

# Engineered Plastics

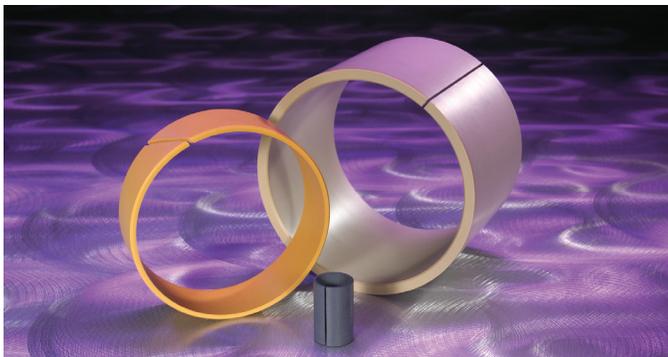


## Applications

Below are some examples of Greene Tweed's extensive experience of designing with plastics to optimize performance for weight saving and corrosion resistance when considering replacing metal components.

## Bearings

Bearings made from Arlon® 1555, a high-performance thermoplastic, make excellent replacements for metal bushings in armored infantry fighting vehicles.



## Seal-Connect® Connectors

Arlon® 2000 meets primary material requirements for connectors due to its thermal or electrical insulation properties and resistance to corrosive media. Seal-Connect connectors withstand temperatures in excess of 480°F (250°C) steam and high-pressure oil/sea water environments without any significant degradation in properties.



## Valve Plates—Plates/Seats/Bodies

PEEK valve plates have excellent stress resistance, durability and fatigue endurance while providing a long life span. PEEK is an effective metal replacement in extremely harsh environments due to its superior chemical resistance.

## Seals

Greene Tweed uses a variety of engineered plastics in its custom-designed seals. Exact combinations of material and configuration vary based on the sealing conditions faced, and are selected on a case-by-case basis in order to ensure optimum performance.



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## Piston Components

Greene Tweed has redesigned pistons to incorporate the piston and sealing element in one piece, thus achieving significant weight savings. Piston rings which utilize Arlon® 1260 feature excellent high-temperature and tribological properties.



## Arlon® to Rubber Bonding

Greene Tweed has the capability to bond elastomers to plastic components. Arlon® has been bonded to elastomers such as FVMQ, HNBR and NBR.

## Pump Components

PEEK is an ideal stainless steel substitute in impeller wheels, resulting in significant wear and noise reduction. Stainless steel requires multiple machine parts whereas only one molded part is required for PEEK.

WR®525 is a thermoplastic composite consisting of carbon fiber in a PEEK matrix. WR works well in bushing and case wear ring applications. WR offers the following characteristics metallic wear products do not:

- High strength to weight ratio
- Low coefficient of thermal expansion
- Excellent chemical resistance
- Nongalling/nonseizing properties
- Low coefficient of friction
- Impact and thermal shock resistance

These benefits enable the pump user to increase pump efficiency by running tighter wear ring clearances and, at the same time, decrease potential pump damage during cavitation or with in-line bearing failures.

## Threaded Fasteners

PEEK is ideal for threaded fasteners due to its resistance to a wide range of inorganic and organic materials. Fasteners are extremely tough with excellent impact resistance and fatigue strength over a wide range of temperatures. The benefits of using these materials include chemical/corrosion resistance, toughness, impact resistance and fatigue strength.

## Sensor Housing

PEEK adds an excellent balance of chemical, mechanical and thermal properties to sensor housing. The properties afforded by PEEK helped bring a new measuring system into full compliance with rigid hygienic requirements for the treatment and handling of biologically sensitive media. PEEK is well suited in this application because it provides weight savings and corrosion resistance.



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