



HPV PEEK Polyetheretherketone; PTFE, Graphite, and Carbon Fiber Filled Bearing Grade (ASTM Data)

Categories: Polymer; Thermoplastic; Filled/Reinforced Thermoplastic; Polyketone; Polyetheretherketone (PEEK)

Material Notes: This bearing grade of extruded PEEK offers the lowest coefficient of friction and best machinability of all grades. It is ideal for low wear, high PV parts that require chemical resistance.

Physical Properties	Metric	English	Comments
Specific Gravity	1.44 g/cc	1.44 g/cc	ASTM D792
Water Absorption	0.050 %	0.050 %	Immersion, 24hr; ASTM D570(2)
Water Absorption at Saturation	0.30 %	0.30 %	Immersion; ASTM D570(2)

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	85	85	ASTM D785
Tensile Strength	75.8 MPa	11000 psi	ASTM D638
Elongation at Break	2.0 %	2.0 %	ASTM D638
Tensile Modulus	5.86 GPa	850 ksi	ASTM D638
Flexural Yield Strength	190 MPa	27500 psi	ASTM D790
Flexural Modulus	7.58 GPa	1100 ksi	ASTM D790
Compressive Strength	138 MPa	20000 psi	10% Def.; ASTM D695
Compressive Modulus	3.45 GPa	500 ksi	ASTM D695
Shear Strength	68.9 MPa	10000 psi	ASTM D732
Izod Impact, Notched	0.374 J/cm	0.700 ft-lb/in	ASTM D256 Type A
Coefficient of Friction	0.21	0.21	Dry vs. Steel; QTM55007
K (wear) Factor	201 x 10 ⁻⁸ mm ³ /N-M	100 x 10 ⁻¹⁰ in ³ -min/ft-lb-hr	QTM 55010
Limiting Pressure Velocity	0.701 MPa-m/sec	20000 psi-ft/min	4:1 safety factor; QTM 55007

Electrical Properties	Metric	English	Comments
Surface Resistivity per Square	<= 10000 ohm	<= 10000 ohm	EOS/ESD S11.11

Thermal Properties	Metric	English	Comments
CTE, linear	30.6 µm/m-°C @Temperature -40.0 - 149 °C	17.0 µin/in-°F @Temperature -40.0 - 300 °F	ASTM E831
Thermal Conductivity	0.245 W/m-K	1.70 BTU-in/hr-ft ² -°F	ASTM F433
Melting Point	340 °C	644 °F	Crystalline, Peak; ASTM D3418
Maximum Service Temperature, Air	250 °C	482 °F	Long Term
Deflection Temperature at 1.8 MPa (264 psi)	195 °C	383 °F	ASTM D648
Flammability, UL94	V-0	V-0	1/8 inch (Estimated Rating)

Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	
Canada AG	No	No	
FDA	No	No	
NSF	No	No	
USDA	No	No	
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Limited	Limited	
Acids, Weak	Acceptable	Acceptable	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Acceptable	Acceptable	
Alkalies, Weak	Acceptable	Acceptable	
Chlorinated Solvents	Acceptable	Acceptable	
Conductive / Static Dissipative	Yes	Yes	
Continuous Sunlight	Acceptable	Acceptable	
Hot Water / Steam	Acceptable	Acceptable	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Acceptable	Acceptable	
Inorganic Salt Solutions	Acceptable	Acceptable	
Ketones, Esters	Acceptable	Acceptable	