

COMPANY PROFILE ///

SEMCO CARBON

***CUSTOM
GRAPHITE
MACHINING
(WITH A PERSONAL TOUCH)***

A large graphite resistance heater for an induction furnace. (Courtesy: Semco Carbon)

Approaching five decades of experience with graphite and carbon composites, Semco Carbon can supply just about anything a heat-treat customer may need.

By **KENNETH CARTER**, Thermal Processing editor

In many industries, particularly in the heat-treating industry, the need for graphite and carbon composites is a must. The challenge lies in making sure those needs are met with speed, accuracy, and — most of all — quality.

The experts at Semco Carbon have been meeting those challenges head on for almost 50 years.

“We work closely with our customers to generate a product that will work for them and allow them to achieve their desired results for their customers at a cost-effective manner,” said Matt Thompson, who is co-owner and co-president of Semco Carbon along with his brother, Vince. “Because we don’t succeed unless our customers get the job and get the continuing business and then we succeed with them.”

WORKING WITH ITS CUSTOMERS

One of Semco’s core functions is educating its customers about how to achieve their goals in the most economical way, according to Matt Thompson.

“Generally, that involves a lot of hand holding and also a lot of intense re-engineering,” he said. “It’s working closely with a customer to get the product they actually need.”

Semco machines almost all parts needed for the inside of vacuum furnaces — anything from heating elements, rails, posts, nuts and bolts, and felt and boards, according to Filip Cujba, key account manager with Semco.

“We can pretty much produce anything and everything that the heat-treat industry needs,” he said.

It’s very common within the heat-treat industry for organizations to buy a furnace then retrofit it, according to Vince Thompson.

“We supply some of the OEMs that are out there, but at the same time, we supply the end user,” he said. “They’ll make modification changes, and so the fixtures, the insulation packages, the specific heating elements — whether they be a curved, a plate, a ring, a serpentine — we redesign. We work closely with the customers to redesign their equipment.”

EXPERT CAD SERVICE

That retrofitting often requires extensive CAD work, according to Matt Thompson, and that comes back to making sure the customer knows the initial cost of what they want done.

“It’s not uncommon for our customers to be unaware of what nominal sizes of graphitic blocks or grades are out there,” he said.

“It’s amazing how many times we get something that’s designed by a customer’s CAD guy, and he’s asking for a graphite material that doesn’t exist,” Vince Thompson said.

Along those lines, Semco has the expertise to transform a customer’s ideas into reality, according to Cujba.

Matt Thompson agreed.

“Quite often, we get a call from a customer who’s in a quandary, and they’ve got a napkin sketch,” he said. “It really calls for us to



A 140-inch graphite beam.
(Courtesy: Semco Carbon)



Large heating element for a crystal growth furnace heat zone. (Courtesy: Semco Carbon)

jump in, have some real heart-to-heart conversations with them about what they're trying to do, how they're trying to go about it, what are the true needs versus the wants, and then we can work with them to build a solution."

MATERIALS READILY AVAILABLE

A large part of Semco's success — in addition to its engineering abilities — is its raw materials stocking facility, according to Matt Thompson.

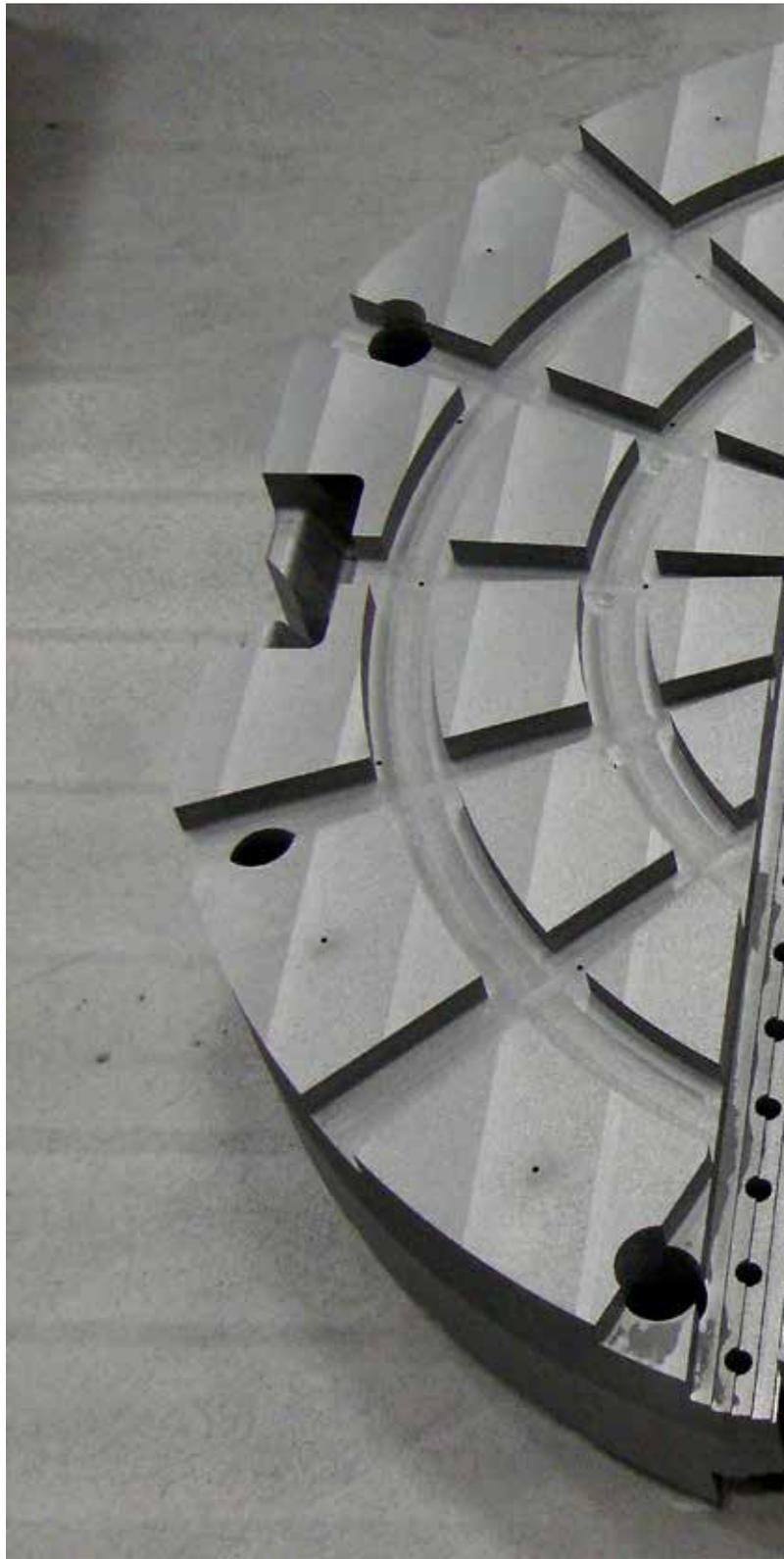
"There are very few shops out there that can handle the number of different grades and the volumes of material that we have on our floor for immediate consumption," he said. "It really enables us to cut the lead times down. Especially since nobody calls you until they have a problem. They either have a furnace that isn't working, or they just purchased a new furnace, and they are doing a retrofit. We are kind of like the dentist; we get called whenever they've got a problem. We stock millions of dollars of raw materials on hand."

And that massive inventory has enabled Semco to thrive in a time where there is a shortage of graphite, according to Vince Thompson.

"It's been a relatively high shortage of raw graphite materials worldwide," Cujba said. "Beginning in 2018 and ongoing toward the end of 2019, prior to that year we had over 300 tons of graphite on our shelves."

Semco's stocking program allowed the company to pick up significant volume of the market share over the last 24 months during the shortage, according to Matt Thompson.

"Our phones were ringing off the hook," he said. "And we had a lot of happy customers because we were the first organization they called that didn't say no."



CONTINUED GROWTH

And Semco continues to add more capability, according to Cujba.

"As our expertise and as our capabilities have grown, we were able to satisfy and tackle larger and more sophisticated clients," Matt Thompson said.

Vince Thompson mirrored his brother's sentiment.

"We have a consistent emphasis on innovation and reinvestment in the company," he said.

Semco deals in what Matt Thompson calls "one-offs" of very large components for the heat-treat industry that can include metal trad-



A 120-inch OD high temperature furnace graphite load plate. (Courtesy: Semco Carbon)

ers, dealers, and vapor deposition, but then the company also can work with companies that do highly advanced heat treatments with alternate materials such as crystals.

Semco's core business is graphite, but the company is working with machining and partnering with producers of carbon-fiber materials, according to Vince Thompson.

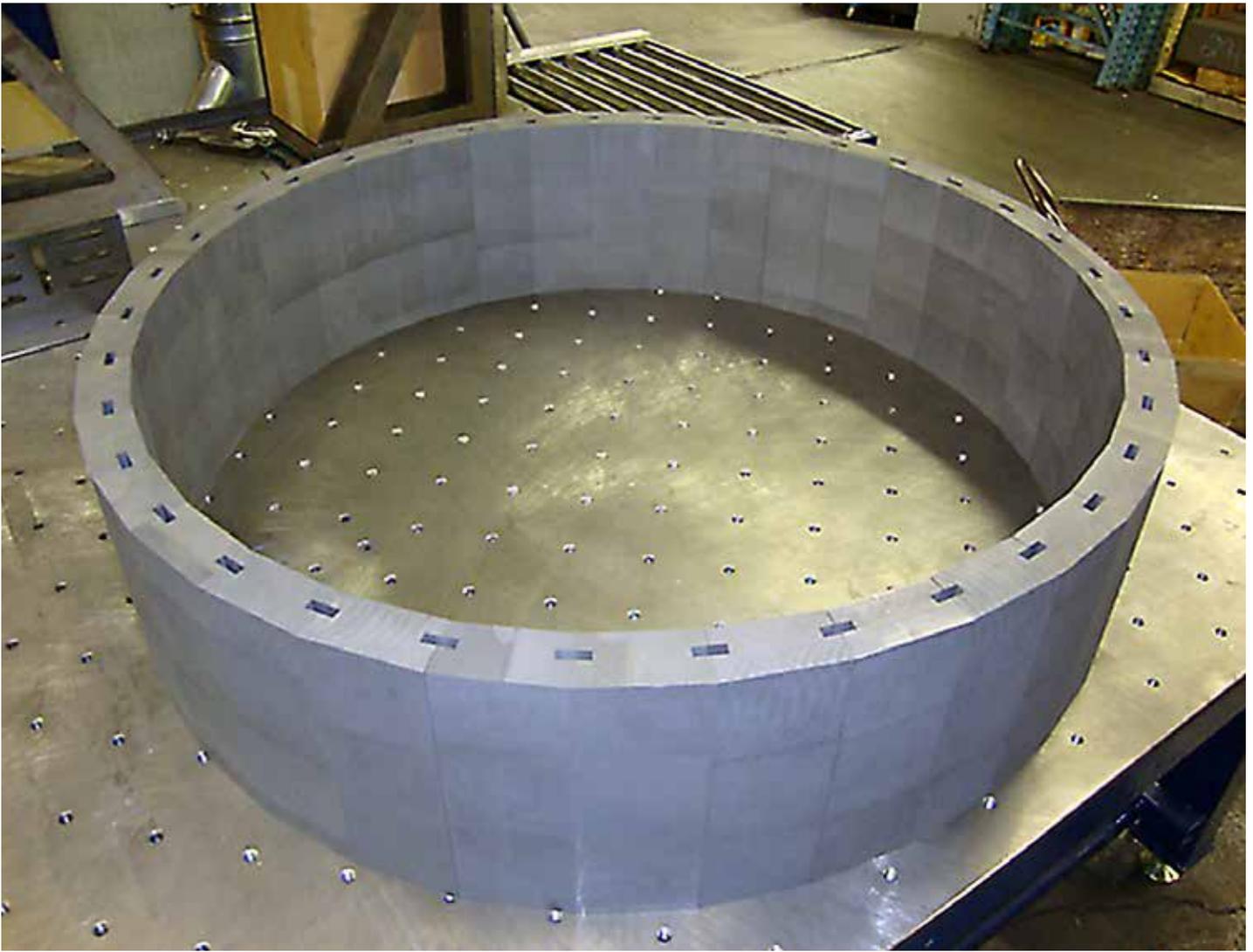
"It's a dynamic industry," he said. "With advances in material and technologies, there's always a smarter or more productive way to accomplish the same or better. And we just work really hard to convince customers and clients to give us a chance to demonstrate

that to them. That's part of our core philosophy: to keep up with the advancements in technology on all aspects of production and customer needs."

CUSTOM HELP

It is not uncommon for Semco's customers to buy an off-the-shelf furnace or some other component and then need it to be reworked for an application unique to them because no general solution is available, according to Vince Thompson.

"It just doesn't exist," he said. "They're doing such ultra-high tem-



A susceptor assembly with a 54-inch diameter. (Courtesy: Semco Carbon)

perature heat treatment. A lot of the furnaces we deal with are home made.”

It’s what Matt Thompson jokingly refers to as a “Franken-furnace.”

And many customers end up with variables they hadn’t thought about, which is where Semco’s experts pick up the ball.

“Those issues really become apparent,” Matt Thompson said. “A good portion of our customer base operates furnaces where the upper service temperatures are well in excess of 3,100 to 3,200 degrees C, so getting it right at those temperatures is critical. Your margin of error in that temperature zone is very narrow.”

MAJOR EXPANSION

A large part of what continues to make Semco successful is a recent expansion it implemented about 10 years ago, which involved a new facility, new equipment, new technology, and a huge employee training program, according to Vince Thompson. That training also meant making sure that training was added to the company’s database of knowledge.

“We wanted it to be not individual knowledge; we wanted it to be tribal knowledge,” he said.

That massive expansion paid off for a recent customer wanting to expand its product line, according to Matt Thompson.

“They were trying to gain some efficiencies with their business model that would make sense for them to justify the expansion,” he said. “So, we worked with them. They had been running traditional

induction furnaces. We did a tool and redesign for them, which ended up saving them 43 percent on material alone and over 80 percent in installation and service calls.”

MORE GROWTH IN THE FUTURE

As far as the future is concerned for Semco Carbon, both Thompsons say they see a major growth and expansion in heat-treat made of alternative materials, as well as raw materials for alternative energies.

“With manufacturing sectors here rebounding under the current administration, we’ve seen a lot of reinvestment in those industries,” Vince Thompson said. “I think that those are going to continue to grow.” Semco has had its finger on the pulse of the industry for many years, which is what has, in large part made the company so successful.

“It’s just moving along with the advancements that we see within the industry,” Vince Thompson said.

Innovation and reinvestment have kept Semco ahead of the game, but it’s a much simpler philosophy that the company’s owners maintain is the key to Semco’s many achievements:

“When our customers succeed, we succeed,” Matt Thompson said. ♣



MORE INFO www.semcoarbon.com

70-inch OD x 24-inch' long
graphite round on a large saw.
(Courtesy: Semco Carbon)

