



THERMOPLASTIC SOLUTIONS

A strong, lightweight, reliable alternative to Titanium (Ti-6Al-4V).



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Overview

Amphenol PCD's Carbon PEEK Thermoplastic solutions offer strong, lightweight, low-cost alternatives to Titanium (Ti-6Al-4V) solutions currently used in the space industry. Molded parts can be designed into shapes that are difficult or impossible to attain with CnC machining, enabling more weight efficient and cost-effective designs. As a molded part, Carbon PEEK Thermoplastic parts use less material, and generate less process waste than machining Ti-Al-4V. Highly resistant to most chemicals and fluids, Carbon PEEK Thermoplastic solutions are suitable for fuel, cooling and heat pipe applications. And unlike TI, Carbon PEEK Thermoplastic does not suffer from Cold Dwell Fatigue, helping ensure more reliable operation over the life of the system. So if you are looking to cut weight and lower cost without sacrificing performance, think Carbon PEEK Thermoplastic solutions from Amphenol PCD.

Features & Benefits

Strong	Strength & durability of Carbon PEEK Thermoplastics meet or exceed Space industry application requirements.
Lightweight	Molded parts can be designed into shapes that are difficult or impossible to attain with CnC machining, enabling more weight efficient and cost-effective designs.
Reliable	Proven success in Commercial Aerospace & Space applications.
Low-Cost/Eco-Friendly	Molding Thermoplastic using readily available Carbon PEEK (150CA30) is a much more efficient production process than machined Ti-6Al-4V, resulting in lower piece part costs and less material waste.
Outgassing	Carbon PEEK Thermoplastic is a very stable material, and meets Space industry standards for outgassing.
Moldable	As a molded solution, Carbon PEEK Thermoplastic designs can be better tailored to space restricted areas, unlike machined Ti-6AL-4V solutions.
Suitable for sun facing applications	Carbon PEEK's performance range meets Space industry standards. (> 100C)
Resilient to Cold Dwell Fatigue	Unlike Ti-6AL-4V, Carbon PEEK Thermoplastic is not subject to Cold Dwell Fatigue, reducing risk of failure and prolonging the life of the equipment.
Readily available	Carbon PEEK is available from a wide variety of NATO friendly sources, and is not subject to embargos or import/export restrictions.

Materials & Specifications

Specification	Carbon PEEK
Material	Carbon PEEK (150CA30)
Temperature Limits	-80°C to 240°C (-112°F to 464°F)
Flammability	Meets FAR 25.853
Chemical Resistance	Resistant to most solvents, cleaners, degreasers and de-icers used in space launch vehicle applications. Impervious to Jet Fuel A.
Density (g/cm ³)	1.4
Tensile Strength (MPa)	270
Young's Modulus (GPa)	28
Thermal Conductivity (W/(m*K))	0.95
Electrical Resistance (ohm*cm)	100,000
Outgassing	(TML) Total Mass Loss: 0.18% (CVCM) Collected Volatile Condensable Material: 0.00% (WVR) Water Vapor Regained: 0.17%