

Enhancing Performance for Solenoids

**TRIBOLOGICAL COATING SOLUTIONS
FOR ENHANCED LONGEVITY**



Protecting the Current

With increased use of automatization, actuators, and electronics in automotive development, much of the industry is driving toward smarter, intelligent solenoid solutions. With this, it's even more vital for solenoid manufacturers to reliably protect solenoid components.

Resistance against shock and extreme temperature is a problem for many manufacturers, especially in the automotive industry where engine development and mechanical stresses depend on solenoid resilience, reliability, and durability. Since hysteresis can occur in proportional solenoids, solutions to help minimize this are extremely important as well. To improve applications leveraging solenoids, engineers need high-quality, long-lasting coatings to help protect cores and enhance coils—all through a communicative partner in tribology that consistently delivers services and products on time.

As a tribological leader, GGB takes pride in working closely with customers in the early stage of a design to think broadly and boldly, and to expand beyond traditional surface engineered solutions. We're continuing to push the boundaries of possibility, inspiring customers across all markets to partner—and innovate—alongside us.

The Freedom to Innovate

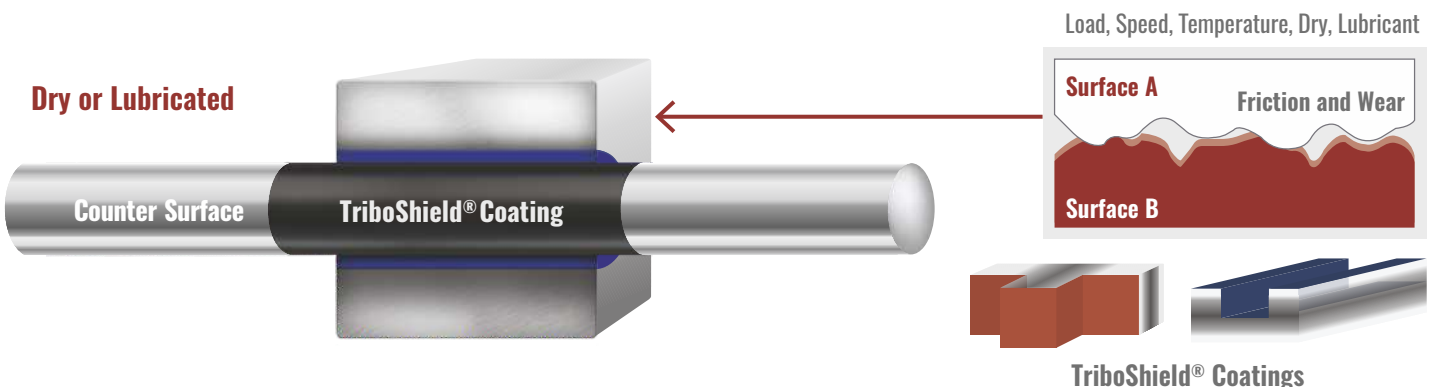


POLYMER COATINGS

Although polymer coating technologies have been widely employed in corrosion protection of component surfaces and other applications, recent advances that deliver improved tribological properties are creating opportunities to meet the challenges imposed by solenoid use and manufacturing. Perfect for applications involving solenoids, our polymer coatings offer increased performance, reliability, and longevity.

By building on our legacy of innovation in plain bearing technologies, we created our line of TriboShield® standard tribological polymer coatings for a wide range of industrial applications. Offering the advantage of geometric freedom for sliding surfaces, with TriboShield® can coat virtually any shape or surface.

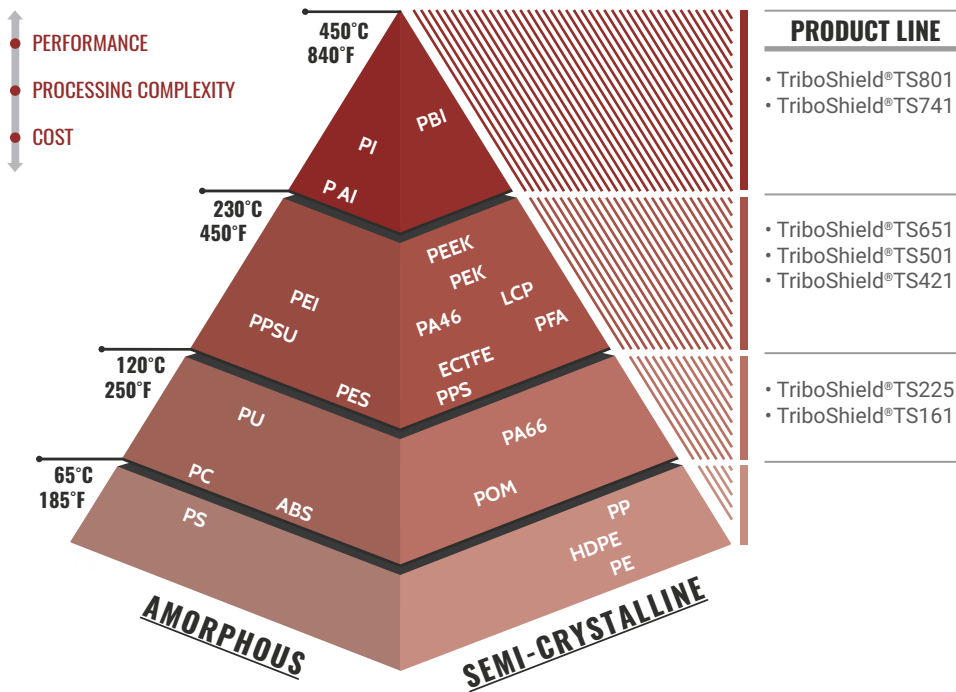
For applications where freedom of geometry is essential, we offer TriboMate® paired coatings which are specifically designed to work with and enhance the performance of our polymer coating products. Pairing a TriboShield® coating with another TriboShield® coating solution offers significantly reduced friction and can further extend the lifetime of a system.



TAILORED SOLUTIONS

Our products cover the spectrum of polymers available today and we can always further customize solutions for specific needs. By tailoring solutions to customer applications, GGB increases performance while minimizing overall system costs.

TriboShield® STANDARD COATINGS RANGE



1. STANDARD COATINGS RANGE

2. CUSTOMIZED

- Modification of standard formulation
- Short development time

3. UNIQUE/DEDICATED

- New and tailored formulation specific to application
- Longer development time
- Exclusivity contract

The Polymer Advantage For Solenoid Applications



Design simplification

Leads to fewer parts and less complexity in the design process.



Hysteresis Reduction

Minimizes the effects of hysteresis through the low-friction properties of advanced polymer coatings.



Compatible with most metallic substrates

Works with strong materials involved in solenoid production such as steel, stainless steel, aluminum, titanium, and magnesium for increased shock protection.



Temperature and corrosion protection

Features extreme temperature and corrosion protection that extends longevity by shielding solenoid magnetic cores and coil components from environment impact.



Easy to customize

Collaborate with our expert technical team to tailor our polymer coatings to the unique needs of your solenoid application.



Self lubrication

Incorporate solid lubricants to deliver self-lubricity that can help reduce and sometimes eliminate the need for additional lubrication in machine parts.

THE TRIBOLOGICAL SOLUTION PROVIDER FOR INDUSTRIAL
PROGRESS, REGARDLESS OF SHAPE OR MATERIAL



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