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High Performance Thermoplastic **OXPEKK®** Materials

OXPEKK® BioFlex™ Laminates for Implant Applications

OXPEKK® BioFlex™ smart materials are composed of multiple layers of continuous carbon fibers and thermoplastic OXPEKK® resin. The fibers are orientated within the part, so that stiffness is defined by fiber direction. The isotropic nature of metallic and conventional polymeric materials are overcome, thus opening a new era of dynamic stabilization and motion preservation.

OXPEKK® BioFlex™ Cross-Ply

To date orthopedic implant design engineers have relied upon complex mechanical assemblies and articulating surfaces in order to preserve motion. OXPEKK® BioFlex™ introduces a new and dynamic tool for the orthopedic OEM's via the combination of smart materials and established design techniques.

OXPEKK® BioFlex™ Torsion-Ply

OXPEKK® BioFlex™ can be supplied in oriented laminated plates of thickness 1 – 10mm up to 60cm square, semi-finished thermoformed 3D parts waterjet cut and hot-formed from oriented plates and solid unidirectional rods. Common orientations include Cross-Ply (0/90), Unidirectional, Quasi-Isotropic (-45/0/45/90), Torsional-Ply (-45/45). Parts can be readily machined on conventional equipment such as is used for other carbon fiber composites.

OXPEKK® BioFlex™ is available for long-term implants with an executed supply agreement.

Mechanical Properties			
0° Tensile		**90° Tensile**	
Strength MPa/ksi	2506/364	Strength MPa/ksi	57/8.3
Modulus GPa/Msi	146/21.1	Modulus GPA/Msi	10.7/1.6
0° Compressive		**90° Compressive**	
Strength MPa/ksi	1615/234	Strength MPa/ksi	238/34.5
Modulus GPa/Msi	123.2/17.9	Modulus GPa/Msi	10.7/1.55
Open Hole		**Open Hole**	
Tensile MPa/ksi	398/65.6	Compressive MPa/ksi	335/50.5

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