

Material Information



Acetal (POM-C)

Introduction

Acetal (POM-C), also known as Polyoxymethylene Copolymer or Acetal Copolymer, is a semi-crystalline engineering thermoplastic known for its good strength, stiffness, dimensional stability, machinability, and wear properties. Its low water absorption and good chemical resistance make it suitable for CNC-machined precision components used in mechanical and industrial applications.

Advantages

Good machinability, high dimensional stability, low water absorption, good chemical resistance, and good wear properties. POM-C also has a low coefficient of friction, making it suitable for moving and sliding components that require smooth operation and resistance to wear.

Disadvantages

Acetal (POM-C) has lower temperature resistance than many high-performance engineering plastics and may experience dimensional changes from thermal expansion. It can also be difficult to bond with conventional adhesives, and its mechanical performance can decrease when exposed to elevated temperatures or sustained loads for long periods.

Tolerance

3DSPRO can manufacture and inspect to tight tolerances, including sub +/- 0.001" tolerances, per your drawing specifications and GD&T callouts.

Recommendation

The combination of machinability, dimensional stability, low friction, wear resistance, and low moisture absorption makes Acetal (POM-C) suitable for CNC-machined gears, bushings, rollers, guides, spacers, fixtures, and other precision mechanical components. It is particularly appropriate for applications involving repeated movement, sliding contact, or exposure to moderate levels of moisture and chemicals.

Material Specifications (For reference only.)	
Tensile strength	70MPa
Tensile modulus	3GPa

Elongation at Break	20%
Hardness	M85 HRR
Flexural strength	90MPa

Attention

POM-C has relatively low moisture absorption, but dimensional changes caused by temperature should still be considered when machining components requiring close dimensional control. Appropriate cutting parameters and sharp tooling should be used to maintain surface quality and prevent excessive heat buildup during CNC machining. POM-C can also be difficult to bond, so mechanical fastening or other joining methods may be preferable when adhesive bonding is required.

Applications

3DSPRO finds people using Acetal (POM-C) to make functional parts and prototypes in the following industries and applications.

Mechanical components:

Gears, bushings, rollers, bearings, spacers, shafts, and other moving or sliding components.

Automotive parts and supplies:

Guide components, clips, bushings, rollers, fuel-system components, and other lightweight mechanical parts.

Industrial equipment:

Conveyor components, guides, wear strips, fixtures, machine components, and other parts requiring low friction and good wear resistance.

Electronics and consumer products:

Precision housings, knobs, spacers, gears, structural components, and other CNC-machined parts requiring dimensional stability and low moisture absorption.