

COMPANY PROFILE

METALLIZED CARBON CORPORATION | BY ALISON BUTLER

70 YEARS OF INNOVATION

From Elevators to Aerospace

Ossining based Metallized Carbon Corporation is a company that doesn't make anything you can identify at first glance, but their products are in many of the things that make your modern life possible. Metcar® is the trade name for a unique family of oil-free, self-lubricating, materials that have been under continuous development by Metallized Carbon Corporation for over seventy years. Their products are used when traditional lubricants are not an option often because of temperature,



Pedro Ramirez, Lead Machinist, polishing a mechanical face seal on a manual turning center.



Rosa Aleman, Materials Inspector, individually inspecting critical material properties for aerospace parts.

chemical conditions, or where oil contamination would cause a problem like in the food and beverage industry. Metcar's President & CEO Matthew Brennan said, "If the use of oil, or grease, or another lubricant are not feasible our product is the solution."

A Product with Special Properties

So how are Metallized Carbon's products different and why don't they require a liquid lubricant? Metcar materials rely mainly on graphite which has self-lubricating properties. They use fine particles of graphite and other solid lubricants which they chemically bond together using a strong carbon binder. After this proprietary bonding process, the material contains a certain amount of available porosity. This porosity is then filled, using vacuum-pressure impregnation, with metals such as copper, babbitt, bronze, antimony, silver, and nickel chrome to improve strength, wear resistance, lubricity and conductivity.

Chris DiPaolo, Sales & Marketing Manager at Metcar, explains "A key part of our product is our materials, so we employ not only mechanical engineers but materials and application engineers as well." These engineers work very closely with customers to develop solutions to satisfy their needs. Depending on the customers need, the porosity can also be filled with thermal setting resins, inorganic salts, or other dry lubricants to produce materials with optimum characteristics for specific rubbing applications. There are over 150 different Metcar Grades that have been developed to provide customers with optimum materials for their specific operating conditions and new materials are constantly being developed to

meet new customer application requirements.

The primary industries that Metallized Carbon's products serve are in energy, transportation and industrial high temperature processing. Specifically, automotive, aircraft/aerospace, military, petrochemical, building products and power generation are all market segments that benefit from the technical and applications knowledge offered through Metcar products. When used in wet conditions these parts show almost no wear and can go for decades without replacement. Under dry running conditions there is some wear and the part will eventually need to be replaced. In the



Keith Hoge, Applications Engineer, testing for ash content in the materials lab.



Andres Perdomo, Mixing Operator, weighing raw material formulation on a precision batching scale.

harshest dry conditions, gypsum board dryers for example a part will last 3 – 5 years. Most of the equipment containing Metcar parts are provided for services or products that are a necessary part of our modern everyday life and these machines would not be able to function without the Metcar components.

The oil and gas industry is one of the biggest users of carbon graphite products, usually in their pumps, compressors, meters and valves. Power plants use Metcar bearings in their steam condensation pumps and recirculation systems. Some of the more recent materials developed at Metcar caught the eye of the aerospace and commercial aircraft industry. They have completed extensive test programs with major aircraft engine manufacturers and have begun on parts for the next generation of aircraft engines. According to Brennan, “The aerospace industry is very excited about the materials and components we can produce.”

Metallized Carbon is continuously improving and developing the materials and products they produce to meet new challenges in the marketplace. Today’s Metcar parts can be used in hotter or colder environments; they are stronger and last longer than the parts of the mid-20th century when the company began.

Company History

It was 1945 when Preston Siebert founded Metallized Carbon in a detached garage as a metal impregnation services company for electrical carbons that is still a part of the facility today. In the early days, Siebert worked to develop a process to impregnate carbon

graphite with molten metal. Originally the company provided this molten metal impregnation process as a service. One of the early adopters of carbon graphite was in the electronics field because graphite when mixed with a metal matrix is a better conductor than graphite alone, while maintaining its self-lubricating properties. These parts were used in motors, brushes and switches in the Otis elevators manufactured nearby in Yonkers, NY.

By the 1950’s, the Metallized Carbon began impregnating and manufacturing carbon bearings. The next decade saw Metallized Carbon develop and patent a series of bearing assemblies and brackets used in equipment for the building products board drying industry. According to Brennan, “In the 1970’s in an effort to control their own destiny, Preston Seibert decided Metallized Carbon needed to manufacture their own carbon graphite materials. This way they would be in complete control of the process and products.” Soon after, “Metcar®” became a registered trademark. “That turned out to be a very wise decision. It shaped the innovative company that we are today.” In the next decade Metcar developed new base materials and grades and by the 1990’s they had developed unique aerospace materials for use in commercial and military applications. Today the original 2 car garage has grown into six buildings covering 85,000 square feet. The company employs 125 people, the majority of which are involved in the actual manufacturing process.

In the 2000’s, with the addition of the aircraft and aerospace industries and increased demand from key global OEM’s, Metcar established additional facilities. Metcar opened Metcar® Mexico



Luis Acosta, CNC Programmer I, machining an aerospace seal face on a dual spindle, 4-axis CNC turning center.

in 2006 and Metcar®Asia in 2010 and by 2012 decided to expand their production space here in the US to accommodate the increasing demand. As Brennan pointed out, “If you are going to manufacture in the US, you have got to be high tech, cutting edge.” Metcar is both.

While at first the company considered moving to another state, the ultimate cost of moving the entire operation and the disruption it would cause convinced the owners to stay in New York State. While looking for a new location to relocate some of the processes that needed modernization, they decided to keep the new facility nearby so that many of the administrative and management personnel would be able to split time between the facilities. After an extensive search for shovel ready properties in the Hudson Valley, a site in Sullivan County was procured. "Empire State Development, the Sullivan County Partnership and Sullivan IDA were very helpful in finalizing the decision to stay in the Hudson Valley," said Brennan. The various agencies helped to procure funding and grants to assist in the site development and building process. "Verticon LTD was also a key element in the expansion process. Metcar laid out the manufacturing process and Verticon was able to build an envelope around it," explained




Critical dimensions verified by Raul Figueroa, Materials Inspector, and Cesar Vasquez, Senior Programmer, on a digital CMM.

Brennan. "Verticon worked very hard to help Metcar understand and manage the costs of the construction process."

This expansion is a great example of Council of Industry members working together to support each other because not only is Verticon LTD a member, but so is the bank Metallized Carbon worked with. "We worked with Bill Dunkel at Tompkins Mahopac Bank. Bill really understood our needs and I believe assisted us in ways that only a local bank could," said Brennan. Another Council of Industry member that was integral in the process was the Chazen Companies, who provided engineering expertise and assistance with permits. The new facility in Mountaintale NY will house the Aerospace Materials Division and currently is 15,000 sq. ft. with the potential to grow to 65,000 sq. ft.

Workforce and the Future

The Ossining facility will stay at its current size and employee count while new employees will be added to the Sullivan County site. The company is working to fill these positions. Metallized



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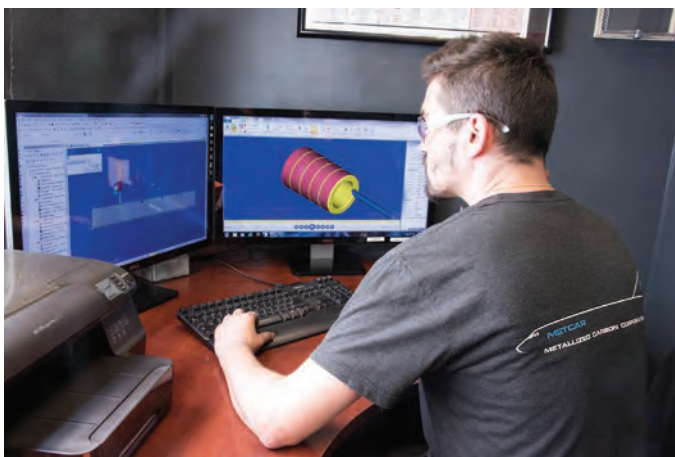
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Daniel Oakes, Machinist II, creating a CNC program for a grooved pump bearing.

Carbon has been fortunate to find several of their engineers at New York State colleges. "They mesh well with many of the newer, younger set of engineers replacing the older "industry guys" that are retiring as Metcar's customers," said DiPaolo. These new engineers are hungry for knowledge and carbon isn't something that most college programs spend much time on so it is eye opening when they meet with sales engineers from Metcar that explain why carbon works and how it is a better material for their needs. Often a part will be in the development and testing stages for a few months to several years before being ready for production.

With the expansion, Metallized Carbon has been hiring additional employees but finding the right people to staff the

manufacturing facilities isn't always easy. Brennan has been at Metcar for 45 years and there a several others that have worked at the facility for over forty years. The work environment is continually improving and they have hired many young professionals in the last four or five years like DiPaolo, who has been there for eight years. However, finding machinists and operators to fill production positions has not been easy. "Metallized Carbon advertises in newspapers in the Hudson Valley down to the Bronx and south Westchester County. For one job ad, we get approximately 50 responses of which 30 fill out applications, 12 show up for interviews and usually only one or two end up staying past the first day. Often the commute is too much, or the work isn't what they expected or some combination but the ones that stay are dedicated, reliable and see opportunity for advancement." Brennan explains. "Many are immigrants. They come to work every day and learn a lot and do a lot. They see the value in what they provide and we see the value in them."

Like many Hudson Valley manufacturing businesses, Metallized Carbon is innovative, nimble, technology oriented and customer focused. One is tempted to say the company is a "well-oiled machine," however, the better metaphor is to call them "a machine with well-designed carbon graphite self-lubricating components." Committed to its employees, its customers and its community, Metalized Carbon is like the components they produce, different materials bonded together to create something that is strong, durable, valuable and continually evolving to meet the needs of an ever changing world.

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