

GAR-DUR® UHMW MACHINED PARTS: MANY INDUSTRIAL APPLICATIONS

GAR-DUR® UHMW plastic parts are made from ultra high molecular weight (UHMW) polymer having a molecular weight of 4.2 million and greater. This true UHMW polymer has been resisting abrasion and corrosion while contributing a low coefficient of friction for more than 40 years.

The unique, industrial-grade parts are made from UHMW plastic that has helped companies improve performance, reduce downtime, eliminate the need for lubrication, replace steel parts and lower their operating costs.

APPLICATIONS

GAR-DUR® UHMW machined parts are being used in mining, pulp and paper operations, refrigeration, chemical plants, material handling industries, and automotive assembly plants to name just a few. In fact, if you have metal parts that should be replaced with non-corroding, quiet, longer-lasting parts, Garland can probably custom-machine them for you with our advanced CNC capabilities.

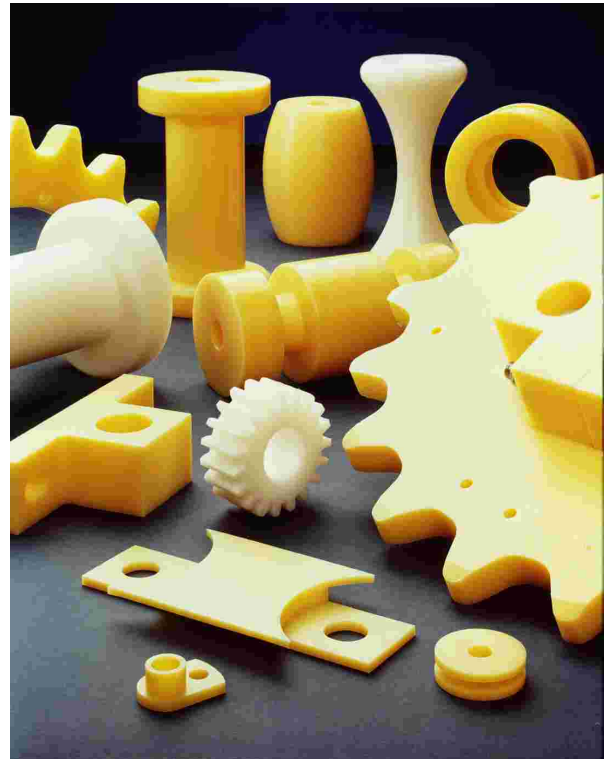
MANY ADVANTAGES

GAR-DUR® UHMW is designed to function in corrosive and chemical environments, in extreme cold and where abrasion resistance is a desirable factor. It is durable, has a very low coefficient of friction and high impact resistance, it is much quieter than metals, and it won't absorb fluids.

EXAMPLES

Wastewater. Several New York wastewater plants use GAR-DUR® UHMW materials for wear rails, wear shoes, scraper blades, and sprockets. In this harsh environment, this special UHMW polymer doesn't need to be replaced, doesn't absorb fluids, and won't allow sludge to adhere to its surfaces. It keeps the machinery working smoothly without lubrication and without the major amounts of downtime experienced when metal parts were in use.

Material Handling Machinery and Systems. Low friction, noise abatement, energy savings and reduced maintenance are some of the reasons GAR-DUR® UHMW parts are used in automated and non-automated materials handling equipment and systems.



Examples of extruded GAR-DUR® UHMW parts.

General Machine Use. Self-lubrication, wear resistance and noise and shock suppression are the principal reasons that 1900 UHMW polymer parts are used extensively in machining designs.

Other Applications. • Bushing • Cams and Followers • Feedscrews • Gears • Idlers • Pulleys • Rotating Bearings and Seals • Sliding Bearings • Sprockets • Wheels • Many others.

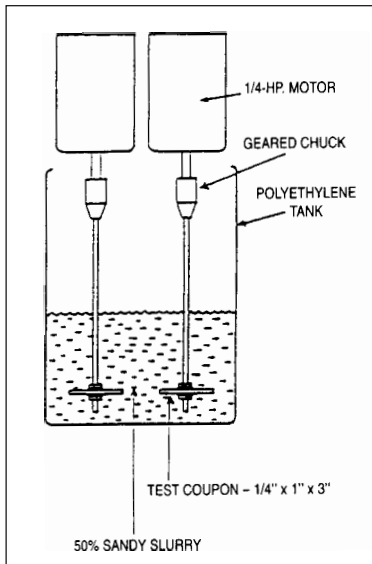
COMPARISONS

The charts on the back of this sheet show some of the relative advantages of GAR-DUR® UHMW polymer compared to other materials in various operations.

For more information contact:

GARLAND MFG. COMPANY
55 Industrial Park Road, POB 538
Saco, Maine 04072-0538 USA
Tel. 207-283-3693 / Fax 207-283-4834
AN ISO 9002 REGISTERED COMPANY

RELATIVE ABRASION RESISTANCE



SAND SLURRY TEST

The abrasion resistance of GAR-DUR® UHMW is clearly demonstrated by measuring its loss of volume against other materials. Test samples are spun for a total of 7 hours at 1,750rpm in a water-sand mixture.

GAR-DUR® UHMW plastic was assigned an abrasion rating of 10; results for the other materials tested are shown in relation to this baseline.

Even though GAR-DUR® UHMW is exceptionally tough, it is gentle with other materials it works with. GAR-DUR® UHMW can significantly increase the wear life of contacted moving surfaces. In most cases it outwears steel 3 to 1 in sliding wear applications.

Material	Relative Abrasion Index
GAR-DUR® UHMW Plastic	10
Nylon 6-6	24
Polyurethane (D-70)	27
TFE	72
HDPE	80
304 Stainless Steel	84
Polycarbonate	96
Carbon Steel	100
Polyacetal	110
Aluminum	120
Phosphor Bronze	190
Phenolic Laminate L.E.	200
Yellow Brass	400
Hard Neoprene Rubber	800
Hickory Wood	950

RELATIVE COEFFICIENT OF SLIDING FRICTION

This chart compares various materials to GAR-DUR® UHMW. GAR-DUR® UHMW does not require lubrication, so maintenance is easier, quicker and less costly. Its extremely low coefficient of friction makes equipment operations smoother. It makes excellent bearing material and can replace steel parts, and reduce friction/drag as well as the amount of wear and abrasion.

Materials Used	Relative Coefficient of Sliding Friction
Steel to Steel	0.30-0.40
GAR-DUR® UHMW to Rolled Steel	0.14
GAR-DUR® UHMW to Stainless Steel	0.13
Urethane to Steel	0.70
Nylon to Steel	0.20
Teflon to Steel	0.11
Acetal to Steel	0.20