Technical Data Sheet

EVANTIC®

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VERTEC™ 5028

Extended Wear Grade PEEK

Product Description:

VERTEC™ 5028 is a high performance PEEK (polyetheretherketone) composite for the most demanding dynamic and structural applications. This bearing grade material, reinforced and with proprietary lubrication, is capable of performing extremely well in high pressure and high velocity applications. It is designed to operate successfully in all environments: dry running conditions, steam service, and water-cooled environments. Its extremely low wear rate along with low coefficient of thermal expansion make this material an ideal candidate for replacing metal wear components. This material is specifically designed for high modulus, high compressive and tensile strengths, high thermal conductivity, lower thermal expansion, lower creep, and higher electrical conductivity requirements than VERTEC 5025.

Physical Properties	ASTM Method	Typical Values
Specific Gravity, g/cm^3 (lb/ft^3)	D792	1.48 g/cm3 (92.4 lb/ft3)
Water Absorption 24 hrs @73.4° F (23°C)	D570	0.15%
Color	N/A	Black

Mechanical Properties	ASTM Method	Typical Values
Tensile Strength	D1708	20,000 psi (137.9 MPa)
Tensile Elongation	D1708	1.5 %
Flexural Strength	D790	35,000 psi (241.3 MPa)
Flexural Modulus	D790	1,600,000 psi (11,031.7 MPa)
Compressive Strength	D695	35,000 psi (241.3 MPa)
Compressive Modulus	D695	700,000 psi (4,826.3 MPa)
Impact Strength (Izod, notched)	D256	
Hardness	Shore D	91

Tribological Properties	ASTM Method	Typical Values
Coefficient of Friction - Static	D3702	0.27
Coefficient of Friction - Dynamic	D3702	0.09
Wear Rate PV: 20,000 psi·fpm (137.9 MPa·m/s)	D3702	0.8 µin/min

Characteristics:

- High strength
- High temperature resistance
- Excellent wear resistance
- Excellent chemical resistance
- Low smoke and toxic gas emission
- Superior electrical insulating properties

Typical Applications:

- Centrifugal pump components
  - Impeller and case wear bearings
  - Throat and throttle bearings
  - Inter-stage sleeve bearings
- Jet engine components
- Electrical multi-pin connectors
- Silicon wafer carriers
- Compressor piston and rider rings
- High-temperature valve seats
- Surgical devices
- Down-hole seals and backup rings
- Compressor valve plates
- Food preparation equipment components

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Thermal Properties	ASTM Method	Typical Values
Coefficient of Linear Thermal Expansion (78-300°F / 25.6-204.4°C)	D696	9 x 10 -6/° F
Heat Deflection Temperature (@264 psi / 1.82 MPa)	D648	600°F (315.5°C)
Glass Transition Temperature (Tg)	D3418	289°F (142.7°C)
Continuous Service Temperature (Max @ no load)		500°F (260°C)
Melting Point		644°F (340°C)

Electrical Properties	ASTM Method	Typical Values
Volume Resistivity	D257	10^3 Ω-cm
Dielectric Strength	D149	
Dielectric Constant	D150	

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