



EGC Critical Components
Materials. Engineering. Precision.

We are collaborators.

Once we have thoroughly verified your requirements, we draw upon a diverse team of highly trained experts at every stage of production.

We are innovators.

Building on advanced materials science, we design, engineer, and manufacture high-performance components to very tight tolerances.

We are facilitators.

Partnering with industry-leading companies, we solve the most difficult challenges to bring advanced products to market.

We are EGC Critical Components, your custom-engineering specialists.

As your partner in development, we provide critical solutions, on time and to your specification.

Progress is nothing new to us



1959 Ethylene Gulf Coast is established. One of the first companies to incorporate double-tooling which allowed us to produce parts at a much faster rate than competitors. The company initially made gaskets and o-rings.

1960s Extrusion and compression molding capabilities are added.

1968 Material blending capabilities are added.



1976 Introduced Fibrex® bearings.



1980s Begin manufacturing and designing diaphragms.



1980s Acquired melt molding, auto-molding, and isostatic molding capabilities.

1992 Started Paradyne® product line for HPLC seals.

Customized products and solutions for critical applications

At EGC Critical Components, we're used to taking on tough challenges. That's precisely why our clients come to us.

"It has to be there." "This must work." "Is there a solution?" "Failure is not an option."

It's all music to our ears. We're a solutions company, and we specialize in the custom plastics and elastomer components that make critical applications work.

Making your tough jobs easy

EGC Critical Components designs and manufactures products and components for some of the most demanding applications on earth.

Our customized products are unique solutions for highly specialized applications. Each engineered component is developed to your specifications.

In industrial, medical, nuclear, and technology fields we provide innovative, high-performance solutions with leading edge capabilities.

Our world-class materials, design, engineering, and manufacturing capabilities ensure a reliable, responsive resource for success, whatever the challenge.

We are industry leaders in difficult-to-manufacture products for specialized applications, and key partners in the development of innovative components for custom applications.

EGC experts are skilled at collaborating with our clients to examine options and produce the optimal solution. By leveraging a full range of polymer materials—including our own patented formulations—and the industry's most advanced manufacturing capabilities, EGC creates solutions that yield true value.

Customized products

EGC customized products are specialized solutions for unique applications—like our SigmaSeal® self-energizing seals. These products provide highly focused performance characteristics to meet extreme requirements.

Custom solutions

When it's special, hard to make, and impossible to find, EGC provides a custom manufacturing solution – along with exceptional design. Our materials science, engineering, and manufacturing experts create answers to your specific challenges and objectives.



1992 1500-ton large diameter (up to 110") compression molding press is acquired.

1993 XC2 winding equipment is purchased and process is licensed. This material is specifically used to make parts for the compressor industry.

1998 First Class 1000 clean room is certified.



2000 Start manufacturing semiconductor equipment process components.

2005 Approved as PAI (Torlon®) certified injection molder.



2006 EGC is purchased by Fenner and becomes a part of Fenner Advanced Sealing Technologies.

2007 EGC's new 230,000 sq. ft. facility is constructed.



2011 New robotics are added to manufacturing.

Design and Engineering Prowess

EGC solutions integrate materials, design, and engineering expertise with extensive manufacturing capabilities to create custom plastic and elastomeric components to customer specifications for reliable operation in complex environments.

Our multidisciplinary project team provides you with a versatile resource for developing unique solutions. Engaged at the concept stage, our teams seek first to understand the full scope of your application and your objectives. From there, we work with you to ensure responsiveness in pursuit of a common objective.

Material expertise

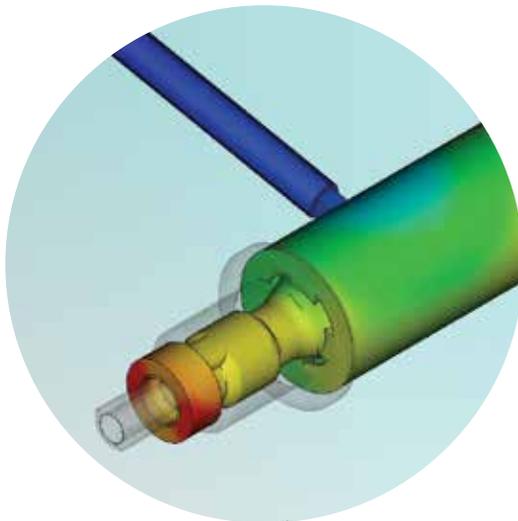
Materials expertise is what sets EGC Critical Components apart. Our experts stay abreast of the very latest technical advancements and consult regularly with our supply partners to stay on top of recent market developments. This close relationship also ensures that we can source unique and obscure materials.

EGC material experts develop solutions using our own proprietary formulations, as well as custom blends developed for your specific application. We are highly experienced with a broad scope of advanced materials – from rubber to advanced fluoropolymers and thermoplastics.

All the Right Answers

To provide the best solution for every application, EGC experts work with all advanced polymer materials, including:

- NBR
- HNBR
- XNBR
- PA (Nylon)
- FKM (Viton®)
- FFKM
- EPM, EPDM
- FEPM (Aflas®)
- PFA
- PVDF (Kynar®)
- CTFE
- PEI (Ultem®)
- PI (Vespel®)
- PE, UHMW
- POM (Acetal, Delrin®)
- ETFE (Tefzel®)
- ECTFE (Halar®)
- Polypropylene
- PPS (Ryton®)
- PEEK, PEK, PEKEKK
- PTFE (Teflon®)
- M-PTFE
- FVMQ (Fluorosilicone)
- Filled PTFE
- Fluoropolymers
- Patented SinterMesh®
- Engineered Thermoplastics and Composites



Plastic flow simulation in the EGC laboratory is used to validate designs to identify and correct potential problems before costly tooling is built; saving time, money and resources.



Design and testing

EGC solutions begin with multidiscipline experts at our advanced product laboratory and testing facility. Located on the same campus as our manufacturing center to foster a fully cross-discipline culture, EGC design and engineering is a powerful resource for innovation and success.

EGC laboratory facilities assure quality from the start by confirming the specifications of all materials. For applications where even the smallest variance can produce unacceptable results, this step ensures critical performance standards are met.

Our laboratory and testing facilities are instrumental in developing specialized proprietary formulations and ensuring the viability of product applications.

Analytical testing performed by the EGC laboratory includes composition analysis to determine the nature of a sample material. Forensic activities are conducted to determine why materials behave in particular ways.

The EGC laboratory is also a resource for developing client materials. Our experts use our own proprietary compounds and develop specialized customer blends to achieve precise performance objectives.

Testing expertise

The EGC laboratory uses a spectrum of plastic and elastomer test methods to ensure material properties meet specifications. Conducted to ASTM standards, these tests include:

Hardness: Durometer testing for control purposes, since no simple relationship exists between hardness and any fundamental physical property.

Tensile properties: Physical properties for tensile strength, ultimate elongation and modulus (tensile strength at a given elongation).

Deflection temperature: A comparison of the relative behavior of various materials.

Compressive properties: Useful in determining specifications for different grades of materials, and in conjunction with other data to determine overall strength.

Specific gravity: The ratio of the density of a material to the density of a reference substance (typically water) used as a quality assurance measurement to assure lot-to-lot consistency.

Tear resistance: A relative measure of a material's resistance to tear.

Compression set: A measure of a material's retention of elastic properties, particularly useful with squeeze type seals.

Immersion testing: Provides insight regarding the effect of a particular media on a specific material.

Heat aging: Used to determine a material's deterioration due to dry heat.

Adhesion: Primarily a quality control test for coating quality and application.

Wear: A measure of a materials relative rate of wear given a set condition and mating material.

Reliable, quality products
for critical applications.



Compression molds being
moved to the large-diameter
press. EGC is part of an elite
group of manufacturers
that design and build large
diameter, fluoropolymer
components for aerospace and
industrial applications.

Manufacturing

Each customized product and solution benefits from EGC's extensive machining and molding capabilities. Our highly skilled manufacturing specialists and programmers precisely transform advanced materials and designs into finished product.

EGC uses the most advanced technology, including sophisticated CNC machining facilities for enhanced manufacturing versatility as well as statistical process control for greater efficiency and quality. Our Class 1000 cleanroom provides the specialized work environment required for applications where purity is essential.

Located in a 230,000 square foot facility, our manufacturing operations entail more than 30 different molding and manufacturing processes, including:

- Bonding
 - Rubber-Metal
 - Rubber-Plastic
 - Rubber-Rubber
- Calendering
- Composite Fabrication
- Compression Molding
 - Rubber
 - PTFE
 - Advanced Thermoplastics
- Custom Compounding
- Custom Tooling and Machine Designs
- Extrusion
 - Melt
 - Paste
 - Ram
- Injection Molding
- Isostatic Molding
- Machining
 - Manual
 - CNC
 - Screw
 - Rubber

Quality Assurance

EGC addresses quality at every step in the process, from concept to completion. Our investment in state-of-the-art manufacturing technology, from robotics to cleanrooms, ensures the highest level of precision manufacturing.

The highest quality is ensured through adherence to the ISO 9001:2008 standard and through detailed contract review, well defined and repeatable processes, and statistically based inspection plans.

Quality also involves product delivery. EGC excels at developing solutions and delivering them on short lead times. To meet client schedules without interruption, we track performance at each stage in the manufacturing process through delivery of the final product.

Health, Safety, Environment (HSE)

At EGC, health, safety, and the environment are of the utmost importance. Our first priority is to ensure our employees go home the same way they came to work: fit and healthy.

Creating an environment and culture of safety first benefits our customers by allowing us to recruit and retain the best of the best. Our ISO 14001 and OHSAS 18001 management systems help us continuously improve on all elements of HSE while ensuring regulatory compliance.

We value HSE for the same reasons you do. We care about our people, customers, and corporate responsibility.





The finest materials, precisely transformed for ultimate performance.

Customized Products and Solutions

EGC is a solutions company.

We use advanced polymers and elastomers to create custom parts for a diverse range of custom products—from small, 1/8-in. hearing aid parts to large, 100-in. wind turbine components—at extremely tight tolerances.

Our experts work with you closely from design to final product. We can create the design to match your specifications, or develop the process to make your existing design a reality.

Difficult applications are our expertise, including high pressures and temperatures, corrosion, friction, and wear. That's why we often play a key role in the development of our client's advanced technologies.

EGC is qualified to work with many materials used for industry-specific applications, such as NORSOK M-710 and NACE TM0192.

We are experienced in manufacturing a diverse set of product components, including:

- Housings and bodies
- Bearings and bushings
- Seals
- Seats
- Diaphragms
- Balls
- Connectors
- Custom Shapes

EGC patented products play a vital role in many specialty applications. For example, SigmaSeal® self-energizing seals use a variety of EGC proprietary materials to ensure sealing reliability in pressure/temperature extremes, hostile chemicals and high purity applications. The innovative technology automatically adjusts for wear, misalignment, and service irregularities.

How custom do we get?



Piston cups are a small, but vital, component for oxygen concentrators used by emphysema patients. EGC developed a cup material to enable round-the-clock usage for an unrivaled five years of service.



We created a 32-cavity ventilation mold for the small batteries used in hearing aids. The product was made from glass-filled fluoropolymers. We developed a unique mold using a non-standard material that allowed us to manufacture more than 100 million parts per year while maintaining tolerances of 0.0015-in.



Manufacturing a semiconductor wafer carrier to customer specifications required a fully integrated manufacturing plan. EGC successfully applied a complex process that involved injection molding, welding, machining, and assembly.



To reduce the weight of a missile actuator, we designed a metal-to-polymer conversion using carbon-fiber-filled polyether ether ketone (PEEK) manufactured to extremely tight tolerances.



When incorrect parts and long delays created a crisis, we solved the problem for a pump packing service company by reverse engineering the parts and manufacturing them correctly. The parts were delivered just two weeks from receipt of tooling. The end-user is up and running, and the service company is relying on EGC Critical Components as their primary supplier.



Peanut butter leaks from a triplex pump caused frequent, lengthy production shut downs. To seal the thick and highly abrasive food under high pressure, we designed a multi-component seal that solved the problem and met FDA requirements.

Addressing Critical Applications

EGC is a partner in helping our customers design and manufacture critical-use components in many applications across multiple industries. We recognize that components can't fail, and must have a long and reliable lifespan.

Understanding our customer's goals enables us to select the best polymer to fit the application. Aggressive environments such as those found in chemical processing, semiconductor manufacturing, and power generation require unique properties to ensure purity and resilience. Highly abrasive environments demand a different set of component properties to ensure reliable service for the life of the product.

We help you determine the best materials for the application, including the evaluation of combinations and composites. When your part requires a complicated manufacturing process, we ensure success with the most efficient and effective technology, methods and expertise.

EGC specializes in manufacturing components for extreme environments. These applications typically require:

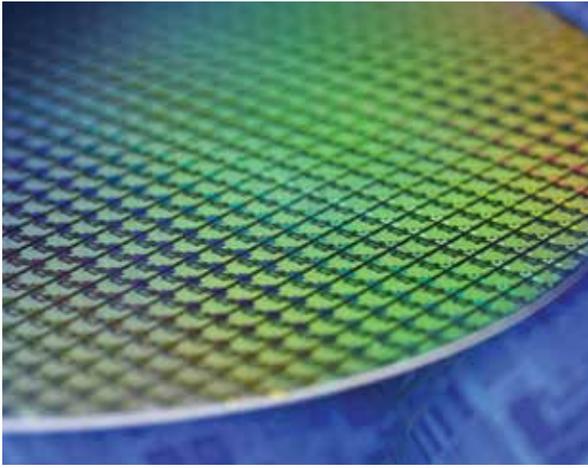
- **High-temperature capabilities (400°F or higher).** The nature of process and industrial applications requires an increased level of thermal resistance. EGC products include mechanical seals, compressor components, jet engine components, and bearings.
- **High-pressure capacity (30,000 psi and higher).** Thermoplastic and elastomeric seals exposed to these extremes are often used in valves and compressors.
- **Corrosion resistance.** The extreme environments in chemical processing require seals and components that resist deterioration and seepage. EGC has developed materials for seals, seats, stem packing, diaphragms, wear rings, and other custom parts.
- **Extended wear.** In systems with relative motion between components, we design materials that have lubricating and wear properties for low friction and non-galling/non-seizing operation.



The aggressive atmospheres and high temperatures found in the chemical processing industry are key applications for EGC custom components. Our parts are commonly found in a broad spectrum of reciprocating and centrifugal pumps, valves, and compressors.



When lives count on it, medical device and equipment manufacturers turn to EGC for the component precision and reliability they require.



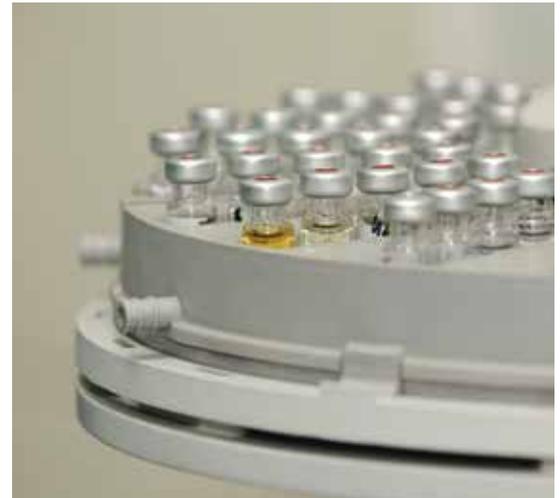
The high-purity material and chemical requirements of the semiconductor industry make EGC a key partner for developing sealing systems and semiconductor manufacturing equipment components.



Because the aerospace and defense industry requires stringent machining tolerances coupled with extreme performance needs, we specify the most appropriate polymer and elastomer materials to meet the demands of the application or develop one that does. Precise material specification ensures optimum performance of the final product.



Demanding, high-wear environments in the power generation industry are a perfect challenge for EGC materials and manufacturing capabilities. Our ability to manufacture high-performance components in a full range of sizes, from large scale to miniature, ensures alignment with your specific needs.



Analytical equipment is only as good as the quality of the parts. Our ability to manufacture complex parts and sealing systems out of robust and high-purity materials mitigates cross-contamination and leaching.



The extremely caustic cleaning chemicals required for sanitary applications require specialized and high-end materials. Our custom-molded components are used in a broad range of applications, including valves, compressors, pumps, and sealing systems.



Our experience in a many industries includes making sealing systems for grade scopes, food and beverage equipment, and other critical applications.



To learn how EGC Critical Components can improve performance in your operations, please visit our website at: www.EGCcomponents.com

Or talk with our experts at 281.774.6100

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In-depth Solutions

EGC Critical Components is a designer and manufacturer of custom plastic and elastomeric products. As a part of the global group Fenner, we partner with clients to produce unique solutions in many industries, including industrial, medical and scientific applications.

DISCLAIMER: The descriptions, design and performance information, and recommended uses for the products described herein are based on our design and manufacturing experience, product testing in specific conditions, and industry standards. As such, this information is for general guidance only. Our products are accompanied with their own warranty which is given in writing at the time of sale.

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