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When it comes to heat treating, it’s not just about what you do, but also who you know. Identifying quality sources for contract heat treating, equipment, services, and testing is a critical component of your overall business plan, but it can be a time-consuming task. That’s why we’ve put together this Thermal Processing Buyer’s Guide: to help you partner with the suppliers you need as well as to steer companies who require these services. We have compiled the most complete source listing available and have presented this information in a way that is accessible, convenient, and informative.
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The 2019 Buyer’s Guide, a new website, and more!

The coming months are bringing a lot of awesome treats for our heat-treat friends.

We launched our newly designed website in October that features a dynamic interface and increased readability to better help you navigate the informative features and columns that you’ve come to expect from Thermal Processing.

But that’s just the appetizer, because coming in 2019, Thermal Processing is expanding to 12 issues a year. The heat-treat industry is, well, hot, right now. We want to be able to get the latest information about the industry to you, and six issues a year just wasn’t enough to accomplish that. For a taste of what to expect in the coming year, take a look at our editorial calendar to your right.

Along with the expansion, our January issue will feature a brand new, enhanced design formulated to make your entry into the print experience even more enjoyable.

We’re planning even more surprises to help you out as you explore the heat-treat world, not the least of which is this year’s annual Buyer’s Guide.

To help you make your business decisions for the coming year, we offer our 2019 Buyer’s Guide. It’s a comprehensive resource of company listings for the heat-treating industry. I encourage you to keep this special issue of Thermal Processing close at hand as your go-to guide for connecting with these quality companies offering equipment, services, testing, and other supplementary products to help with your continued success.

Over the years, we’ve made exceptional contacts in the heat-treating industry. We value these connections — whether it’s for advertising opportunities or for contributed articles highlighting the latest technology, applications, products, and trends.

To help enhance this information-packed issue, we’ve included a company profile featuring Conrad Kacsik, and how that company has delivered products and services to meet the latest compliance requirements of industry leaders.

Also in this issue: A Q&A with Across International’s Max Dubin, who shares what Across International brings to the heat-treat industry table.

I hope you find the articles interesting and informative and see our Buyer’s Guide for the useful resource we intended it to be in order to help you with your purchasing decisions.

And if your company isn’t listed, send me an email at kenneth@thermalprocessing.com with your information and category, and we will make sure you get added in the 2020 guide.

As always, thanks for reading and letting us be a valuable source for you and the rest of the heat-treating industry.

Kenneth Carter
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2019
EDITORIAL CALENDAR
JANUARY
FOCUS: Vacuum Heating, Cryogenics
FEBRUARY
FOCUS: Insulating Materials, Burners & Combustion
MARCH
FOCUS: Industrial Gases, Thermocouples
APRIL
FOCUS: Process Control, Pyrometry, AISTech Preview
MAY
FOCUS: Composites, Fixtures, Powdermet Preview
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AUGUST
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SEPTEMBER
FOCUS: Heat Treat Expo Preview
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Installation of supervisory control system for vacuum furnaces.

(Photos courtesy: Conrad Kacsik)
“We don’t leave until everything works”

Since 1977, Conrad Kacsik Instrument Systems, Inc. has delivered products and services to meet the latest compliance requirements of industry leaders in temperature measurement, combustion, data acquisition, controls technology, and all types of instrumentation.

By Kenneth Carter, Thermal Processing editor

When Hurricane Florence threatened the Southeast recently, a customer of Conrad Kacsik’s in Alabama, Star Aviation, was in dire need of one of its furnaces to pass a uniformity survey for an upcoming supplier audit it was facing.

Instead of waiting out the storm, two of Conrad Kacsik’s engineers tag-teamed a 12-hour drive in the inclement weather in order to correct the problem, which made Star Aviation extremely happy.

That’s just a tiny example of how Conrad Kacsik goes that extra mile to take care of its customers.

“We really do pride ourselves on doing whatever it takes to make sure the job is done right and that the customer is completely satisfied,” said Christopher Miller, owner and CEO of Conrad Kacsik Instrument Systems Inc.

PYROMETRY SERVICES FIELD

Conrad Kacsik covers a myriad of applications in the pyrometry services field, including providing instrumentation service and designing, engineering and installing supervisory control, data acquisition, combustion/flame safety, and instrumentation systems. The company can also precisely perform a wide range of engineering services and help with compliance with stringent industry standards, such as AMS2750, Nadcap, CQI-9, and CFR-21.

The company is also a leading Watlow distributor, but also carries products from other respected manufacturers including Honeywell, Eclipse, and Yokogawa.

“Obviously, we’re in a very niche industry, being in the pyrometry services field,” Miller said. “We publicize that we are the largest company out there doing what we do. We have 35 employees. We cover the entire continental United States. We also do work in Mexico and Canada. But we’ve made a conscious choice that we have more work than we can handle here in America, so we haven’t aggressively pursued overseas expansion. Ironically, we do have a guy over in Malaysia right now and then he’s going to Guam after that. He’s part of our engineering division, and he’s doing a startup of a new furnace system over there. That is more the exception than the norm. But it underscores our philosophy of doing whatever it takes to satisfy our customers.”

FOUNDATIONAL PILLARS

Miller said he has based his company on five foundational pillars. The first is the instrumentation/pyrometry services.

“That’s the calibration, the uniformity surveys, the system accuracy tests on industrial furnaces, ovens, and thermal processing equipment,” he said. “And then we have the engineering division, which is comprised of five guys, and what these guys can do is complete control system upgrades, data acquisition systems, and retrofits.”

The final pillars are made up of our product distribution group, our metrology lab, and our consulting division, according to Miller.

“Each one of our pillars can be interrelated,” he said. “For example, we got called into the technical operations center of one of the major airlines to help them with a furnace that they could not get to pass a temperature uniformity survey. We went in helping them with that process. And then it turned out that they needed control system upgrades on a number of the furnaces, which would enable the furnaces to operate more accurately. So, what started out as a routine service call from one of our regular field service technicians ended up bringing in the engineering division who designed and installed new computerized control systems on multiple furnaces for them. That happens quite a bit.”

And sometimes, the inverse occurs, according to Miller.

“We just picked up a customer in Detroit, where they had a couple of vacuum furnaces that we installed new control systems for,” he said. “And once they were complete, they asked if we did uniformity surveys and instrument calibration and vacuum calibration. And we said, ‘well, as a matter of fact, we do.’ So that was where the engineering division got new business for the service division.”

Conrad Kacsik also offers multiple lines of process controls, data acquisition systems, industrial burners, and electric heaters.

“If a customer has a controller or a recorder go bad, we stock, supply, and install those devices for them,” Miller said. “Plus, we sell thermocouples, thermocouple wire, and other consumable products, which are used extensively in the thermal processing field.”
A customer service department, metrology laboratory, and consulting division round out Conrad Kacsik’s offerings to the heat-treat industry, according to Miller.

“We have a customer service department that’s here all day, every day, in our home office in Solon, Ohio, to process orders or make recommendations,” he said. “We also have a metrology laboratory that calibrates all our field test equipment that our guys use in the field, plus they also calibrate instrumentation and equipment for our customers. One of our specialties is infrared temperature sensors.”

“A lot of customers will send them in, or we’ll go onsite and actually calibrate those sensors for our customers,” Miller said. “That’s a smaller segment of the business, but it’s a segment that not many of our competitors have.”

AEROSPACE AND CONSULTING SERVICES
Miller said aerospace is an industry that drives a large part of his company’s business.

“Our customers that are doing aerospace work have to comply with the Aerospace Material Specification — AMS 2750,” he said. “Additionally, many of our customers choose to become Nadcap (National Aerospace and Defense Contractors Accreditation Program) accredited. We have a special process consulting division that assists our customers or companies who want to become Nadcap accredited or comply with AMS2750 to meet those specifications. And we’ll do everything from assessing their operations to see if they would be compliant to helping them draft their procedures so that they are compliant. We’ll do pre-audits for them as well as assist them with the audit facilitation and help them with their corrective actions after they go through the audit. This division really differentiates us from our competitors. Our team knows how to spot improvement opportunities, and we’re experts in lean manufacturing and process improvements.”

SOLVING CUSTOMER PROBLEMS
The multitude of services that Conrad Kacsik offers helps raise the bar when it comes to solving problems for its customer base.

“Typically, we listen to what the problem is and try to develop a solution based on what the customer is telling us,” Miller said.

An airline customer is a perfect example, according to Miller.

“They had an oven that they needed to be plus-or-minus 10 degrees of uniformity, and they couldn’t get that to occur,” he said. “Now that’s a little tight, I have to admit, but certainly attainable. One of our service technicians from our Southeast Division rode over and began working on the oven. He called up to Cleveland for some guidance, and another technician flew down to provide assistance. After some troubleshoot-
ing, they were able to identify and solve the problems that were preventing the oven from passing and got the oven to achieve the level of uniformity required by the customer."

While Miller’s employees were still on site, they were approached by the airline’s maintenance department about upgrading the legacy control systems on other furnaces within the facility.

“What we were able to do then was bring in the engineering division out of Cleveland to do an assessment of the facility,” he said. “We developed a game-plan, and obviously, they had enough furnaces where we came up with a supervisory control and data acquisition system for the department. The project was integrated in phases over two years. It features a centralized control station utilizing HMI (human machine interface) software that resides in the department manager’s office. The system allows direct control of nine furnaces. It also provides them with recipe management, batching, time stamping, and operator signature capabilities. The system communicates to the plant network via an Ethernet connection and provides the data acquisition and record keeping required to meet their specifications. The system is logging all the data as well as giving real time representation of what’s going on in the furnace.”

Another example shows the inverse of that situation, according to Miller.

“We have a customer in Oklahoma that provides an example of the opposite side of the equation,” he said. “They had some older style vacuum furnaces, and they wanted new control systems installed on the vacuum furnaces. They saw how impressive our system was, and what the operator interface looked like, and how it tied into the quality manager’s office, and then one thing led to another, and they said, ‘we’re not completely satisfied with our current pyrometry services provider, would you be able to help us?’ And we said we happen to have people in Tulsa right around the corner. We’ll come in and assess your equipment, provide you a quote, and if we’re competitive we hope you’ll go with us. And they did.”

FIVE DECADES OF EXPERIENCE

Conrad Kacsik has been around since 1977, but Miller has been with the company since 1999 and actually bought the company from the founder, Jacob Kacsik, in late 2003.

“Obviously there’s a fair amount of name recognition within the industry since we’ve been around so long, so I’ve never considered changing the name,” Miller said.

Miller has helped Conrad Kacsik carve quite a niche out of the thermal-processing and heat-treat industries, and he expects that to continue into the future.

“When you read some of the latest information coming out from resources such as ASM, the American Society of Metals, there are technologies such as 3D printing and additive manufacturing that will eventually impact the industry,” he said.

Miller said he expects industry standards and specifications to grow tighter and stricter, and he sees more industry oversight programs such as MedAccred, which is a program affecting producers of medical devices, to also become more prevalent.

“Things have become more and more specialized,” he said. “As aerospace, automotive, medical, and pharmaceutical specifications have gotten stricter, it’s really bolstered our business. Many companies do not have the time, the resources, or the staff on hand to fully comprehend and comply with these standards. We provide value by being experts in these industry specifications.”
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- Automated controls available for easier operation
- Ideal for castings, extrusions, forgings, and other aluminum
- Gas fired or electrically heated
- Custom sizes available
- 10 standard sizes
- Available temperature uniformity of +/- 5° F or +/- 10° F

**Benefits:**
- 10 standard sizes
- Custom sizes available
- Gas fired or electrically heated
- Cost effective alternative to a drop bottom furnace
- Ideal for castings, extrusions, forgings, and other aluminum
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- Automated controls available for easier operation
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<td>Thermal Products Solutions LLC</td>
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<tr>
<td>Castaloy Inc</td>
<td>Waukesha, WI 53189</td>
<td>262-547-0070</td>
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<tr>
<td>Duratloy Technologies Inc</td>
<td>Scottsdale, PA 15683</td>
<td>724-887-5100</td>
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<tr>
<td>Ipsen</td>
<td>Cherry Valley, IL 61016</td>
<td>800-727-7625</td>
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<tr>
<td>National Element Inc</td>
<td>Brighton, MI 48164</td>
<td>248-486-1810</td>
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<tr>
<td>Park Thermal International Corporation</td>
<td>Buffalo, NY 14222</td>
<td>877-834-4328</td>
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<tr>
<td>Qual-Fab Inc</td>
<td>Avon, OH 44011</td>
<td>440-327-5000</td>
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<td>Riverside, CA 90404</td>
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<tr>
<td>Mokon</td>
<td>Buffalo, NY 14207</td>
<td>716-876-9951</td>
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### STEELS/STAINLESS

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<tr>
<td>Duraloy Technologies Inc</td>
<td>Scottsdale, PA 15683</td>
<td>724-887-5100</td>
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### TANK FABRICATIONS

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<tr>
<td>Ajax Electric Company</td>
<td>Huntington Valley, PA 19006</td>
<td>215-947-8500</td>
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<tr>
<td>Alcon Industries Inc</td>
<td>Cleveland, OH 44102</td>
<td>216-961-1100</td>
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<tr>
<td>Dry Coolers Inc</td>
<td>Oxford, OH 44137</td>
<td>800-525-8173</td>
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<td>Ipsen</td>
<td>Cherry Valley, IL 61016</td>
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### TRAYS

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“Listening to customers is really important, because that’s where we have to start”

What’s a typical day like for you at Across International?
As sales development, I act as the intersection between the products our engineers design, our customers’ applications, and our staff getting the equipment into labs, factories, and workshops. For sales, that means conducting trainings and conference calls with end-users or distributors. For our management team, it means charting a course towards new R&D projects for new or current product lines, to prioritize them for our engineering department. I focus on our products’ specs, how they work, and applications they are used in.

A big part of Across International is trying to marry similar — and some different technology — under the same roof. A lot of universities, government agencies, and private companies tend to keep their sales with one knowledgeable sales rep who can help them build an entire lab or workstation. I make sure our salespeople inform the customer to ensure they make the right equipment decisions.

What does Across International bring to the heat-treat industry table?
We take advantage of lot of different types of technology in order to heat in a wide variety of temperature ranges at different rates. Generally, when you’re doing thermal processing, the No. 1 question is: How hot are you trying to get? We offer induction and molybdenum silicide or silicon carbide heating elements for high temperature applications. For low temperatures, we incorporate stainless steel chambers with standard resistance heating elements, and PT100 thermocouples in our ovens, rotary evaporators, and recirculating heaters.

As far as components, our philosophy is only the best. We work with Kanthal for 1,200 degrees C heating coil wire and 1,900 degrees C heating elements, in order to furnish our high-temperature furnaces with a reliable and durable heat source. Such heating elements provide greater temperature uniformity and a quicker heat-up time. We also work with Mitsubishi for the alumina ceramic insulation within the same vacuum tube and chamber furnaces. This is the highest-quality ceramic on the market, which provides greater temperature uniformity and a longer lifespan.

We consider induction heating one of our specialties. It’s a very specific field that not a lot of companies have knowledge in. We find ourselves often educating people — what’s the difference between, low, mid, and high-frequency? Customers do not come to Across International just because the equipment is in stock ready to ship, but because we understand our products and are happy to explain and answer questions for the researchers in the field.

What are some of Across International’s proudest achievements in the heat-treat industry?
Our proudest achievements surround offering solutions that improve customers’ day-to-day life — whether that be in ease-of-use, energy efficiency, or time savings. In one incident, we were invited to present to the lab managers at Oak Ridge National Lab ways induction heating could decrease heating times and energy consumption. This is one of the world’s most historic research meccas.

Our equipment in and of itself is on the front lines of cutting-edge technology. We’ve filled orders for NASA, SpaceX, and Tesla. We’re also helping to change the world in significant ways. Across has aided a nonprofit called the Billion Bottle Project, which seeks to eliminate water-borne diseases from our planet. These kill more children annually around the world than AIDS, TB, and malaria combined.

Where do you see the heat-treat industry in the next 10-20 years and Across International’s place in it?
I see more utilization of non-traditional heating techniques due to energy efficiencies. A lot of researchers we’re working with are interested in innovative energy storage methods. We must look at how we use energy. Our solid-state induction heaters, for example, have really impressed a lot of people on how much they can drive down electricity costs.

As far as vacuum ovens, we’ve found out that less is more as far as energy, but it’s just a matter of how you heat. For example, with vacuum ovens, the way to get a job done while using the least amount of energy is as quickly as possible. In our smaller vacuum oven chambers, heating the oven from all five walls (the door being the sixth) achieves the best uniformity and quickest time to temperature. This is challenging with larger vacuum ovens that cannot take advantage of convection — the most efficient heating method — to distribute heat.

For our large AccuTemp multi-zones, we have separate controllers to heat each rack independently, so we only spend energy on what’s on the rack — which is where operators keep their parts. The challenge this presents is the racks require welding to seal the wiring for the thermocouples and heating elements in each rack. But then what if you require removable racks for very large parts? Elite series ovens are a chamber-in-a-chamber that allow convection air to circulate through the heating elements and around the chamber, achieving a uniformity of 3 percent or better.

Developing heating solutions to get what the customer wants done, using as little energy as possible, is paramount among Across International’s goals as an industry leader in heat treatment equipment.
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For decades, Across International has been an industry leader in heat treatment and material processing equipment. We offer a complete line of high-quality induction heaters, tube furnaces, muffle furnaces, and more.

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