilcox MEGTEC
 BeaverMatic Inc.
 ▶ **Epcon Industrial Systems LP**
 Fives North American Combustion, Inc.
 ▶ **G-M Enterprises**
 Hi-Tech Furnace Systems Inc.
 Pyradia Inc.
 ▶ **Qual-Fab Inc.**
 Rockwell Automation Inc.
 ▶ **Surface Combustion Inc.**
 ▶ **Thermo-Stack LLC**

Pots

- ▶ **Ajax Electric Company**
 AMECO USA (American Manufacturing & Engineering Co.)
 ▶ **Qual-Fab Inc.**

Powder Metals

- Elmet Technologies LLC
 H.C. Starck Inc.
 ▶ **Verder Scientific Inc.**

HIP Furnaces

- ▶ **Clark Power Systems Inc.**
 CoorsTek

Hot Isostatic Press

- American Isostatic Presses Inc.
 CoorsTek
 Pressure Technology

Injection Molding

- ▶ **C.I. Hayes**
 CoorsTek
 LECO Corp.

Powders, Brazing

- ▶ **Ajax TOCCO Magnethermic**

Power Supplies, RF

- ▶ **Ajax TOCCO Magnethermic**
 Ambrell Induction Heating Solutions
 ▶ **Clark Power Systems Inc.**
 East Coast Induction Inc.
 ▶ **EFD Induction Inc.**
 Induction Systems Inc.
 Inductoheat Inc.
 ▶ **Pillar Induction**

Presses**Compacting**

- Du-Co Ceramics Co.

Extrusion

- CoorsTek
 Du-Co Ceramics Co.
 H.C. Starck Inc.

Isostatic

- American Isostatic Presses Inc.
 CoorsTek

Pressure Vessels

- AMECO USA (American Manufacturing & Engineering Co.)
 ▶ **Centorr Vacuum Industries**
 ▶ **Ipsen**

Pumps**Cryogenic**

- ▶ **Air Products and Chemicals Inc.**
 ▶ **G-M Enterprises**
 ▶ **Linde LLC**
 Midwest Vacuum Pumps Inc.

Oil

- A-VAC Industries
 Agilent Technologies
 Busch Vacuum Pumps and Systems
 ▶ **G-M Enterprises**
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 ▶ **Metallurgical High Vacuum Corp.**
 Midwest Vacuum Pumps Inc.

Vacuum

- A-VAC Industries
 Agilent Technologies
 BeaverMatic Inc.
 Busch Vacuum Pumps and Systems
 Cashvac
 Dalton Electric Heating Co. Inc.
 Elnik Systems LLC
 ▶ **G-M Enterprises**
 Hi-Tech Furnace Systems Inc.
 ▶ **Ipsen**
 Kurt J. Lesker Company
 ▶ **McLaughlin Furnace Group LLC**



METALLURGICAL
 HIGH VACUUM CORPORATION

- ▶ **Metallurgical High Vacuum Corp.**
 Midwest Vacuum Pumps Inc.
 Neftec Corp.
 Pfeiffer Vacuum Inc.
 Rockwell Automation Inc.
 Signature Vacuum Systems Inc.
 ULVAC Technologies



- ▶ **Vacuum Pump Services Corp.**

Vacuum Fluids

- A-VAC Industries
 Agilent Technologies
 Busch Vacuum Pumps and Systems
 Cashvac
 ▶ **G-M Enterprises**
 Hi-Tech Furnace Systems Inc.
 ▶ **Ipsen**
 Kurt J. Lesker Company
 ▶ **McLaughlin Furnace Group LLC**
 ▶ **Metallurgical High Vacuum Corp.**
 Midwest Vacuum Pumps Inc.
 Pfeiffer Vacuum Inc.

Quench**Agitators**

- ▶ **Ajax Electric Company**
 BeaverMatic Inc.
 ▶ **Consolidated Engineering Co.**
 ▶ **Ipsen**
 ▶ **J.L. Becker**

- ▶ **McLaughlin Furnace Group LLC**
 Premier Furnace Specialists Inc.
 ▶ **Qual-Fab Inc.**
 ▶ **Surface Combustion Inc.**

Fans

- AMECO USA (American Manufacturing & Engineering Co.)
 BeaverMatic Inc.
 ▶ **G-M Enterprises**
 ▶ **Ipsen**
 ▶ **McLaughlin Furnace Group LLC**
 Neftec Corp.
 The New York Blower Co.
 ▶ **Qual-Fab Inc.**

Nozzles, Gas

- ▶ **McLaughlin Furnace Group LLC**
 SGL Carbon
 ▶ **Solar Manufacturing**

Oil Coolers

- HydroThrift Corp.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 Premier Furnace Specialists Inc.
 Sentry Equipment Corp.
 Thermal Care Inc.

Oil Heaters

- Conrad Kacsik Instrument Systems Inc.
 Durex Industries
 HydroThrift Corp.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **McLaughlin Furnace Group LLC**
 Premier Furnace Specialists Inc.

Presses

- Dixie Machinery dba Dixitech CNC

Tanks

- ▶ **Ajax Electric Company**
 Alhern-Martin Indl. Furnace Co.
 AMECO USA (American Manufacturing & Engineering Co.)
 Applied Heat Technologies Pty. Ltd.
 BeaverMatic Inc.
 ▶ **Can-Eng Furnaces International Ltd.**
 ▶ **Consolidated Engineering Co.**
 ▶ **Dry Coolers Inc.**
 ▶ **EFD Induction Inc.**
 Induction Systems Inc.
 ▶ **Ipsen**
 ▶ **J.L. Becker**
 ▶ **Lindberg/MPH**
 ▶ **McLaughlin Furnace Group LLC**
 Mercer Technologies Inc.
 ▶ **National Element Inc.**
 Premier Furnace Specialists Inc.
 Proceadyne Corp.
 ▶ **Qual-Fab Inc.**
 ▶ **Surface Combustion Inc.**
 ▶ **Taylor-Winfield Technologies Inc.**
 Thermo Transfer Inc.

Quenchant Cooling Systems

- BeaverMatic Inc.
 Chemtool Inc.
 ▶ **Delta Cooling Towers**
 ▶ **Dry Coolers Inc.**
 Fives North American Construction Services, Ltd.
 HydroThrift Corp.

Induction Systems Inc.
Inductoheat Inc.

- ▶ Ipsen
- ▶ J.L. Becker
- ▶ McLaughlin Furnace Group LLC
- ▶ Pillar Induction
- Premier Furnace Specialists Inc.
- Thermal Care Inc.

Quenchants

Air

- ▶ G-M Enterprises
- ▶ McLaughlin Furnace Group LLC
- ▶ Surface Combustion Inc.

Gas

- ▶ Air Products and Chemicals Inc.
- ▶ G-M Enterprises
- ▶ Linde LLC
- ▶ McLaughlin Furnace Group LLC
- ▶ Surface Combustion Inc.

Oil



- DuBois/Heatbath
- ▶ McLaughlin Furnace Group LLC
- ▶ Surface Combustion Inc.

Polymer



- DuBois/Heatbath
- ▶ Surface Combustion Inc.

Salt

- ▶ Ajax Electric Company



- DuBois/Heatbath
- ▶ McLaughlin Furnace Group LLC
- ▶ Surface Combustion Inc.

Water

- ▶ McLaughlin Furnace Group LLC
- ▶ Surface Combustion Inc.

Racks

- ACROSS USA Inc.
- ▶ Ajax Electric Company
- Alcon Industries Inc.
- Alhern-Martin Indl. Furnace Co.
- AMECO USA (American Manufacturing & Engineering Co.)
- ▶ Castalloy Inc.

Elmet Technologies LLC

- ▶ Ferralloy Inc.
- Fives North American Construction Services, Ltd.
- ▶ G-M Enterprises
- Hi-Tech Furnace Systems Inc.
- ▶ J.L. Becker
- ▶ National Element Inc.
- Performance Industrial Products LLC
- ▶ Qual-Fab Inc.
- SGL Carbon

Radiant Tubes

- ▶ Ajax Electric Company
- Alcon Industries Inc.
- Alhern-Martin Indl. Furnace Co.
- AMECO USA (American Manufacturing & Engineering Co.)
- ▶ Avion Manufacturing Co.
- BeaverMatic Inc.
- Casso-Solar Technologies LLC
- ▶ Castalloy Inc.
- Chromalox
- ▶ Clark Power Systems Inc.
- Conrad Kacsik Instrument Systems Inc.
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- ▶ Custom Electric Manufacturing Co.
- ▶ Ferralloy Inc.
- Fives North American Construction Services, Ltd.
- Heat Treating Services Unlimited Inc.
- Honeywell Thermal Solutions
- Industrial Furnace Interiors Inc. (IFI Inc.)



- ▶ INEX Inc.

- ▶ Ipsen
- ▶ J.L. Becker
- Kanthal
- ▶ McLaughlin Furnace Group LLC
- ▶ National Element Inc.
- NOXMAT GmbH
- Performance Industrial Products LLC
- Premier Furnace Specialists Inc.
- Pro-Tech Co. Inc.
- ▶ Qual-Fab Inc.
- ▶ SAFE Cronite Inc.
- ▶ SECO/WARWICK Corp.
- ▶ Surface Combustion Inc.
- Thermo Transfer Inc.
- Wellman Furnaces Inc.
- ▶ WS Thermal Process Technology Inc.

Radiant Tubes, Ceramic

- ▶ Avion Manufacturing Co.
- BeaverMatic Inc.
- Ceramic Solutions Inc.
- ▶ Clark Power Systems Inc.
- CoorsTek
- ▶ Custom Electric Manufacturing Co.
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- Honeywell Thermal Solutions
- Industrial Furnace Interiors Inc. (IFI Inc.)
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- ▶ Ipsen
- McDaniel Advanced Ceramic Technologies
- ▶ McLaughlin Furnace Group LLC
- NOXMAT GmbH
- ▶ Saint-Gobain High Performance Ceramics & Refractories
- ▶ Surface Combustion Inc.
- ▶ WS Thermal Process Technology Inc.

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- Ceramic Solutions Inc.
- Elmet Technologies LLC
- **Ferralloy Inc.**
- Heat Treating Services Unlimited Inc.
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- Irwin Car and Equipment
- **J.L. Becker**
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- Pro-Tech Co. Inc.
- **Qual-Fab Inc.**
- **Surface Combustion Inc.**

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- **Clark Power Systems Inc.**
- Induction Systems Inc.
- **Jackson Transformer Co.**
- Magnetic Specialties Inc.
- Spang Power Electronics

Reactors, Variable

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- **Jackson Transformer Co.**
- Magnetic Specialties Inc.

Recuperators

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- Honeywell Thermal Solutions
- Induction Systems Inc.
- **Ipsen**
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- Performance Industrial Products LLC
- Premier Furnace Specialists Inc.
- **Qual-Fab Inc.**
- **Surface Combustion Inc.**
- Thermo Transfer Inc.
- **WS Thermal Process Technology Inc.**

Regenerators

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- Induction Systems Inc.
- **WS Thermal Process Technology Inc.**

Rollers

Heat Transfer / Thermal

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- BeaverMatic Inc.
- Neftec Corp.

Silicon Carbide

- BeaverMatic Inc.
- Ceramic Solutions Inc.
- CoorsTek
- **Saint-Gobain High Performance Ceramics & Refractories**
- **WS Thermal Process Technology Inc.**

Salt

Heat Treating

- BeaverMatic Inc.
- DuBois/Heatbath
- **Qual-Fab Inc.**

Pots

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- AMECO USA (American Manufacturing & Engineering Co.)
- Noble Industrial Furnace Co. Inc.
- **Qual-Fab Inc.**
- Sargeant & Wilbur Inc.

Pumps

- **Ajax Electric Company**
- BeaverMatic Inc.

Reclamation Systems

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- Noble Industrial Furnace Co. Inc.

SCRs, Thyristors

- Magnetic Specialties Inc.

Screens, Wire Mesh

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- Hi-Tech Furnace Systems Inc.
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- Premier Furnace Specialists Inc.
- **Qual-Fab Inc.**

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- Kurt J. Lesker Company
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- Conrad Kacsik Instrument Systems Inc.
- **The Duffy Co.**
- Fives North American Combustion, Inc.
- **GeoCorp Inc.**
- **McLaughlin Furnace Group LLC**
- Pro-Tech Co. Inc.

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- **Ipsen**
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- Performance Industrial Products LLC
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- Rolled Alloys

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- **Ferralloy Inc.**
- Johnson Bros. Roll Forming Co.
- **McLaughlin Furnace Group LLC**
- Performance Industrial Products LLC
- **Qual-Fab Inc.**
- Rolled Alloys

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- **Ferralloy Inc.**
- Hyndman Industrial Products Inc.
- **Ipsen**
- **J.L. Becker**
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- **National Element Inc.**
- Performance Industrial Products LLC
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- Rolled Alloys

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- ULVAC Technologies

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- Alpha 1 Induction
- BeaverMatic Inc.
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Trays

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► **SAFE Cronite Inc.**
► **Surface Combustion Inc.**
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Oscillator

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East Coast Induction Inc.
- **EFD Induction Inc.**
Inductoheat Inc.
- **Pillar Induction**
- **Taylor-Winfield Technologies Inc.**

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East Coast Induction Inc.
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- Dura-Pack Inc.
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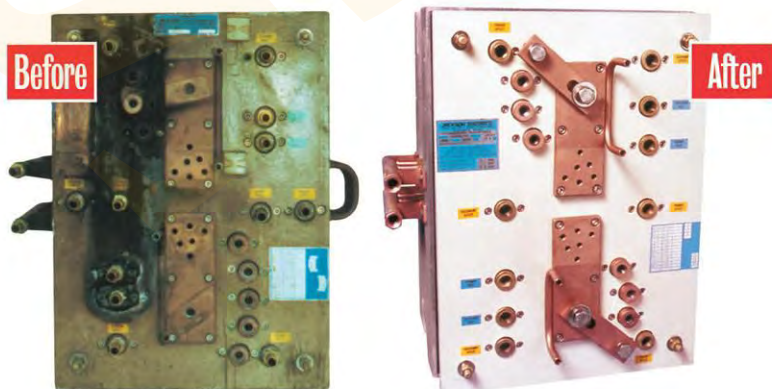
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NOx

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- Siemens Industry Inc.

Oxygen

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- Shimadzu Scientific Instruments

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- Induction Systems Inc.
- Inductoheat Inc.
- **Jackson Transformer Co.**
- **Pillar Induction**

Ceramic

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- East Coast Induction Inc.
- Inductoheat Inc.
- **Pillar Induction**

Oil-Filled

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- Induction Systems Inc.
- Inductoheat Inc.
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- **G-M Enterprises**
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- Super Systems Inc.
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- **Control Concepts Inc.**
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- Rockwell Automation Inc.
- Spang Power Electronics
- Watlow Electric Manufacturing Co.

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Bloom Engineering Co. Inc.
Chromalox

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Dura-Pack Inc.
Durex Industries
- **EFD Induction Inc.**
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Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
Honeywell Thermal Solutions
Induction Systems Inc.
- **Ipsen**
- **J.L. Becker**
O'Brien & Gere
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Spang Power Electronics

Super Systems Inc.
► **Surface Combustion Inc.**
Televac | The Fredericks Company
Tenova Inc. (LOI Thermprocess)

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Grammer Vacuum Technologies Inc.
Heat Treating Services Unlimited Inc.
Honeywell Thermal Solutions
MoviTHERM
Rockwell Automation Inc.
Spang Power Electronics

Flame Safeguard

AQI Engineering Co.
Bloom Engineering Co. Inc.
Conrad Kacsik Instrument Systems Inc.
Durex Industries
Eurotherm by Schneider Electric
Fireye Inc.
Fives North American Combustion, Inc.

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- **GeoCorp Inc.**
George T. Hall Co.
Hi-Tech Furnace Systems Inc.
Honeywell Thermal Solutions
- **Ipsen**
- **J.L. Becker**
Karl Dungs Inc.
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Olstrad Engineering Corp.
Premier Furnace Specialists Inc.



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Thermo Transfer Inc.
Unitherm Furnace LLC

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BeaverMatic Inc.
Bloom Engineering Co. Inc.

- **Custom Electric Manufacturing Co.**
Durex Industries
Fireye Inc.
Fives North American Combustion, Inc.
- **G-M Enterprises**
Honeywell Thermal Solutions
- **Ipsen**
- **McLaughlin Furnace Group LLC**
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Premier Furnace Specialists Inc.
Selas Heat Technology Co. LLC
Thermo Transfer Inc.
Unitherm Furnace LLC

Gas Nitriding

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Grammer Vacuum Technologies Inc.

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Super Systems Inc.
- **Surface Combustion Inc.**

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- **G-M Enterprises**
Gefran Inc.
- **GeoCorp Inc.**
George T. Hall Co.
Hi-Tech Furnace Systems Inc.
Induction Systems Inc.
- **Ipsen**
Magnetic Specialties Inc.
- **McLaughlin Furnace Group LLC**
O'Brien & Gere
Premier Furnace Specialists Inc.
- **Protection Controls Inc.**
Rockwell Automation Inc.
Signature Vacuum Systems Inc.

Pressure

Agilent Technologies
Chromalox

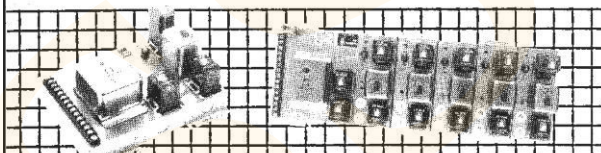
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Conrad Kacsik Instrument Systems Inc.
Durex Industries
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AQI Engineering Co.
BeaverMatic Inc.
- ▶ **Clark Power Systems Inc.**
Conrad Kacsik Instrument Systems Inc.
Durex Industries
- ▶ **EFD Induction Inc.**
Eurotherm by Schneider Electric
- ▶ **G-M Enterprises**
Gefran Inc.
George T. Hall Co.
Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
Honeywell Thermal Solutions
Induction Systems Inc.
- ▶ **Ipsen**
- ▶ **J.L. Becker**
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O'Brien & Gere
Olsträd Engineering Corp.
PhoenixTM LLC
Premier Furnace Specialists Inc.
- ▶ **Protection Controls Inc.**
RAD-CON Inc.
Rockwell Automation Inc.
Signature Vacuum Systems Inc.
Spang Power Electronics
Super Systems Inc.
- ▶ **Surface Combustion Inc.**

Solid State

- Advanced Energy
Alhern-Martin Indl. Furnace Co.
AQI Engineering Co.
Chromalox
- ▶ **Clark Power Systems Inc.**
Conrad Kacsik Instrument Systems Inc.
 - ▶ **Control Concepts Inc.**
Convectronics Inc.
Durex Industries
Eurotherm by Schneider Electric
 - ▶ **G-M Enterprises**
Gefran Inc.
 - ▶ **GeoCorp Inc.**
Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
Magnetic Specialties Inc.
Premier Furnace Specialists Inc.
Rockwell Automation Inc.
Spang Power Electronics

Temperature

- Alhern-Martin Indl. Furnace Co.
- ▶ **Applied Test Systems**
AQI Engineering Co.
 - ▶ **Avatar Instruments Inc.**
BeaverMatic Inc.
Chromalox
Cleveland Electric Laboratories
Conrad Kacsik Instrument Systems Inc.
Convectronics Inc.
Durex Industries
Eurotherm by Schneider Electric
Fives North American Combustion, Inc.
Fluke Process Instruments
 - ▶ **G-M Enterprises**
Gefran Inc.
 - ▶ **GeoCorp Inc.**
George T. Hall Co.
Grammer Vacuum Technologies Inc.
Heat Treating Services Unlimited Inc.
Hi-Tech Furnace Systems Inc.
 - ▶ **Hi-Temp Products Corp.**

- Induction Systems Inc.
- ▶ **Ipsen**
Lenox Instrument Co. Inc.
 - ▶ **McLaughlin Furnace Group LLC**
Mokon
MoviTHERM
Nanmac Corp.
O'Brien & Gere
Olsträd Engineering Corp.
PhoenixTM LLC
Premier Furnace Specialists Inc.
 - ▶ **Protection Controls Inc.**
RAD-CON Inc.
Rockwell Automation Inc.
Signature Vacuum Systems Inc.
Spang Power Electronics
Super Systems Inc.
 - ▶ **Surface Combustion Inc.**
Tenova Inc. (LOI Thermprocess)
 - ▶ **Thermcraft Inc.**
 - ▶ **Thermocouple Technology LLC**
 - ▶ **Ultra Electronics - Furnace Parts**
Unitherm Furnace LLC

Crack Detection, Automatic

Criterion NDT Inc.
ibg NDT Systems Corp.
MoviTHERM

Creep Testing Devices

- ▶ **Applied Test Systems**

Dew Point Instruments

- Alhern-Martin Indl. Furnace Co.
AQI Engineering Co.
BeaverMatic Inc.
Conrad Kacsik Instrument Systems Inc.
- ▶ **G-M Enterprises**
 - ▶ **GeoCorp Inc.**
Grammer Vacuum Technologies Inc.
Heat Treating Services Unlimited Inc.
Hi-Tech Furnace Systems Inc.
 - ▶ **Ipsen**
 - ▶ **J.L. Becker**
 - ▶ **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
Nova Analytical Systems
PCE Instruments
Premier Furnace Specialists Inc.
Super Systems Inc.
 - ▶ **Surface Combustion Inc.**

Dew Point/Moisture Transmitters

- AQI Engineering Co.
BeaverMatic Inc.
Conrad Kacsik Instrument Systems Inc.
- ▶ **G-M Enterprises**
Hi-Tech Furnace Systems Inc.
 - ▶ **Ipsen**
 - ▶ **J.L. Becker**
 - ▶ **McLaughlin Furnace Group LLC**
Nova Analytical Systems
Super Systems Inc.

Digital Indicators

- Advanced Energy
AQI Engineering Co.
BeaverMatic Inc.
Chromalox
- ▶ **Clark Power Systems Inc.**
Conrad Kacsik Instrument Systems Inc.
Convectronics Inc.
Eurotherm by Schneider Electric
 - ▶ **G-M Enterprises**
Gefran Inc.
 - ▶ **GeoCorp Inc.**

- George T. Hall Co.
- ▶ **J.L. Becker**
Nanmac Corp.
PCE Instruments
Televac | The Fredericks Company
 - ▶ **Thermocouple Technology LLC**

Dilatometers, Quench

Mercer Technologies Inc.

Eddy Current

- ▶ **Applied Test Systems**
- ▶ **Clark Power Systems Inc.**
Criterion NDT Inc.
- ▶ **EFD Induction Inc.**
ibg NDT Systems Corp.
PCE Instruments

Extensometers

- ▶ **Applied Test Systems**
Shimadzu Scientific Instruments

Fatigue Testing Devices

- ▶ **Applied Test Systems**

Flame Detectors

- Alhern-Martin Indl. Furnace Co.
AQI Engineering Co.
Conrad Kacsik Instrument Systems Inc.
- ▶ **G-M Enterprises**
 - ▶ **GeoCorp Inc.**
George T. Hall Co.
Honeywell Thermal Solutions
 - ▶ **Ipsen**
 - ▶ **J.L. Becker**
Karl Dungs Inc.
 - ▶ **McLaughlin Furnace Group LLC**
MoviTHERM
Premier Furnace Specialists Inc.
 - ▶ **Protection Controls Inc.**
Tenova Inc. (LOI Thermprocess)

Flame Safeguard

- AQI Engineering Co.
BeaverMatic Inc.
Conrad Kacsik Instrument Systems Inc.
Fireye Inc.
- ▶ **GeoCorp Inc.**
George T. Hall Co.
Heat Treating Services Unlimited Inc.
Honeywell Thermal Solutions
 - ▶ **J.L. Becker**
Karl Dungs Inc.
 - ▶ **McLaughlin Furnace Group LLC**
MoviTHERM
O'Brien & Gere
 - ▶ **Protection Controls Inc.**
Selas Heat Technology Co. LLC

Flow Meters

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AQI Engineering Co.
BeaverMatic Inc.
Conrad Kacsik Instrument Systems Inc.
Eurotherm by Schneider Electric
Fives North American Combustion, Inc.
- ▶ **G-M Enterprises**
 - ▶ **GeoCorp Inc.**
George T. Hall Co.
Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
Honeywell Thermal Solutions
 - ▶ **Ipsen**
 - ▶ **J.L. Becker**

- Kurt J. Lesker Company
- ▶ **McLaughlin Furnace Group LLC**
O'Brien & Gere
PCE Instruments
Premier Furnace Specialists Inc.
Rockwell Automation Inc.
Selas Heat Technology Co. LLC
Super Systems Inc.
Teledyne Hastings Instruments

Flow Meters, Electronic Readout

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AQI Engineering Co.
BeaverMatic Inc.
Conrad Kacsik Instrument Systems Inc.
- ▶ **G-M Enterprises**
 - ▶ **GeoCorp Inc.**
Grammer Vacuum Technologies Inc.
Hi-Tech Furnace Systems Inc.
Honeywell Thermal Solutions
 - ▶ **Ipsen**
 - ▶ **J.L. Becker**
 - ▶ **McLaughlin Furnace Group LLC**
O'Brien & Gere
Premier Furnace Specialists Inc.
Rockwell Automation Inc.
Super Systems Inc.
Teledyne Hastings Instruments

Fuel Meters

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- ▶ **J.L. Becker**
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O'Brien & Gere

Gas Metering Panels

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Hi-Tech Furnace Systems Inc.
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Gauges

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Thickness

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Busch Vacuum Pumps and Systems
Cashvac
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 - ▶ **Metallurgical High Vacuum Corp.**
Pfeiffer Vacuum Inc.
Signature Vacuum Systems Inc.
Teledyne Hastings Instruments
Televac | The Fredericks Company
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PRODUCT DIRECTORY

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LECO Corp.
 - ▶ **Newage Testing Instruments Inc.**
Rockwell Automation Inc.
Shimadzu Scientific Instruments
Struers Inc.
 - ▶ **Sun-Tec Corp.**
 - ▶ **Tinius Olsen Testing**

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Buehler
Clemex Technologies Inc.
Criterion NDT Inc.
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LECO Corp.
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Rockwell Automation Inc.
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LECO Corp.
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PCE Instruments
Struers Inc.
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Micro

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Buehler
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Struers Inc.
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Buehler
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- ▶ **Ipsen**
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Newage

- hardness testing**
- ▶ **Newage Testing Instruments Inc.**
PCE Instruments
Shimadzu Scientific Instruments
Struers Inc.
 - ▶ **Sun-Tec Corp.**
 - ▶ **Tinius Olsen Testing**

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- ▶ **Ipsen**
Nova Analytical Systems
PCE Instruments

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- Fluke Process Instruments
HEITRONICS
Lenox Instrument Co. Inc.
MoviTHERM
PCE Instruments

Leak Detectors

- A-VAC Industries
Agilent Technologies
BeaverMatic Inc.
Cashvac
Cober Inc.
Control Instruments Corp.
- ▶ **G-M Enterprises**
Hi-Tech Furnace Systems Inc.

- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
Mercer Technologies Inc.
- ▶ **Metallurgical High Vacuum Corp.**
Midwest Vacuum Pumps Inc.
PCE Instruments
Pfeiffer Vacuum Inc.
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Metallographic Supplies

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Buehler
Clemex Technologies Inc.
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Grinders/Polishers

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Buehler
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- ▶ **GeoCorp Inc.**
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- ▶ **G-M Enterprises**
- ▶ **J.L. Becker**
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Buehler
Clemex Technologies Inc.

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PCE Instruments
Struers Inc.

- ▶ **Sun-Tec Corp.**

Accessories

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- Clemex Technologies Inc.
- LECO Corp.
- Struers Inc.
- ▶ **Sun-Tec Corp.**

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- Honeywell Thermal Solutions
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
O'Brien & Gere
Selas Heat Technology Co. LLC

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- Fluke Process Instruments
- ibg NDT Systems Corp.
- Lenox Instrument Co. Inc.
- MoviTHERM
- PCE Instruments
- PhoenixTM LLC
- Rockwell Automation Inc.
- Struers Inc.
- ▶ **Sun-Tec Corp.**

PID Tuning Software

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- ▶ **Clark Power Systems Inc.**
Induction Systems Inc.
O'Brien & Gere

On-Line

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Induction Systems Inc.
- ▶ **Ipsen**
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Positioners

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- ▶ **Ipsen**
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Probes

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- Cleveland Electric Laboratories
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- Criterion NDT Inc.
- Durex Industries
- Eurotherm by Schneider Electric
- Fluke Process Instruments
- Gefran Inc.
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ibg NDT Systems Corp.
- ▶ **Ipsen**
- ▶ **McLaughlin Furnace Group LLC**
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- **Custom Electric Manufacturing Co.**
Dura-Pack Inc.
 - **EFD Induction Inc.**
Eurotherm by Schneider Electric
Fluke Process Instruments
Gefran Inc.
Inductoheat Inc.
Lenox Instrument Co. Inc.
 - **McLaughlin Furnace Group LLC**
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O'Brien & Gere
 - **Orton Ceramic Foundation, TempTAB**
PCE Instruments
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Rockwell Automation Inc.
Selas Heat Technology Co. LLC
Spang Power Electronics
Televac | The Fredericks Company

Programmers

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BeaverMatic Inc.
Dura-Pack Inc.
Eurotherm by Schneider Electric
Gefran Inc.
- **GeoCorp Inc.**
George T. Hall Co.
Grammer Vacuum Technologies Inc.
 - **McLaughlin Furnace Group LLC**
O'Brien & Gere
RAD-CON Inc.
Rockwell Automation Inc.

Pyrometers

Advanced Energy



- **Aerospace Testing and Pyrometry**
AQI Engineering Co.
BeaverMatic Inc.
- **CEIA USA**
Cleveland Electric Laboratories
Conrad Kacsik Instrument Systems Inc.
Fluke Process Instruments
- **G-M Enterprises**
Gefran Inc.
- **GeoCorp Inc.**
Heat Treating Services Unlimited Inc.
HEITRONICS
- **McLaughlin Furnace Group LLC**
MoviTHERM
Nanmac Corp.
PCE Instruments
PhoenixTM LLC

Quench Testing Devices

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Dixie Machinery dba Dixitech CNC
Swerea IVF AB

Recorders

- **Aerospace Testing and Pyrometry**
Alhern-Martin Indl. Furnace Co.
AQI Engineering Co.

- BeaverMatic Inc.
Chromalox
- **Clark Power Systems Inc.**
Cleveland Electric Laboratories
Conrad Kacsik Instrument Systems Inc.
Eurotherm by Schneider Electric
Fluke Process Instruments
 - **G-M Enterprises**
Gefran Inc.
 - **GeoCorp Inc.**
George T. Hall Co.
Grammer Vacuum Technologies Inc.
Heat Treating Services Unlimited Inc.
 - **Ipsen**
Mercer Technologies Inc.
MoviTHERM
O'Brien & Gere
PCE Instruments
Premier Furnace Specialists Inc.
 - **Protection Controls Inc.**
Televac | The Fredericks Company
Unitherm Furnace LLC

Computerized

- AQI Engineering Co.
BeaverMatic Inc.
Chromalox
- **Clark Power Systems Inc.**
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Eurotherm by Schneider Electric
Fluke Process Instruments
Gefran Inc.
Grammer Vacuum Technologies Inc.
 - **Ipsen**
MoviTHERM
O'Brien & Gere
Premier Furnace Specialists Inc.

Video

- **Aerospace Testing and Pyrometry**
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Eurotherm by Schneider Electric
Gefran Inc.
George T. Hall Co.
Grammer Vacuum Technologies Inc.
- **Ipsen**
Lenox Instrument Co. Inc.
MoviTHERM

Regulators

Air

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BeaverMatic Inc.
Eurotherm by Schneider Electric
Fives North American Combustion, Inc.
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 - **GeoCorp Inc.**
 - **Ipsen**
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O'Brien & Gere
Premier Furnace Specialists Inc.

Gas

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BeaverMatic Inc.
Conrad Kacsik Instrument Systems Inc.
- **Custom Electric Manufacturing Co.**
Elettromeccanica Delta S.p.A.
Fives North American Combustion, Inc.
 - **G-M Enterprises**
 - **GeoCorp Inc.**
George T. Hall Co.
 - **Ipsen**
Karl Dungs Inc.
 - **McLaughlin Furnace Group LLC**
O'Brien & Gere
Premier Furnace Specialists Inc.

Oil

- BeaverMatic Inc.
Fives North American Combustion, Inc.
- **G-M Enterprises**
 - **GeoCorp Inc.**
 - **Ipsen**
 - **McLaughlin Furnace Group LLC**
O'Brien & Gere

Resistors

- **Clark Power Systems Inc.**
- **G-M Enterprises**
Kanthal
Rockwell Automation Inc.

Semiconductors

- **Clark Power Systems Inc.**

Sensors

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- **Applied Test Systems**
Burns Engineering
Chromalox
- **Clark Power Systems Inc.**
Conrad Kacsik Instrument Systems Inc.
Convectronics Inc.
Durex Industries
Eurotherm by Schneider Electric
Fluke Process Instruments
Gefran Inc.
- **GeoCorp Inc.**
Heat Treating Services Unlimited Inc.
HEITRONICS
Innovative Sensor Technology
- **McLaughlin Furnace Group LLC**
MoviTHERM
Nanmac Corp.
O'Brien & Gere
- **Protection Controls Inc.**
Pyromation Inc.
Rockwell Automation Inc.
Televac | The Fredericks Company
Watlow Electric Manufacturing Co.

Analytical

- Conrad Kacsik Instrument Systems Inc.
Control Instruments Corp.
Criterion NDT Inc.
- **McLaughlin Furnace Group LLC**
O'Brien & Gere
Watlow Electric Manufacturing Co.

Carbon

- Alhern-Martin Indl. Furnace Co.
AQI Engineering Co.
BeaverMatic Inc.
Cleveland Electric Laboratories
Conrad Kacsik Instrument Systems Inc.
Eurotherm by Schneider Electric
- **G-M Enterprises**
 - **GeoCorp Inc.**
Grammer Vacuum Technologies Inc.
 - **Ipsen**
 - **J.L. Becker**
 - **Linde LLC**
 - **McLaughlin Furnace Group LLC**
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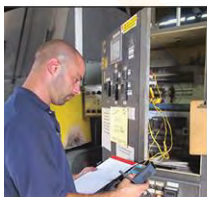


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- Control Instruments Corp.
- Eurotherm by Schneider Electric
- **Ipsen**
- **J.L. Becker**
- **Linde LLC**
- **McLaughlin Furnace Group LLC**
- Nova Analytical Systems
- O'Brien & Gere
- Premier Furnace Specialists Inc.
- Siemens Industry Inc.
- Super Systems Inc.
- **Surface Combustion Inc.**
- Watlow Electric Manufacturing Co.

Temperature

- **Aerospace Testing and Pyrometry**
- **Applied Test Systems**
- BeaverMatic Inc.
- Burns Engineering
- **CEIA USA**
- Chromalox
- **Clark Power Systems Inc.**
- Cleveland Electric Laboratories
- Conrad Kacsik Instrument Systems Inc.
- Convectronics Inc.
- Durex Industries
- Eurotherm by Schneider Electric
- Fluke Process Instruments

- Gefran Inc.
- **GeoCorp Inc.**
- HEITRONICS
- Heraeus Sensor Technology USA
- Innovative Sensor Technology
- **Ipsen**
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- MoviTHERM
- Nanmac Corp.
- O'Brien & Gere



- **Orton Ceramic Foundation, TempTAB**
- PCE Instruments
- PhoenixTM LLC
- Pyromation Inc.
- Rockwell Automation Inc.
- Spang Power Electronics
- Summit Aerospace Products
- Summit Sensors
- TE Wire & Cable



- **Thermocouple Technology LLC**
- **Ultra Electronics - Furnace Parts**
- Watlow Electric Manufacturing Co.

Software

Simulation

- Eurotherm by Schneider Electric
- **Ipsen**
- **J.L. Becker**
- O'Brien & Gere
- Rockwell Automation Inc.
- Super Systems Inc.

Complete Systems

- **Applied Test Systems**
- AQI Engineering Co.
- BeaverMatic Inc.
- **Clark Power Systems Inc.**
- Clemex Technologies Inc.
- Conrad Kacsik Instrument Systems Inc.
- Dura-Pack Inc.
- Eurotherm by Schneider Electric
- Fluke Process Instruments
- **G-M Enterprises**
- George T. Hall Co.
- Hi-Tech Furnace Systems Inc.
- Induction Systems Inc.
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
- O'Brien & Gere
- PhoenixTM LLC
- RAD-CON Inc.
- Rockwell Automation Inc.
- Signature Vacuum Systems Inc.
- Super Systems Inc.
- **Tinius Olsen Testing**

Switches

- Chromalox
- Eurotherm by Schneider Electric
- Karl Dungs Inc.
- **McLaughlin Furnace Group LLC**
- O'Brien & Gere
- PCE Instruments
- Rockwell Automation Inc.
- Televac | The Fredericks Company
- **Ultra Electronics - Furnace Parts**
- Watlow Electric Manufacturing Co.

Tensile Testing Devices

- **Applied Test Systems**
- PCE Instruments
- Shimadzu Scientific Instruments
- **Sun-Tec Corp.**



- **Tinius Olsen Testing**

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Gefran Inc.



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Heat Treating Services Unlimited Inc.
Hi-Tech Furnace Systems Inc.
- **Ipsen**
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- **McLaughlin Furnace Group LLC**
Nanmac Corp.
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Pyromation Inc.
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Watlow Electric Manufacturing Co.

Thermocouples

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Agilent Technologies
- **Ajax Electric Company**
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American Isostatic Presses Inc.
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BeaverMatic Inc.
Burns Engineering

- Chromalox
- **Clark Power Systems Inc.**
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Conrad Kacsik Instrument Systems Inc.
Convectronics Inc.
CoorsTek
Dalton Electric Heating Co. Inc.
Du-Co Ceramics Co.
Durex Industries
Eurotherm by Schneider Electric
Fluke Process Instruments
- **G-M Enterprises**
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- **GeoCorp Inc.**
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Hi-Tech Furnace Systems Inc.
- **Hi-Temp Products Corp.**
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- **J.L. Becker**
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- **McLaughlin Furnace Group LLC**
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MoviTHERM
Nanmac Corp.
O'Brien & Gere
PCE Instruments
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RAD-CON Inc.
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- **Thermcraft Inc.**



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Thermometers

- BeaverMatic Inc.
Burns Engineering
Chromalox
Conrad Kacsik Instrument Systems Inc.
Gefran Inc.
- **Ipsen**
- **J.L. Becker**
- **McLaughlin Furnace Group LLC**
MoviTHERM
Nanmac Corp.
PCE Instruments
Rockwell Automation Inc.
- **Thermocouple Technology LLC**

Thermometers, Infrared

- Conrad Kacsik Instrument Systems Inc.
Fluke Process Instruments
HEITRONICS
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Nanmac Corp.
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Thermostats

- BeaverMatic Inc.
Chromalox
Gefran Inc.
Rockwell Automation Inc.
SSH Co.

Thyristors

- Advanced Energy
- **Avatar Instruments Inc.**
- **Clark Power Systems Inc.**
- **Control Concepts Inc.**
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Eurotherm by Schneider Electric
Gefran Inc.
Inductoheat Inc.
Spang Power Electronics

Transmitters

- Burns Engineering
Chromalox
- **Clark Power Systems Inc.**
Conrad Kacsik Instrument Systems Inc.
Durex Industries
Eurotherm by Schneider Electric
Gefran Inc.
- **GeoCorp Inc.**
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Nanmac Corp.
PhoenixTM LLC
Rockwell Automation Inc.
Televac | The Fredericks Company



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Watlow Electric Manufacturing Co.

Tubes, Protection

- Alhern-Martin Indl. Furnace Co.
American Isostatic Presses Inc.
BeaverMatic Inc.
Burns Engineering
Ceramic Solutions Inc.
- **Clark Power Systems Inc.**
Cleveland Electric Laboratories
Conrad Kacsik Instrument Systems Inc.
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CoorsTek
Durex Industries
- **GeoCorp Inc.**
- **INEX Inc.**
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PCE Instruments

Valves

Butterfly

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Bloom Engineering Co. Inc.
Conrad Kacsik Instrument Systems Inc.
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- **GeoCorp Inc.**
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Heat Treating Services Unlimited Inc.
Honeywell Thermal Solutions
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Karl Dungs Inc.
- **McLaughlin Furnace Group LLC**
- **Metallurgical High Vacuum Corp.**
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- Grammer Vacuum Technologies Inc.
- Honeywell Thermal Solutions
- **Ipsen**
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- Pfeiffer Vacuum Inc.
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- Surface Combustion Inc.
Tim Bolduan Equipment LLC

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- Surface Combustion Inc.
Tim Bolduan Equipment LLC

Spray Washers

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Viking Equipment Finance

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Fives North American Combustion, Inc.
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Specialty Gaskets Inc.

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McDaniel Advanced Ceramic Technologies
- **McLaughlin Furnace Group LLC**

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CoorsTek
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- **GeoCorp Inc.**
- **Ipsen**
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Du-Co Ceramics Co.
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- **ZIRCAR Ceramics Inc.**

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Alpha 1 Induction
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Ceramic Solutions Inc.
Cotronics Corp.
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Cement

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Cotronics Corp.
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Ceramic Fiber

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Armil CFS
BeaverMatic Inc.
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 - ▶ **G-M Enterprises**
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FNA 2018 SCHEDULE

All Events Hosted as Follows:

ICC: Indiana Convention Center: 100 S. Capital St. - Indianapolis, IN
MAR: Marriott Hotel Downtown: 350 West Maryland St. - Indianapolis, IN

MONDAY, OCTOBER 8

7:00 am - 6:00 pm

Registration and Badge Pick-Up (ICC)

FNA Registration and badge pick-up is located in the Indiana Convention Center. Once you enter the Convention Center, follow the Registration signs.

7:00 am - 6:00 pm

Exhibitor Move-in (ICC)

6:00 pm - 8:00 pm

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FNA 2018 Kickoff Welcome Reception with Heavy Hors d'oeuvres (MAR)

The opening night will be your opportunity to network with the top suppliers exhibiting at FNA 2018 along with some of the most successful heat treaters in the world. (Open to paid conference attendees, or with purchase of Monday night reception)

TUESDAY, OCTOBER 9

7:00 am - 5:00 pm

Registration and Badge Pick-Up (ICC)

FNA Registration and badge pick-up is located in the Indiana Convention Center. Once you enter the Convention Center, follow the Registration signs.

8:00 am - 11:15 am

Sponsored by



Technical Sessions (ICC)

Technical Sessions include:

Productivity & Data; FNC/Nitriding; Emerging Technologies; Maintenance; Heat Treat Business

Additional details on the next page.

11:15 am - 5:30 pm

FNA Business Expo (ICC)

FNA 2018 is a complete sellout with over 170+ top suppliers in every aspect of equipment, furnaces, parts, accessories, and services you can think of in heat treating. You will want to visit every booth and learn the latest innovation and technology.

4:00 pm - 5:30 pm

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Trade Show Floor Reception With Heavy Hors d'oeuvres (ICC)

During the last 90 minutes of the FNA Expo, you will have the opportunity to enjoy beverages and hors d'oeuvres with your suppliers and other heat treaters.

WEDNESDAY, OCTOBER 10

7:00 am - 7:45 am

MTI Annual Business Meeting (MTI Members Only) (ICC)

7:00 am - 1:30 pm

Registration and Badge Pick-Up (ICC)

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8:00 am - 10:15 am

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Technical Sessions (ICC)

Technical Session include:

Quenching and Cooling; Processes; Equipment; Standards & Pyrometry; Controls and Materials

Technical Session details on the next page.

10:30 am - 2:30 pm

FNA Business Expo (ICC)

6:00 pm - 11:00 pm

(MTI Members Only)

MTI's President's Reception and Awards Dinner/YES Graduation Dinner (MAR)

Use the registration form on the inside back cover of this brochure to purchase tickets to this event (and the conference/expo), or visit the following link: www.furnacesnorthamerica.com/registration

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- ☐ **ADD Oct. 10 MTI Member Awards Dinner (\$160) Members Only**

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Monday, Oct. 8 6:00-8:00 pm: FNA 2018 Kickoff Welcome Reception with Heavy Hors d'oeuvres (MAR)

Tuesday, Oct. 9 8:00-11:15 am Tech Sessions; 11:15 am-5:30 pm FNA Business Expo (ICC); 4:00-5:30 pm Trade Show Floor Reception w/Heavy Hors d'oeuvres (ICC)

Wednesday, Oct. 10 8:00-10:45 am Tech Sessions (ICC); 10:45 am-2:30 pm Business Expo (ICC); 6:30-11:00 pm: Dinner/YES Graduation (MAR) *(MTI Members Only)*

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☐ Guest
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☐ Manager/Supervisor
☐ Marketing/Sales
☐ Metallurgist/Supervisor
☐ Purchasing
☐ Quality Control/Assurance
☐ Technician/Operator

B. PURCHASING AUTHORITY

- ☐ Approve
☐ Recommend
☐ Specify

C. TYPE OF ORGANIZATION

- ☐ Consulting
☐ Education
☐ Government
☐ Heat Treating Captive
☐ Heat Treating Commercial
☐ Supplier To Industry
☐ Testing Facility/R&D

D. TOTAL EMPLOYEES AT THIS LOCATION

- ☐ 1-19 ☐ 50-99 ☐ 250-499 ☐ 1000+
☐ 20-49 ☐ 100-249 ☐ 500-999

E. HEAT TREATING ACTIVITY (CHECK ALL THAT APPLY)

- | | |
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| ☐ Aluminum Non-Ferrous | ☐ High Speed Steel |
| ☐ Annealing | ☐ Laser Heat Treating |
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| ☐ Carbon Nitriding | ☐ Nitriding |
| ☐ Carburizing | ☐ Sintering |
| ☐ Composites | ☐ Straightening |
| ☐ Cryogenic Treating | ☐ Tool Steel |

F. PRIMARY INDUSTRY SERVED (CHECK ONE)

- | | |
|---|--|
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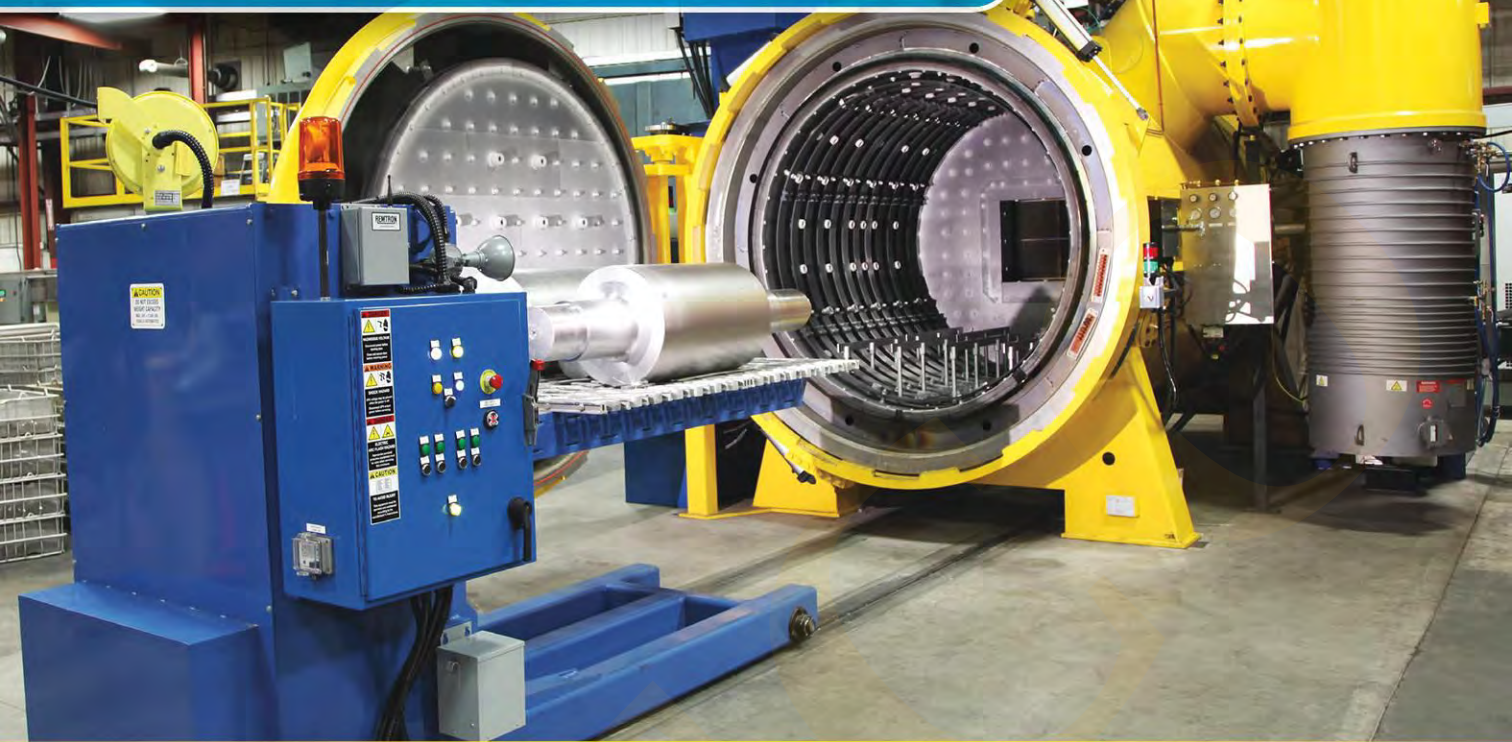
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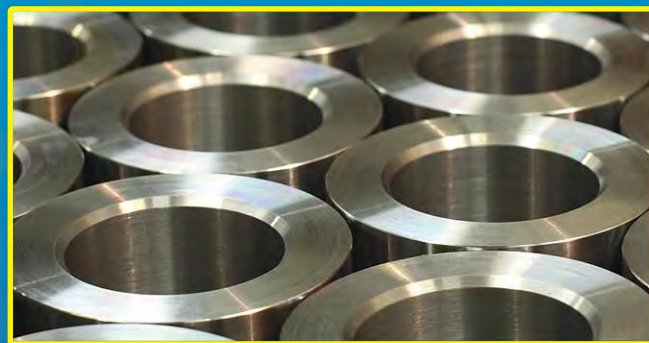


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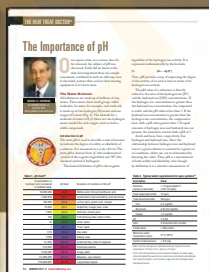
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24" x 24" x 36"	New England	Elec 800°F
24" x 24" x 48"	Blue-M	Elec 600°F
24" x 36" x 24"	Grieve	Elec 500°F
24" x 36" x 24"	Demtec (N ₂)	Elec 500°F
24" x 36" x 24"	AFC (N ₂)	Elec 1250°F
24" x 36" x 24"	Trent	Elec 1400°F
25" x 20" x 20"	Blue-M	Elec 650°F
24" x 36" x 48"	Gruenberg	Elec 500°F
25" x 20" x 20"	Blue-M (Inert)	Elec 1100°F
26" x 26" x 38"	Grieve (2)	Elec 850°F
30" x 30" x 60"	Gruenberg	Elec 450°F
30" x 30" x 48"	Process Heat	Elec 650°F
30" x 38" x 48"	Gruenberg (Inert) (2)	Elec 450°F
30" x 48" x 30"	Surface (3)	Elec 1400°F
30" x 48" x 30"	Surface	Gas 1250°F
30" x 48" x 36"	Surface (Atmos)	Elec 1400°F
30" x 48" x 30"	Surface	Elec 1250°F
36" x 36" x 36"	Grieve (Solvent)	Elec 500°F
36" x 36" x 36"	Blue M Environment Chamber (-18°C to +93°C)	
36" x 42" x 72"	Gruenberg	Elec 450°F
36" x 48" x 36"	Pollution Control Burn Off	Gas 850°F
36" x 48" x 36"	Grieve	Elec 350°F
36" x 48" x 36"	AFC	Gas 1250°F
36" x 36" x 60"	Despatch	Elec 500°F
36" x 48" x 36"	TPS (Environmental) Elec	-40°C to +200°C
36" x 60" x 36"	CEC (2)	Elec 650°F
36" x 84" x 36"	Lindberg (1996)	Gas 800°F
37" x 25" x 37"	Despatch	Elec 500°F
38" x 20" x 26"	Grieve	Elec 500°F
42" x 72" x 36"	Despatch	Elec 1350°F
48" x 48" x 20"	Lindberg (Hyd. Press)	Elec 1250°F
48" x 34" x 52"	Heat Mach. (2)	Elec 500°F
48" x 48" x 48"	TPS - Environmental	Elec 392°F
48" x 48" x 48"	Trent	Elec 1250°F
48" x 48" x 48"	L&L (Atmos)	Elec 1250°F
48" x 52" x 60"	Despatch	Elec 500°F
48" x 52" x 68"	Despatch (Solvent)	Elec 500°F
48" x 48" x 72"	Despatch	Elec 650°F
48" x 48" x 48"	Lindberg (Argon Atmos)	Elec 1400°F
48" x 72" x 36"	Lindberg - Car Bottom	Elec 1600°F
50" x 50" x 50"	Grieve	Elec 1250°F
55" x 30" x 60"	Precision Quincy (2)	Elec 350°F
68" x 72" x 72"	Gruenberg (4)	Elec 450°F
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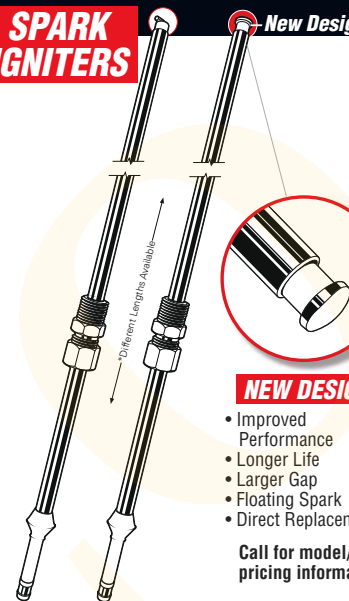
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U3644 BeaverMatic Batch Temper Furnace (36"W x 48"D x 36"H, 1500°F, gas-fired)
V1010 Dow Batch Temper Furnace (30"W x 48"L x 20"H, 1250°F, gas-fired)
V1024 PIFCO Batch Temper Furnace, Skid Hearth (36"W x 48"L x 30"H, 1200°F, electric)
V1049 Surface Combustion Temper Furnace (87"W x 87"L x 36"H, 1350°F, gas-fired)
V1068 Surface Combustion Oil Quench Furnace (30"W x 30"D x 48"H, 1950°F, gas-fired)
V1081 Lindberg Batch Temper Furnace (20"W x 24"D x 18"H, 1250°F, electric)
V1095 Surface Combustion Temper Furnace (30"W x 48"D x 30"H, 1250°F, gas-fired)
V1096 Surface Combustion Temper Furnace (30"W x 48"D x 30"H, 1400°F, gas-fired)
V1106 Dow Batch Normalizer Furnace (45"W x 84"D x 32"H, 1800°F, gas-fired)
U3624 Lindberg Nitrogen Temper Furnace (24"W x 36"D x 18"H, 1350°F, gas-fired)
U3651 J.L. Becker Batch Temper Furnace (36"W x 48"D x 36"H, 1350°F, gas-fired)

Batch High-Temp Furnaces

- U3556 Pacific Industrial Batch High-Temp Furnace (24"W x 36"L x 18"H, 2800°F, electric)
U3637 Pacific Scientific Batch Temper (30"W x 48"D x 24"H, 1600°F, gas-fired)
U3643 Surface Combustion Temper Furnace (30"W x 48"D x 42"H, 1400°F, electric, 81kw)
V1013 Thermolyne High-Temp Batch Furnace (10"W x 14"L x 9"H, 2000°F, electric)
V1067 Seco Warwick Batch High-Temp Furnace (24"W x 24"H x 36"D, 1800°F, electric)
V1130 Onspec Slot Forge Furnace (72"W x 96"D x 48"H, 2000°F, gas-fired)

Batch Oil Quench Furnaces

- C0086 Huber Car Bottom Furnace (10'4"W x 12'9"D x 8'H, 1800°F, gas-fired)

Car Bottom Furnaces

- V1140 Beavermatic Car Bottom Furnace (48"W x 72"D x 48"H, 1600°F, gas-fired)
V1141 Beavermatic Car Bottom Furnace (60"W x 144"D x 60"H, 1400°F, gas-fired)

Drop Bottom Furnaces

- C0069 Enviro-Pak Drop Bottom Furnace (48"W x 48"D x 48"H, 1200°F, electric)
U3543 Despatch Drop Bottom Furnace (4"W x 6"L x 4'H, 1200°F, electric)

Internal Quench Furnaces

- C0064 Lucifer IQ Furnace (18"W x 24"D x 18"H, 1900°F, electric)
U3569 Surface Combustion IQ Furnace (24"W x 18"H x 36"D, 1750°F, gas-fired)
U3570 Surface Combustion IQ Furnace (24"W x 36"D x 18"H, 1750°F, gas-fired)
U3606 Dow/AFC IQ Furnace (30"W x 48"L x 24"H, 1850°F, gas-fired)
V1046 Surface Combustion IQ Furnace (87"W x 87"L x 36"H, 1850°F, gas-fired)
V1047 Surface Combustion IQ Furnace (62"W x 62"L x 36"H, 1850°F, gas-fired)
V1048 Surface Combustion IQ Furnace (62"W x 62"L x 36"H, 1850°F, gas-fired)
V1062 Surface Combustion Super IQ Furnace (36"W x 72"D x 36"H, 1950°F, gas-fired)
V1082 Holcroft IQ Furnace with Top Cool (36"W x 48"D x 30"H, 1850°F, gas-fired)
V1083 Holcroft IQ Furnace with Top Cool (36"W x 48"D x 30"H, 1850°F, gas-fired)

- V1092 Surface Combustion Allcase IQ Furnace (30"W x 48"L x 30"H, 1850°F, gas-fired)
V1093 Surface Combustion Allcase IQ Furnace (30"W x 48"L x 30"H, 1850°F, gas-fired)
V1111 Surface Combustion IQ Furnace (30"W x 48"D x 30"H, 1850°F, gas-fired)

Mesh Belt Brazing Furnaces

- C0102 J.L. Becker Mesh Belt Brazing Furnace (30"W x 24"5" heated L x 10"H, 2050°F, electric)
C0103 J.L. Becker MB Brazing Furnace w/Exo & Dryer (30"W x 24"5" heated L x 10"H, 2050°F, electric)
U3529 Cl Hayes Mesh Belt Brazing Furnace (18"W x 6"H x 8' heated, 2100°F, electric)
U3592 J.L. Becker Mesh Belt Brazing Furnace (12"W x 6"H, 2100°F, electric)
V1035 Seco Warwick Mesh Belt Brazing Furnace (18"W x 12"H, 2100°F, electric)

Mesh Belt Tempering Furnaces

- C0044 CGS Moore Mesh Belt Curing Oven (22"W x 20"L x 10"H, 500°F, gas-fired)
C0073 Heat Machine Mesh Belt Tempering Furnace (24"W x 10"L x 12"H, 1250°F, gas-fired, PT2501)
C0075 Industrial Heating Mesh Belt Tempering Furnace (24"W x 22"L x 12"H, 950°F, gas-fired, PT3630)
C0080 Surface Combustion Mesh Belt Temper Furnace (18"W x 11"H, 13' long, 1000°F, gas-fired)
C0081 Park Thermal Mesh Belt Temper Furnace (17.5"W x 7"H, 15'8" long, 900°F, gas-fired)
C0083 Eltropul Plasma Sealing System (56"Dia x 80"D, 1022°F, electric)
C0090 Hengli Mesh Belt Sealing Furnace - Atmosphere (5.9"W x 3.5"H, 2100°F, electric)
U3638 American Gas Furnace MB Temper Furnace (31"W x 5"H, 17' heated length, 1100°F, gas-fired)
V1022 Surface Combustion Mesh Belt Tempering Furnace (42"W x 36"D x 12"H, 1350°F, gas-fired)

Pit Furnaces

- V1088 Leeds & Northrup Pit Furnace (24" ID x 30" deep, 750°F, electric)

Pusher Furnaces

- U3648 Ipsen P-12 Pusher Furnace (30"W x 30"L x 30"H, 1650°F, gas-fired)

Roller Hearth & Rotary Furnaces

- U3550 PIFCO Powered Roller Hearth Temper Furnace (21"W x 12"L x 18"H, 1000°F, electric)
V1009 Ipsen Continuous Temper Roller Hearth Furnace (24"W x 10"L x 18"H, 1350°F, electric)
V1091 Finn & Drefflein Rotary Hearth Furnace (13'3"ID x 5'3"ID x 4'W x 2'8"H, 2275°F, electric)

Steam Tempering Furnace

- U3616 Degussa Durrerit Steam Tempering Furnace (24"Dia x 48"D, 1200°F, electric)

Tip Up Furnaces

- C0043 Industrial Furnace Tip-Up Furnace (8"W x 22'4"D x 6'H, 1800°F, gas-fired)

Vacuum Furnaces

- C0013 Cl Hayes Oil Quench Vacuum Furnace (24"W x 36"D x 18"H, electric)
C0027 Pacific Scientific Vacuum Temper Furnace (24"W x 36"D x 24"H, 1450°F, electric)
C0111 Lindberg Vacuum Furnace (15"W x 24"L x 12"H, 2400°F, electric)
U3612 AVS Vacuum Annealing Furnace 2-Bar (18"W x 24"D x 12"H, 2400°F, electric)
U3635 Lindberg Hydrying Gas Generator (6000 CFH Endo, gas)
V1004 Cl Hayes Vacuum Furnace, Oil Quench (18"W x 30"L x 12"H, 2400°F, electric)
V1128 Ipsen Vacuum Furnace (18"W x 32"D x 12"H, 2400°F, electric)
V1131 Abar Vacuum Furnace (34"W x 60"D, 2250°F, electric)
V1135 Abar Vacuum Furnace 2 Bar (72"Dia x 72"Deep, 2400°F, electric)
V1136 Surface Combustion Vacuum Furnace, 2-Bar (26"W x 36"L x 22"H, 2400°F, electric)

- V1138 Ipsen Vacuum Furnace, 5-Bar (24"W x 36"L x 14"H, 2400°F, electric)

Endothermic Gas Generators

- U3594 AFC-Holcroft Gas Generator (3,000 CFH Endo, gas)
V1075 Lindberg Gas Generator (3000 CFH Endo)
V1105 Surface Combustion Gas Generator (5,600 CFH Endo, 1950°F, gas)
U3647 Lindberg Gas Generator (3000 CFH Endo, 2050°F, gas)
V3512 Surface Combustion Gas Generator - 5,600 CFH Endo
V1036 Seco Warwick Gas Generator (3,000 CFH Exo, gas)

Material Handling - Conveyors

- U3565 Conveyor - Roller (48"W x 20'L)

Ovens - Cabinet

- U020 Blue-M Oven/Ref (20"W x 20"H x 18"D), (-4°F/400°F)
U3625 Lindberg Atmosphere Oven (38"W x 38"D x 38"H, 850°F, electric)
U3629 Cabinet Oven (30"W x 30"D x 36"H, 750°F, electric)
U3642 Blue-M Cabinet Oven (36"W x 36"D x 36"H, 650°F, electric)

Ovens - Walk-In

- C0039 Gehnrich Walk-In Oven (72"W x 96"L x 72"H, 400°F, electric)
C0108 Park Thermal Walk-In Oven (90"W x 144"D x 72"H, 850°F, gas-fired)

Freezers

- V1129 Webber Freezer (-120°F, electric)

Blowers

- U018 Twin City Blower (20 HP, RBA-SW, Class 22)

Charge Cars

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V1051 Surface Combustion Charge Car (DEPER, 87"W x 87"L)
V1085 Holcroft Charge Car (DE/DP, 36"W x 48"D)
V1112 Surface Combustion Charge Car, SE, 30"W x 48"D

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- V1086 Holcroft Scissors Lift & (2) Holding Tables

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- U030 Graham Systems Heat Exchanger - Plate
V1104 SBS Heat Exchanger

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U3646 HydroThrift, Duplex Pump Base, Water Cooling System
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V1084 Holcroft Spray/Dunk Washer (36"W x 48"D x 30"H, 190°F, gas-fired)
V1101 Surface Combustion Spray Washer (36"W x 48"D x 30"H, 180°F, electric, 58kw)

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139

Equipment & Business News

Laser Hard Unveils Robotic Heat-Treating System

Laser Hard Inc., a partnership between commercial heat treater Peters' Heat Treating and laser welder Phoenix Laser Solutions, invested in a mobile robot designed for targeted laser hardening and tempering of metal surfaces. The company, which held an open house at its Meadville, Pa., headquarters June 20, says it is the first production system of its kind in the United States. The robot combines the latest innovations in laser technology and optical pyrometry and utilizes a six-axis robotic arm that articulates with a two-axis tiltable rotary table. This movement control provides the capability to project the laser beam in free 3-D movements precisely following contours of parts with complex geometries. The laser



heat-treating processes include hardening, tempering and annealing. They deliver the same properties as conventional heat treating, but with the added benefits of accuracy and adaptability to workpiece geometry.

Advanced Heat Treat Expanding, Adding Equipment

Advanced Heat Treat Corp. (AHT) broke ground on a 15,000-square-foot expansion at its corporate headquarters in Waterloo, Iowa. The addition will allow AHT to segregate its trademark processes, UltraGlow ion nitriding/nitrocarburizing and UltraOx (gaseous ferritic nitriding/nitrocarburizing and oxidation treatments). The expansion will also include two new gaseous ferritic nitriding/nitrocarburizing units with sizes up to 13 feet tall and 5 feet wide. According to AHT, the expansion will allow better control of product flow, inventory control and process capacity. The project will nearly double its gaseous nitriding capacity.



Rudnev Receives Awards at ASM Conference

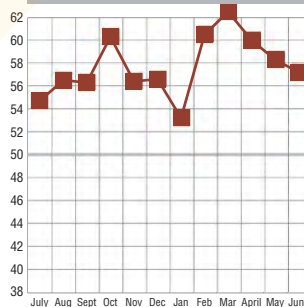
Dr. Valery Rudnev was recognized during the opening ceremony of the American Society for Materials (ASM International) Thermal Processing in Motion conference. Dr. Rudnev, director of science and technology at Inductoheat Inc., an Inductotherm Group Company, received two awards for his contributions in the field of induction heating and heat treating. Dr. Rudnev was elected as a Fellow to the International Federation for Heat Treatment and Surface Engineering (IFHTSE)



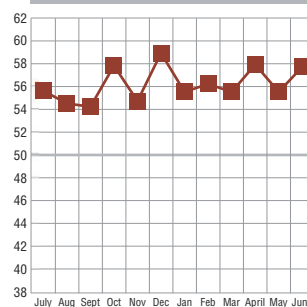
for his "preeminence in induction heat treating and modeling of the induction heat treating process." Dr. Rudnev was also presented with the ASM International "Best-Paper in Heat Treating" award for co-authoring an article titled "Revolution – Not Evolution – Necessary to Advance Induction Heat Treating." The article was co-authored by Gary Doyon, Collin Russell and John Maher.

ECONOMIC INDICATORS

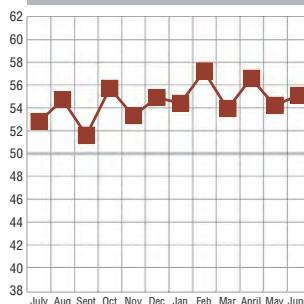
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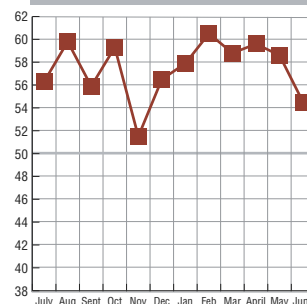
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TYPE	OPERATING COST	TEMPERATURE
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*Evaporative cooling
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*Chiller
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