

# GAR-DUR® UHMW Profile Extrusions

GAR-DUR® UHMW Polyethylene profile extrusions are made from ultra-high molecular weight (UHMW) polyethylene having a molecular weight of 4.2million or greater. Beginning in the 1950's, Garland Manufacturing Company pioneered the North American market for, and continues to specialize in this true UHMW polymer. Its ability to resist abrasion and corrosion while delivering a low-friction, high-impact surface have made GAR-DUR® UHMW the logical, cost-effective choice for a wide range of industrial applications. For decades, Garland's stock shapes and custom-extruded UHMW profile extrusions have aided thousands of industrial companies by replacing metal or other less effective materials, improving performance, reducing operating costs, by eliminating lubrication and minimizing costly downtime.



## APPLICATIONS

GAR-DUR® UHMW profile extrusions are presently used in the material handling industry, in components on conveyor lines, in the automotive industry, mining, lumbering, food/beverage packaging, as well as many other industries which require a tough, wear-resistant material. GAR-DUR® UHMW extrusions have been used successfully for many years in drive and suspension systems under the most demanding conditions. For a material to withstand the grueling operation of

handling friction in grit and sub-zero temperatures, it must truly be tough.

## ADVANTAGES

GAR-DUR® UHMW fights abrasion and corrosion while contributing a very low coefficient of friction to any application. It is only 1/7 the weight of steel, 1/3 the weight of aluminum, and it outwears abrasion-resistant steel 3 to 1. UHMW's coefficient of friction is 0.14 or lower, and it typically does not require lubrication. Durable GAR-DUR® UHMW profile extrusions are manufactured using specially-designed equipment with precision-engineered extrusion dies.

## STOCK SHAPES

GAR-DUR® UHMW is the industry leader in extruded stock shapes. In addition to custom-made parts, many stock shapes—boards, bars, angles, rod, tube and sheet are available, in a variety of sizes. We carry UHMW rod to 8" diameter, and we stock boards and bars in lengths up to 50'. Extruded lengths can be cut into shorter lengths and fabricated into custom parts such as wear parts, bearing blocks, sleeved bearings, as well as thousands of other wear- and impact-resistant products.

## CUSTOM SHAPES

GAR-DUR® UHMW extruded shapes can be custom-made to your specifications. They can be fabricated into parts for the aerospace and robotics industries, wastewater treatment plants, conveyor operations, and thousands of other applications. Custom profile extrusions are constantly being developed to meet the specific needs of Garland's customers. To save costs, prototype profiles are engineered for testing purposes before a proprietary extrusion die is built for production. Virtually any extruded or machined part can be custom produced.

## COMPARISONS

The charts on the back of this sheet show some of the relative advantages of GAR-DUR® UHMW extrusions.

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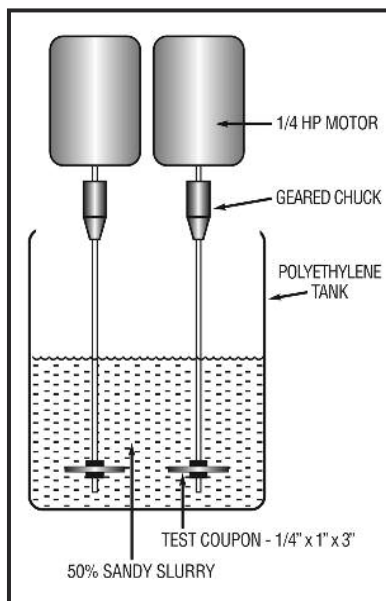
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# MEASURING RELATIVE ABRASION RESISTANCE



## 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 1,750 rpm 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 durable, it works very well with other materials. GAR-DUR® UHMW can significantly increase the wear life of in-contact moving surfaces, out-wearing steel three to one in most 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® does not typically require lubrication, so maintenance is easier, quicker, and less costly. Its extremely low coefficient of friction makes equipment operations much smoother. It can replace steel parts, and makes an excellent bearing material, reducing friction and drag, as well as wear and abrasion.

Material 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	0.14
Urethane to Steel	0.70
Nylon to Steel	0.20
Teflon to Steel	0.11
Acetal to Steel	0.20