

Pelmor[®]
LABORATORIES, INC.

**On the Cutting Edge of
Elastomer Technology**

Total Quality

ISO 9001



DNV Certification, Inc.
REGISTERED FIRM

Pelmor Laboratories is ISO 9001:2000 certified. At Pelmor, "quality assurance" has a meaning that goes well beyond the traditional connotation, *because quality is not a sometime thing*. It is the constant focus of everything we do. Quality is built into our products throughout the entire manufacturing operation, rather than inspected into the parts at the end of the process.

While we employ sophisticated testing and measuring equipment to ensure that every single part conforms with our customers' manufacturing specifications, we also put into practice a philosophy of Total Quality that reaches into every level of Pelmor's operations. All employees work to the best of their abilities throughout the entire workday.

Our employees take pride in every product that leaves our plant. In fact, every production line worker is empowered to halt production immediately if he or she spots a product or process in need of correction. It is that kind of diligence, responsibility, and conscientiousness, more than any state-of-the-art measuring equipment, that contributes to what we at Pelmor call **Total Quality**.

Quality Philosophy

We at Pelmor Laboratories believe that our primary responsibility is to satisfy the needs of the companies which purchase our goods and services. We will achieve this goal through dedication and commitment to TOTAL QUALITY in everything we do.

TOTAL QUALITY is driven by a desire for the continuous improvement of our processes using the resources, the data, and the scientific methods available to us. It involves the interaction of all of our employees and suppliers in a sharing relationship. Teamwork is essential to the success of this endeavor.

We select our employees and our suppliers with the same great care in which our customers us to choose us. All employees are asked to do their job to the best of their abilities. Each supplier is expected to provide us with the highest quality goods and services, in a timely manner, at fair and competitive prices.

Our TOTAL QUALITY Creed:

We are no longer the company we once were.

We are not the company we want to be.

We are a company dedicated to

CONTINUOUS QUALITY IMPROVEMENT

William Ross

Cover: Where it all begins:
a molecular model of natural rubber.



Pelmor Laboratories: Uniquely Qualified to Serve

Pelmor Laboratories is a fully integrated manufacturer of synthetic and natural rubber parts—one of only a small group of such companies in the industry who has embraced Total Quality in every aspect of our business operations.

The production of tight tolerance, precision rubber components is an extremely complicated process calling for a high degree of individual and specialized skills. At Pelmor Laboratories, these efforts are headed by a senior staff of rubber chemists, product designers, tool makers, and process engineers, who direct a competent team of highly skilled, strongly motivated production and technical personnel.

Under one umbrella, we have the resources of qualified personnel and equipment...

- To produce designed parts of surpassing intricacy to satisfy the most demanding end-use application;
- To engineer and build the tools and dies required to mold or extrude that part;
- To formulate, refine, mix, and test compounds which will form readily into the part and maintain its shape and properties after repeated use in a harsh environment;
- To mold or extrude the part to the highest industrial, military, or customer quality standard;
- To remove excess flashing and machine finish the part to tolerances that meet or exceed industry requirements;
- To maintain consistent quality through short and long production runs;
- To formulate, mix, mold, extrude, and bond, utilizing virtually all of the synthetic rubber polymers in the marketplace, including perfluoroelastomers, and our forte, fluoroelastomers.

Not every Pelmor customer requires all of our services. Whether you need one element of our capabilities or all that we have to offer, we are uniquely qualified to serve you.



Product Development

Few companies in the custom rubber industry have the diverse experience, the creative skills, and the technological resources of Pelmor Laboratories to develop new rubber parts for our customers and improve the performance of existing parts.

Our partnership with you may begin with your product and design sketches.....with your ideas for a new product.....or with an intended application. Working closely with your engineers, our product development and design team will help your personnel create blueprints and specifications for your new finished part, as well as for the necessary tool or die from which the part will be molded, extruded, or fabricated. The SolidWorks® software from SolidWorks Corporation that we use throughout this developmental process is able to present life-like, three-dimensional pictures of the finished part for your review and revision.



Compound Formulation

The first step in creating a new product is the determination of a rubber compound formulation that possesses the properties necessary for your intended field application. Since our founding more than 50 years ago, our R&D staff has examined, analyzed, compared, tested, and used hundreds of rubber elastomers and additives, and formulated countless compounds for our customers' diverse needs.

In the hands of our experienced rubber chemists and technicians, our extensive computer database, which includes formulations, test results, conditions of use, and final applications, is an invaluable and dynamic resource for the development of new recipes and products.

Additionally, our library also includes a number of formulations that meet U.S. Military Specifications, as well as state-of-the-art modern polymers such as Perfluoroelastomers and our specialty, Fluoroelastomers.



Testing

Once a formula is developed, the compound is mixed in test batches on a laboratory mill and subjected to simulated production conditions to determine if the compound will mold or extrude properly.

In addition, the molded test specimens are lab-tested to verify that the finished part has the properties that meet our customer's specifications. Compounds are tested for hardness, tensile strength, ultimate elongation, specific gravity, and rheology to determine physical properties and process ability. Modulus, compression set, fluid resistance, long-term flexibility, ozone and weather resistance, aging, plus other tests, may also be done if the customer so desires.

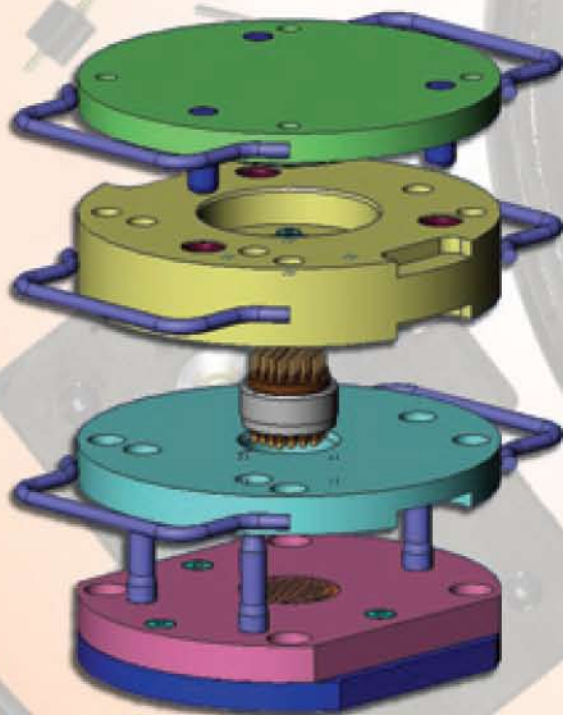


Making the Tool

A vital element in Pelmor Laboratories' capabilities is our in-house machine and tool division.

Our product engineers draw on a vast reservoir of experience in the design and fabrication of custom fixtures, extrusion dies, and molds. Experience is supplemented by the latest technology, advanced CAD/CAM design utilizing SolidWorks® software and CNC machining capabilities, and by the skills of conscientious rubber mold makers.

The end results are tools and dies that are capable of producing intricately shaped parts to tight tolerances that meet or exceed industry, military, or customer requirements. Our customers' molded parts can meet tolerances of ± 0.002 inches, while our extruded components can be made to tolerances of ± 0.015 inches.



The Wide Ranging Capabilities of Pelmor Laboratories



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(1) A sampling of custom extruded profiles. (2) Small intricate rubber parts can be molded to a tolerance $\pm .002"$. (3) Large parts: bonded or all rubber. (4) Rubber molded products in a variety of colors. (5) Rubber-to-metal bonding—a Pelmor specialty.

Production

Custom Mixing

Once the formulation has been developed and tested, few competitors can match the experience and breadth of capabilities that Pelmor Laboratories brings to the custom mixing of a wide assortment of rubber polymers and additives.

Within our clean, up-to-date mixing facility, we mix small batches for laboratory testing and larger batches for molding and extrusion production runs. Accordingly, we are equipped to offer our customers efficient custom mixing, in a variety of batch sizes, on our open mills and Banbury® type of internal mixers. One of our specialties is mixing small volumes of custom rubber recipes, either our customer's or our own formulations.

The dedicated care that Pelmor's personnel bring to every mixing assignment has earned us a well deserved reputation for producing thoroughly dispersed, superior quality, uniform compounds that consistently meet the stringent specifications of our customers.





Custom Molding

A wide range of intricate shapes, sizes, colors, and hardness...and meticulously finished parts... are a hallmark of Pelmor Laboratories' custom molding capabilities.

With our modern production facilities, state-of-the-art equipment for quality assurance, and many decades of molding experience with our press operators, we are quite able to produce parts of varied geometric shapes to tight tolerances of ± 0.002 inches.

Pelmor's molding equipment includes injection, transfer, and compression presses capable of exerting pressures from 10 to 450 tons.

Rubber-to-Metal Bonding

Another capability that few custom rubber manufacturing companies can duplicate is in the area of rubber-to-metal bonding. Once again, we call upon our years of experience to bring about a long-lasting union of rubber polymers and metals, plastics, and composites. Many of these metal or plastic inserts have been known to be extremely difficult to bond to rubber, and Pelmor has vast experience bonding rubber parts to oddly shaped insert components.

Custom Extrusions

At Pelmor, we custom extrude a wide variety of products from virtually any polymer, including high-performance fluoroelastomers, to tolerances of ± 0.015 inches. We routinely perform short production runs of tubing, bar stock, rod stock, and specialty shapes or strips. Our specialty, however, is the extrusion of intricate profiles, from prototype quantities through full production runs.

In many instances, we rely on our extrusion capabilities to pre-form mixed material for our custom molding operations, another in-house strength that contributes substantially to cost efficiency.



Liquid nitrogen cryogenic machine removes excess flash from molded parts

Secondary Processing

Pelmor removes the excess flash from the molded parts either by hand or cryogenically, with liquid Nitrogen at temperatures of -300 degrees F.

Additionally, Pelmor's finely tuned machine shop's abilities are also pressed into service for secondary machining and trimming, including the deflashing and grinding of molded rubber parts to a dimensional accuracy of ± 0.002 inches.

These diverse operations allow us to produce parts and products that comply with the most demanding specifications, while keeping our trimming costs to a minimum and remaining competitive in the marketplace.

The Challenge and Opportunity Ahead

The custom rubber manufacturing industry stands on the threshold of a new era, one which is both global and ever changing. Today, change is a constant that we all face every day. And as the world shrinks due largely to the Internet, we must continually compete with suppliers in different parts of the planet for our customers' business.

As a broad based, ISO certified, full service manufacturer of custom rubber parts and components for over 50 years, we welcome both the challenges and the opportunities that the global marketplace offers.

One of the most daunting challenges facing us in the next decade is to maintain and enhance product quality while competing in a global marketplace, which often stresses cost above all else. To meet this challenge, we have established a partnership with an Asian company whose management personnel share our operational and marketing philosophies. This is a company that is as quality-oriented as we are, and is able to supply us with custom parts that meet our customers' specifications in every regard.

Another challenge in the face of global competition is to remain loyal to our US suppliers and to continue our close collaboration with them as new technology emerges from around the globe in the form of advanced synthetic polymers and newly developed additives. By working together, we are able to offer our customers state-of-the-art raw materials and practical technical data that allow us to develop products that perform better in the field and last longer in harsh environments.

Yet another challenge in the face of global competition is to grow while maintaining our technical competence, our creative design capabilities, our dedication to Total Quality in all that we do, and our ability to satisfactorily service both the large and small customer alike, in a cost effective way. Our sterling reputation in the marketplace of being a full service supplier of high quality custom parts, coupled with many years of on time delivery and competitive prices, cause our customers to contact us first when they need a supplier for their new products.

As we welcome and respond to these challenges, new opportunities arise.....opportunities to forge new partnerships domestically and around the world.....with companies in industries that we have long served.....and with companies in industries that are just discovering our extensive capabilities.



Pelmor Thailand Co., Ltd.

To meet the challenges of global competition, Pelmor has established a partnership called Pelmor Thailand Co., Ltd. with a full service, Asian, custom rubber parts molding and extrusion company. Our partner is not only our equal in manufacturing capabilities, but shares our operating philosophy, our commitment to Total Quality, and our human resource concerns. With a history of over 30 years of growth, this company operates two plants around the clock, and is ISO certified.

Using modern, state-of-the-art, US manufactured chemicals, and the same formulas that we have employed for years to make each customer's parts, coupled with the appropriate blueprints, specifications, processing instructions, and inspection criteria, Pelmor's customers can be assured that the parts made in Asia will meet their specifications in every respect.

By utilizing this manufacturing approach, the finished parts should perform satisfactorily in the field in the same manner as they always have. Since Pelmor is responsible for the vast majority of the costs associated with these Asian parts, they may be considered to be "Made in America."

Serving Industry Since 1956

Among the many segments of American industry that
we are proud to serve are:

- Aerospace/Defense
- Gaskets and seals
- Rail/transit
- Semiconductors
- Valves, pumps, bearings
- Fluid control devices
- Fasteners
- Electronic machines/computers
- Electrical connectors and switches
- Regulators and instruments
- Diaphragms and o-rings
- Chemical Processing

....among many others

We welcome the opportunity to discuss your needs...make recommendations...translate your ideas into practical designs...develop and refine prototypes...and manufacture for you the high quality, cost effective, custom rubber parts for which Pelmor Laboratories is known.



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