

PEEK HPV Bearing Grade Rod

Carbon Fiber Reinforced Thermoplastic



Description and Overview

PEEK HPV is a specialized bearing grade of PEEK that has been modified and reinforced with carbon fibers, PTFE, and graphite to lower its coefficient of friction and increase its wear characteristics past traditional PEEK's typical values.

PEEK HPV shares standard PEEK's wear and slide characteristics and its resistance to chemicals, but has increased thermal characteristics. PEEK HPV has a maximum continuous use temperature of 500°F, an increase of 20°F over standard PEEK. It can handle extreme temperatures without its mechanical properties degrading, even when exposed to superheated steam or high-pressure water.

Applications and Uses


PEEK HPV is an incredibly versatile material used in the aerospace, automotive, and textile industries for bearing and wear applications. It can run at high loads and speeds and with or without an external lubricant. With the best machinability of all PEEK grades, PEEK HPV machines into a diverse set of parts, including:

- Rollers
- Gears
- Pump components
- Compressor parts
- High-temperature insulators
- Scraper blades in heat exchangers
- Pump wear rings
- Bushings

Properties and Specifications

| MECHANICAL PROPERTIES | ENGLISH VALUES | COMMENTS | METRIC VALUES |
|--|----------------|-------------------------|---------------------------|
| Specific Gravity | 1.44 | ASTM D792 | 1.44 |
| Tensile Strength, psi | 11000 | ASTM D638 | 76 MPa |
| Tensile Modulus, psi | 850000 | ASTM D638 | 5,861 MPa |
| Elongation, % | 2 | ASTM D638 | 2 % |
| Flexural Strength, psi | 27500 | ASTM D790 | 190 MPa |
| Flexural Modulus, psi | 1100000 | ASTM D790 | 7,585 MPa |
| Compressive Strength, psi | 26700 | ASTM D695, 10% Def. | 184 MPa |
| Compressive Modulus, psi | 1000000 | ASTM D695 | 6,895 MPa |
| Hardness, Rockwell M | 85 | ASTM D785 | 85 |
| Izod Impact (Notched), ft-lb/in | 0.7 | ASTM D256 Type A | 37 J/m |
| Coefficient of Friction, Dynamic | 0.21 | Dry vs. Steel, PTM55007 | 0.21 |
| Limiting PV, psi-fpm | 35000 | PTM55007 | 1.2 MPa -m/sec |
| k (wear) factor, 10-10in3-min/lb-ft-hr | 100 | PTM55007 | 100 10-10in3-min/lb-ft-hr |
| THERMAL PROPERTIES | ENGLISH VALUES | COMMENTS | METRIC VALUES |
| Coefficient of Thermal Expansion, 10E-4/°F | 0.17 | ASTM E831 (TMA) | 0.31 10-4/K |
| Deflection Temperature 264 psi, °F | 383 | ASTM D648 | 195 °C |
| Melting Point (Crystalline) Peak, °F | 644 | ASTM D3418 | 340 °C |
| Tg-Glass Transition (Amorphous), °F | 289 | ASTM D3418 | 143 °C |
| Continuous Service in Air (Max), °F | 482 | Without Load | 250 °C |
| Thermal Conductivity, BTU-in/hr-ft²-°F | 1.7 | | 0.24 W/m-K |

330 Commerce Circle
 Sacramento, CA 95815
 (888) 768-5759

 **WARNING:** This product can expose you to chemicals, which are known to the State of California to cause cancer, birth defects, and/or other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

