

Material Information



PEEK GF30

Introduction

PEEK GF30 is a 30% glass fiber-reinforced Polyether Ether Ketone (PEEK) designed for applications requiring higher mechanical strength, rigidity, creep resistance, and dimensional stability than unfilled PEEK. It retains PEEK's excellent chemical resistance and high-temperature performance, making it suitable for CNC-machined components exposed to high static loads and demanding operating conditions.

Advantages

High stiffness, high mechanical strength, excellent creep resistance, high dimensional stability, and excellent chemical and thermal resistance. The addition of glass fibers also reduces thermal expansion compared with unfilled PEEK, making PEEK GF30 particularly suitable for precision components that must maintain their dimensions under sustained mechanical and thermal loads.

Disadvantages

PEEK GF30 is more expensive and more specialized than common engineering plastics and requires appropriate machining practices because the glass fibers can increase tool wear. The exposed glass fibers can also be abrasive to mating surfaces, making PEEK GF30 less suitable for applications where the material directly slides against another component.

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 high strength, rigidity, creep resistance, dimensional stability, chemical resistance, and high-temperature performance makes PEEK GF30 suitable for CNC-machined components used in aerospace, chemical processing, semiconductor, automotive, and industrial applications. It is particularly appropriate for precision parts exposed to high static loads over long periods or to elevated temperatures.

Material Specifications (For reference only.)	
Tensile strength	101 to 157MPa
Elongation at Break	2.2% to 5%
Hardness	103 HRM
Heat deflection temperature	316°C
Maximum service temperature	260°C to 300°C

Attention

The 30% glass fiber reinforcement improves stiffness and dimensional stability but can make PEEK GF30 more abrasive to cutting tools and mating components. Appropriate carbide tooling, cutting parameters, workholding, and chip removal should be used during CNC machining. For components involving direct sliding or bearing contact, the abrasive nature of the exposed glass fibers should also be considered during material selection.

Applications

3DSPRO finds people using PEEK GF30 to make functional parts and prototypes in the following industries and applications.

Aerospace components:

Structural brackets, insulators, housings, supports, and other lightweight components requiring high stiffness, dimensional stability, and temperature resistance.

Chemical and industrial equipment:

Pump components, valve components, seals, manifolds, housings, and other parts exposed to aggressive chemicals or elevated temperatures.

Semiconductor and vacuum equipment:

Precision fixtures, insulating components, equipment mounts, wafer-handling components, and other dimensionally stable parts used in demanding processing environments.

Automotive and general engineering:

Structural supports, precision guides, housings, brackets, and other CNC-machined components requiring high rigidity, creep resistance, and long-term dimensional stability.