

Discover the Industry-leading Performance of Delrin® Stock Shapes

Delrin® acetal homopolymer—with a 65-year performance record—is one of the most trusted engineering polymers on the market. In addition to being the go-to material for millions of high-performance injection molded components, Delrin has excellent characteristics as a stock shapes material.

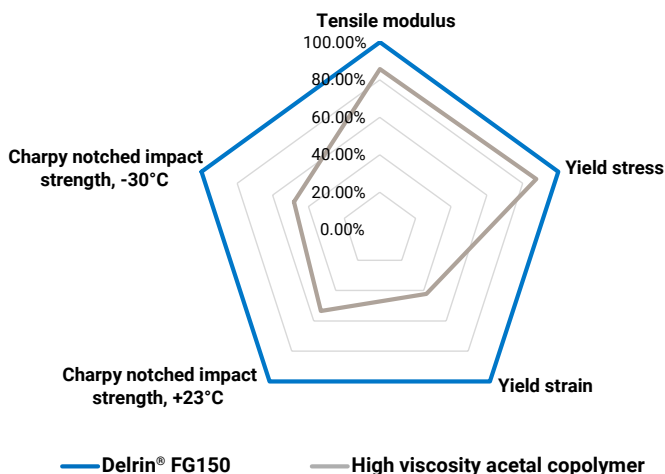
The versatility of Delrin means it can be extruded into a range of profiles and is easy to machine. The result: precise parts with tight tolerances while maintaining the mechanical and tribological advantages Delrin is known for.



When performance really matters

With its high level of crystallinity, Delrin delivers superior stiffness, strength and toughness—outperforming alternative engineering plastics, like acetal copolymer (CPOM).

Property comparison of stock shapes grades: Delrin® FG150 versus high viscosity acetal copolymer



Advantages of Delrin® acetal homopolymer versus copolymer

Properties of Delrin	Customer benefits
Higher yield stress and yield strain	- Better memory of original shape after deflection - Useful for snap-fits/buckles and simplicity in assembly
Higher modulus	Stiffer material allows design of thinner-walled parts leading to more efficient use of resin
Much higher notched charpy impact strength, even at low temperatures	- Parts that are more resistant to fracture and capable of absorbing much more energy - Useful for gears in motors that change directions or stop abruptly and mechanical/moving components in refrigerated environments
Higher strain at break	- Contributes to overall toughness of part - Allows deflection farther past yield point without part failure
Higher creep resistance	- Better maintains overall shape over long exposures to loads - Maintains tighter fit in snap-fit applications - Better maintains dimensions in spring-loaded applications
Much higher fatigue resistance	More durable in high-cycle applications like continuously running gears

Given these benefits, machined Delrin parts are often selected as a lightweight and cost-effective alternative to metals. It's used in a multitude of applications—including valve components, gears, bearings, rollers, fittings, bushings and spacers, to name a few.

When you need to machine parts for demanding applications, ask for Delrin.

New Delrin® 51HSE provides superior mechanical properties for machined components

Drawing on the long history of Delrin setting the industry standard for plastic parts, Delrin® 51HSE takes performance to a new level. 51HSE has the highest molecular weight in the Delrin portfolio and, as a nucleated resin, brings unrivalled performance in those applications requiring creep resistance and fatigue durability.

In addition, Delrin® 51HSE can be extruded into a variety of forms with minimal porosity, while offering the same level of machinability and dimensional control as provided by other Delrin® grades.



Delrin® 51HSE is ideal for demanding applications like plastic gears in automotive and e-bike components.

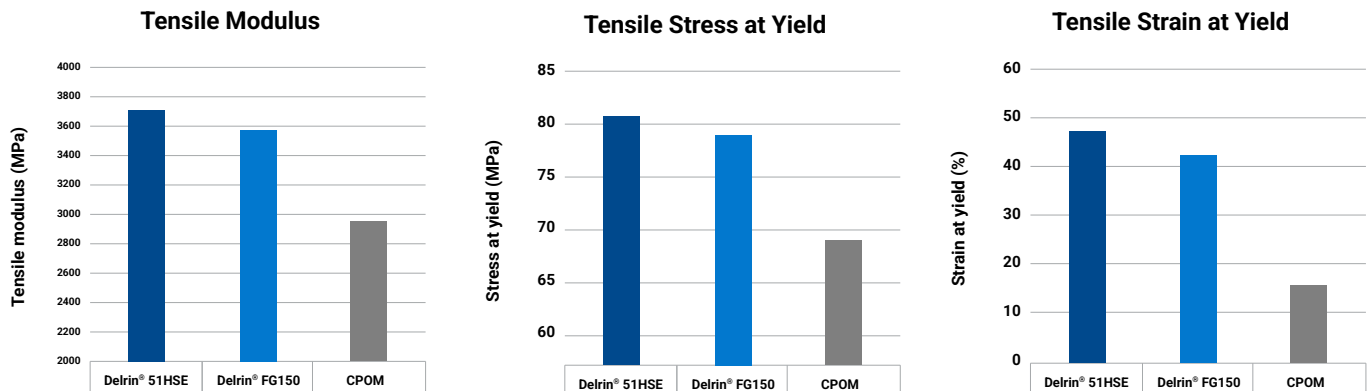
Delrin® 51HSE outperforms CPOM in mechanical testing of gears endurance with:

Tensile strength	+10%
Tensile modulus	+10 to 15%
Yield strain	+110 to 130%
Strain at break	+10 to 15%
Charpy notched impact	+140%

Delrin® 51HSE even outperforms Delrin® FG150 with minimal porosity after extrusion and the same level of machinability as other Delrin grades.

Delrin® 51HSE mechanical properties

Machined parts made with Delrin® 51HSE clearly outperform those made with CPOM as well as one of our most robust products, Delrin® FG150.

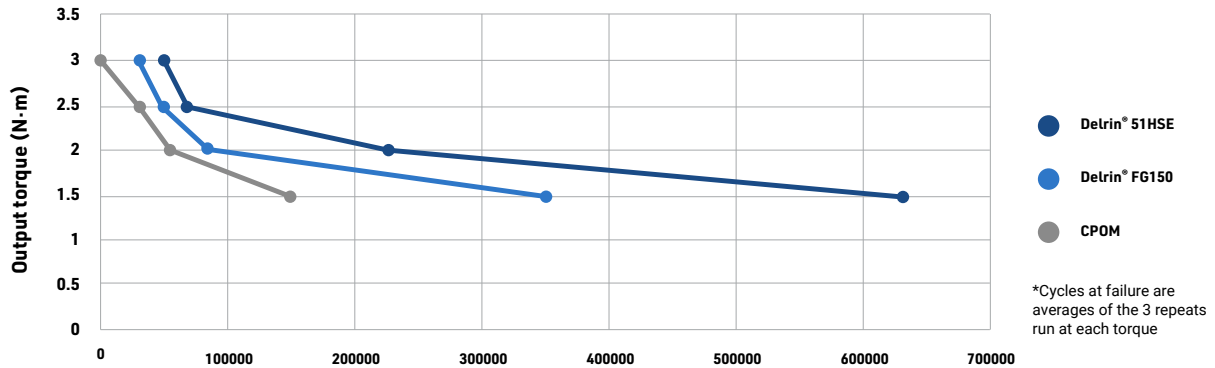


*Samples tested were machined 1A tensile bars.

Proven for machined gears

Gears machined from Delrin® 51HSE also show superior results in testing, consistently outperforming across all torque ranges to enable greater efficiency and service life of systems that need to go for longer.

Machined Gears Testing

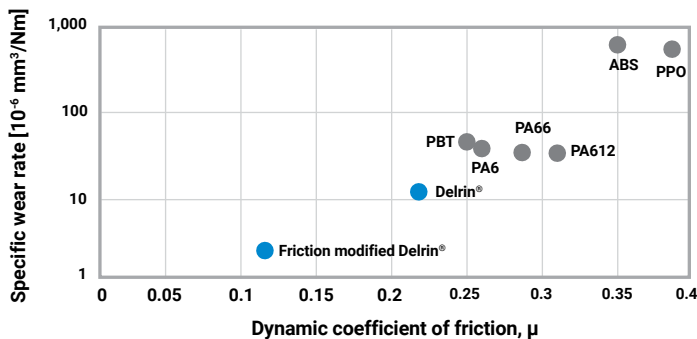


Low wear, low friction solutions

Want your products to be more reliable, produce less noise and have a longer lifetime? Delrin has inherent low friction and good wear properties that can make it happen.

Standard Delrin inherently has one of the lowest COFs and one of the lowest wear rates when compared with other polymer types. Friction-modified grades of Delrin take the benefits even further.

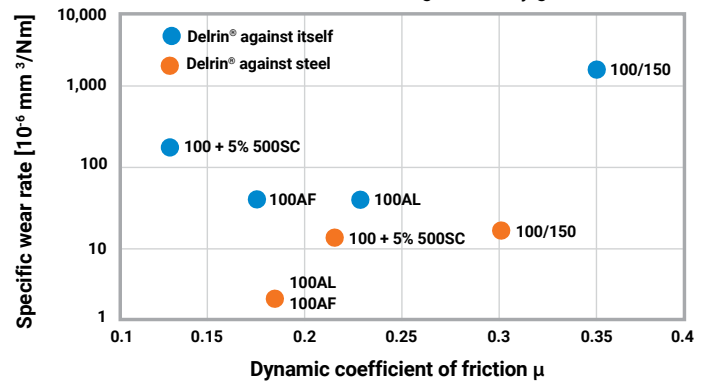
Typical wear rate vs. dynamic COF of polymer types against steel



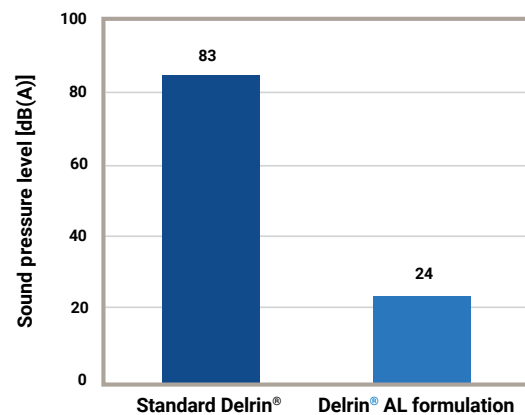
Delrin has a full range of friction-modified options available for machined components, including the high performance Delrin® 100AF, boasting excellent wear and endurance characteristics. There are also PTFE-free options, such as Delrin® FG100AL, with its excellent tribological characteristics, including low noise generation.

Wear rate

Specific wear rate and COF against steel and against itself for Delrin acetal high-viscosity grades



Noise level



Squeaking noise is measured for Delrin® 500P sliding against Delrin® 500P or Delrin® 500AL. Sound pressure level is reduced from 83dB(A) to 24dB(A), which is below the audible threshold.

A complete portfolio

Select from the wide variety of Delrin grades to gain extra advantages for your next machined part project.

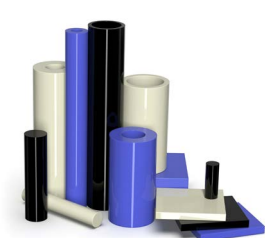
Product	Melt mass flow rate (g/10 min)	Description	Key performance characteristics
Delrin® 51HSE	1.2	Ultra-high-viscosity acetal homopolymer	Highest molecular weight product for use in applications requiring exceptional creep rupture resistance and fatigue durability
Delrin® 150	2.3	High-viscosity acetal homopolymer	Excellent combination of strength, toughness and creep resistance without modification
Delrin® FG150	2.3	- High-viscosity acetal homopolymer - Food grade	- Excellent combination of strength, toughness and creep resistance without modification - Food contact compliant
Delrin® RAFG150	2.3	- High-viscosity acetal homopolymer - Renewable Attributed - Food grade	- Best combination of strength, toughness and creep resistance without modification - Reduced CO₂ footprint (by mass balance) - Food contact compliant
Delrin® 100AF	0.9	- High-viscosity acetal homopolymer 20% PTFE fiber filled	For applications requiring low wear and/or low friction against steel, itself, or other plastics
Delrin® FG100AL	2.5	- High-viscosity acetal homopolymer - Advanced system of lubrication (PTFE-free) - Food grade	- Low wear, low friction, and low noise against steel, itself, or other plastics - An alternative to PTFE-modified grades - Food contact compliant

Selected products for illustration purposes.

FG denotes food contact grades with compliance to FDA, EU10/2011 and GMP (EC) 2023/2006.

RA denotes Renewable Attributed grades. Base polymer 100% bio-feedstock from waste (ISCC mass balance certification).

For complete data, visit the Delrin Material Data Center at <https://delrin.materialdatacenter.com>



Ideal for existing and novel applications

The versatility of Delrin allows unlimited customization. It can be extruded into rods, bars and sheets ready for machining. Plus, parts machined with Delrin have nearly identical performance to molded components so manufacturers can prototype and make small production runs with confidence.

For production of existing commercial applications and assessing new ideas, designers and engineers can do more with Delrin.

To learn more, contact your Delrin representative or visit [Delrin.com](https://delrin.com) and look under Markets for the Parts and Shapes page.



The information and recommendations contained herein are offered as a service to our customers but are not intended to relieve the user from its responsibility to investigate and understand other pertinent sources of information and to comply with all laws and procedures applicable to the safe handling and use of these materials. The information and recommendations provided herein were believed by Delrin to be accurate at the time of preparation or obtained from sources believed to be generally reliable. However, Delrin makes no warranty concerning their accuracy and Delrin will not be liable for claims resulting from any party's use of or reliance on information or recommendations contained herein regardless of whether it is claimed that the information or recommendations are inaccurate, incomplete or otherwise misleading. **Caution:** For medical applications, discuss with a Delrin customer representative and consult the Delrin Medical Caution Statement.

Delrin is an industry-leading premium industrial polymer business. Grounded in strong innovation, Delrin is a category creator with a longstanding reputation for quality, reliability, supply and product performance. The iconic Delrin brand, coupled with proprietary technology and deep application expertise make us a leader in the high-end engineering polymer market. Delrin has exciting growth prospects from exposure to automation, actuation, healthcare, mobility and consumer applications.