

GRAPHALLOY®

Self-lubricating Graphite-Metal Alloy Wear Parts for Horizontal and Vertical Pump Survival



Quality parts and components are required to optimize pump operations, reduce risk, improve efficiencies and cut costs. It is for these reasons that Graphite Metallizing Corporation has spent the last 100 years perfecting the engineering process of GRAPHALLOY® bushings and case rings for difficult pump applications. By working closely with customers to understand their needs and offering comprehensive services that extend beyond merely providing a competitively priced product, the company has become widely reputed for its GRAPHALLOY® materials and engineering support.

Pump Engineer had the pleasure of speaking with Eric Ford, Vice President of Sales and Marketing for Graphite Metallizing Corporation, to discuss the technical advantages of the company's proprietary products, its quality assurances, and its commitment to engineering solutions that meet the ever changing needs of its clients.

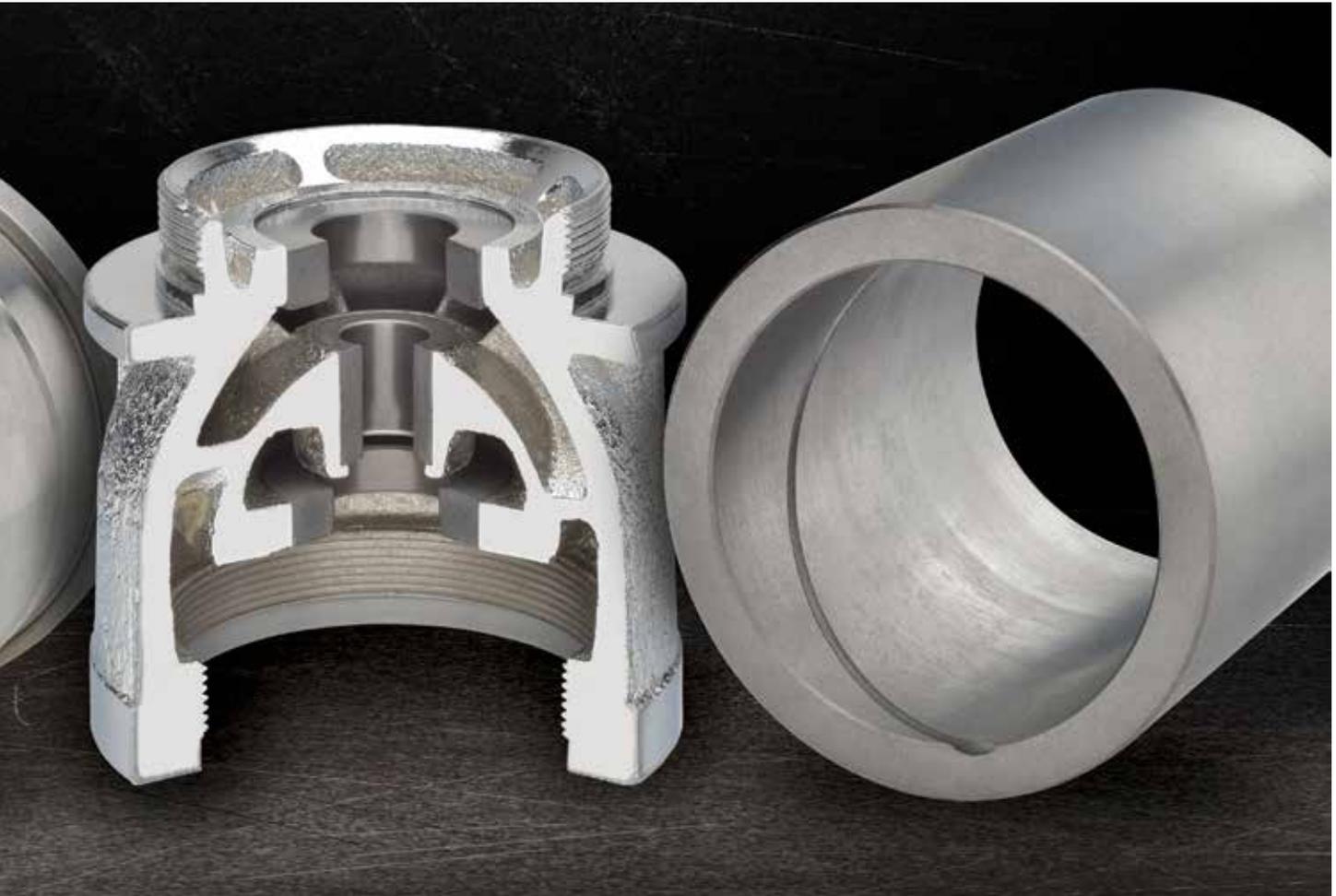
By Angelica Pajkovic

Founded in 1913, Graphite Metallizing Corporation (GMC) was established by entrepreneurial engineers who developed a method to combine graphite with metal to make electrical contacts for elevators. With this newfound knowledge in hand, the company began producing a number of graphite-metal alloy grades under the brand name GRAPHALLOY®. In the late 1940s, the company expanded its portfolio to include bushings, case rings, and thrust washers for industrial pumps.

Over the past 100 years, GMC has grown significantly from a single office facility to a global manufacturer

with locations and representatives around the world. Headquartered in Yonkers, New York, the company is comprised of a foundry, machine shop, engineering group and office facility that distributes its products throughout the world. "As far as a global presence is concerned, we are established in many regions around the world and growing every day," expressed Ford. "With sister companies in the US and the UK, and local representatives positioned in the UK, Europe and Asia, we are continually taking steps to expand our operations to better serve our customers."



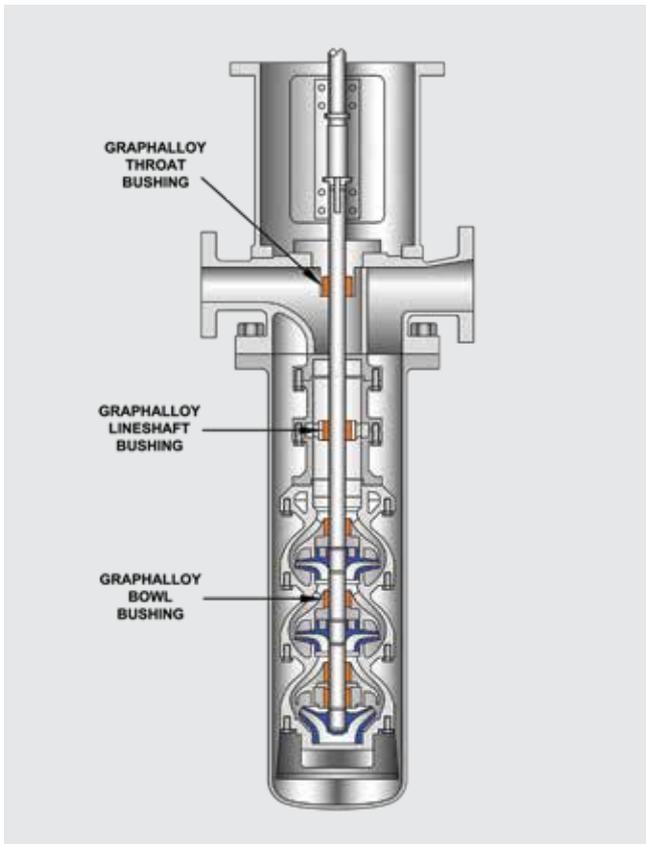


The extra effort made to ensure that clients have ready access to Graphalloy® solutions, in their own language, coupled with an eagerness to provide ongoing training for the products they offer, are both elements that attribute to the company's lasting success.

The GRAPHALLOY® Advantage

With an engineering team who are ready to offer their expertise on whichever application an end user might be inquiring about, GMC's products and services never fail to exceed the client's expectations. "The commitment we have made to continuously updating our equipment and refining our techniques, in regards to GRAPHALLOY® processes and products, has provided GMC with the ability to offer reliable parts for pumps found in the harshest environments," stated Ford.

GRAPHALLOY® is a unique self-lubricating, non-galling, bearing material that offers superior performance in hundreds of mechanical and electrical applications. Using a foundry process, a graphite substrate is heated to a very high temperature and then impregnated with different metals, depending on the application. Based on the desired application, the graphite can be impregnated with various metals including nickel,





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copper, bronze, and iron. The resulting product is then machined to meet the customer's specifications.

“We have over 150 different grades of GRAPHALLOY® available right now,” explained Ford. “Although the grades we have now can handle everything from water and light hydrocarbons to natural gas liquids and molten sulfur, we love the opportunity to devise products for new projects.”

With parts available to suit a wide range of industries, such as: oil & gas, petrochemical, LNG, water and wastewater, power generation, and pulp and paper, there are a number of advantages of choosing GRAPHALLOY® bushings and case rings. Some of the most prominent advantages include:

- Self-Lubricating – requires no grease or oil, which permits continuous operation and eliminates downtime.
- Runs dry and keeps on running – will not seize and helps protect pumps during upset conditions.
- Non-galling – designed to reduce clearances to almost half API 610 recommendations.
- Wide temperature range – works at high temperatures where oil-based lubricants burn off or oxidize and plastics fail. The material can be used in operating temperatures from -400°F (-240°C) to 1000°F (535°C) and almost twice that, in non-oxidizing atmospheres.

- It does not congeal or solidify at low temperatures or cryogenic conditions – will maintain its self-lubrication.
- Operates submerged – will not swell or wash out and can withstand a wide variety of hostile, corrosive, fluids.
- It does not cold flow or deform under pressure and will maintain its size and shape.
- Graphalloy is held in compression with an interference fit and does not need secondary means of retention, unlike many other products.

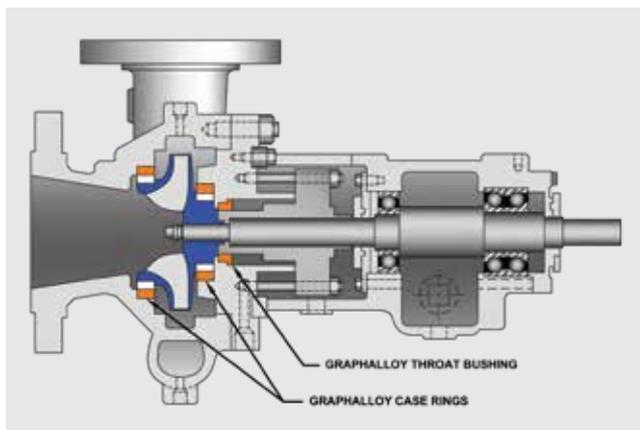
“GMC has had many years to learn how to effectively and efficiently solve pump pain points,” expressed Ford. “Whether the application in question generally uses a standard metal bearing, or one made of the premium plastics, we have not found any material that holds a technical advantage over GRAPHALLOY®.”

Entrepreneurial Approach

To meet the ever-changing needs of its clients, GMC continues to embrace its innovative and entrepreneurial spirit. It does this by offering custom made products that are tailored to fit the requirements of each end user's pump.

“The first thing we do when interacting with a new customer is to make sure we completely understand their specific application. Then our engineers work one-on-one with the client to determine the custom dimensions and Graphalloy grades required for the project at hand,” stated Ford. “Although we do stock some standard sizes for emergency pump repairs etc., most of our bushings are designed to meet our customers' specific applications.”

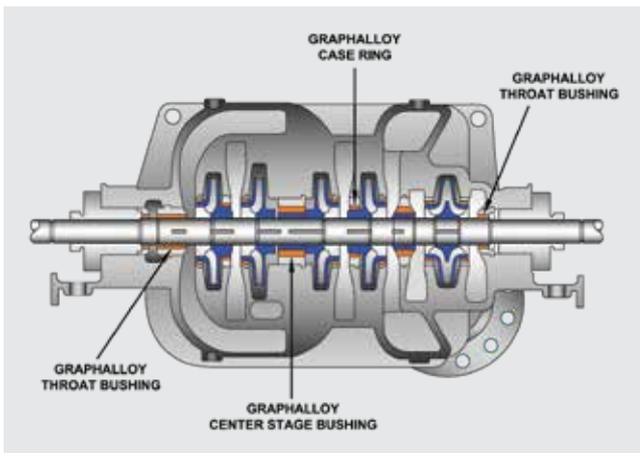
Accredited with NSF certified grades, FDA acceptable grades, and WRAS certifications, GRAPHALLOY® bushings enable pumps to run dry and continue operating often without loss of performance or the need to replace the parts. They are therefore often used by design, reliability, and maintenance engineers for their self-lubricating and non-galling bushing properties.



Comprehensive Service

Upholding the values on which the company was built, GMC maintains its reputation as a dependable manufacturer dedicated to ensuring fast service and quality products. With its customer focused team, the company is able to provide superior services for the demanding marketplace.

GMC's stated goal is, "A satisfied customer who receives a defect-free product on time, every time," said Ford. The team works together to make that happen.



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"We have a lot of confidence in our products, which I believe stems from the knowledge that GMC's bushings and case rings have performed successfully, for decades, in situations where other materials simply have not," expressed Ford. "As a company we are committed to acting with integrity, keeping the promises we make, and getting down to the root cause of a problem so that each solution we deliver is of the highest quality."

Final Thoughts

Today, GMC continues to transform its operations to address the changing needs of its customers, expand product lines and further reduce lead times by a process of continuous improvement. The company works directly with hundreds of refineries, dozens of pump OEM's and thousands of pump repair shops to



provide the Graphalloy solution. GMC prides itself on its ability to consistently deliver to all facets of the industrial pump industry.

"Graphite Metallizing's number one achievement, in my mind, is the engineering, manufacturing, quality, sales, and customer service team we've put together to solve our customers' problems on a daily basis," stated Ford.

"As we enter an incredibly uncertain economy caused by COVID-19 and the global push for more renewable energy, we are excited to work with our customers to understand what potential issues they foresee for the future," continued Ford. "We want to address the potential changes and begin the innovative process of developing solutions, in order to ensure all of their expectations are satisfied."

