

ProtoPEEK® 5025 Compression-Molded, Bearing Grade PEEK

With Carbon-Fiber Reinforcement & Internal Lubrication

ProtoPEEK® 5025 is a proprietary, bearing grade PEEK (polyetheretherketone) material, reinforced with carbon fibers and internally lubricated with different proprietary lubricants to improve dry running capabilities. Tribological evaluations under dry running conditions have shown its friction coefficient and wear rate to be much lower than other bearing grade composite materials available in the market. Its extremely low wear rate along with low coefficient of thermal expansion properties make this material an ideal candidate for replacing metal wear components.

This material is especially suited to centrifugal pump components such as impeller/case wear rings, throat bushings, and line shaft bearings. In addition to improved reliability and increased MTBR (mean time between repair), these features allow for 50% tighter clearance gaps than API recommended values, thereby increasing pump efficiency resulting in substantial savings.

Physical Properties	ASTM Method	Typical Values
Specific Gravity	D792	1.42 gr/cm ³
Water Absorption (24hrs. @73.4°F)	D570	0.15 %
Color	N/A	Black
Mechanical Properties		
Tensile Strength	D638	18,900 psi
Tensile Elongation	D638	3 %
Flexural Strength	D790	25,000 psi
Flexural Modulus	D790	1.3 x 10 ⁶ psi
Compressive Strength	D695	25,000 psi
Compressive Modulus	D695	540,000 psi
Impact Strength (Izod, notched)	D256	
Hardness	Shore D	88
Tribological Properties		
Coefficient of Friction		
- Static	D3702	0.12
- Dynamic (at 20,000 PV)	D3702	0.08
- Limiting PV (at 200 psi- 600 fpm, dry)		120,000 Psi-fpm
Wear Rate (PV: 20,000 psi-fpm)	D3702	0.80 μin/min
Thermal Properties		
Coefficient of Linear Thermal Expansion (78 to 400°F)	D696	25 x 10 ⁻⁶ /°F
Heat Deflection Temperature (264psi)	D648	450 °F
Glass Transition Temperature (T _g)	D3418	
Continuous Service Temperature (Max @ no load)		500 °F
Melting Point		644 °F
Electrical Properties		
Volume Resistivity	D257	10 ¹⁶ ohm-cm
Dielectric Strength	D149	KVcm
Dielectric Constant	D150	50Hz, 200°C

Note: Property values should be interpreted as typical rather than minimum value. All technical information and recommendations are presented in good faith, based upon laboratory and real-world tests believed to be reliable and practical. However, Professional Plastics cannot guarantee the accuracy or completeness of this information, and it is the customer's responsibility to determine product suitability to any given application.

Call Professional Plastics at (888) 995-7767 or
E-Mail sales@proplas.com
Order Online at www.professionalplastics.com