TECHNICAL DATA
Polymide/Vespel®

Polymide/Vespel® fasteners are the ultimate high temperature polymer fastener with a usable limit of 300°C (572°F) in continuous heat and 500°C (932°F) for intermittent exposure. In addition to their high temperature capabilities, Vespel fasteners are strong – 3x the strength of PTFE or PFA and twice that of PVDF. Polymide screws offer a unique balance of mechanical, thermal, and chemical properties for outstanding performance in a variety of applications. In addition to their high temperature strength, they offer exceptional radiation resistance, robust chemical resistance to many solvents, a low coefficient of thermal expansion, as well as excellent creep resistance and flame retardance.

Properties & Data

Property	ASTM or UL Test	Vespel® Polyimide
PHYSICAL		
Density (lb/in³) (g/cm³)	D792	0.051 (1.43)
Water Absorption, 24 hrs (%)	D570	0.24
MECHANICAL		
Strength/Weight Ratio	Tensile Strength / Density (g/cc)	8700
Tensile Strength (psi)	D638	12,500
Tensile Modulus (psi)	D638	450,000
Tensile Elongation at Break (%)	D638	7.5
Flexural Strength (psi)	D790	16,000
Flexural Modulus (psi)	D790	450,000
Hardness, Rockwell, R/M Scale	D785	M90
IZOD Impact Notched (ft-lb/in)	D256	0.8
THERMAL		
Coefficient of Linear Thermal Expansion (x 10-5 in./in./°F)	D696	3
Heat Deflection Temp (°F / °C) at 264 psi	D648	680 / 360
Melting Temp (°F / °C)	D3418	none (degrades ~500 °C)
Max Operating Temp (°F / °C)	-	572 / 300
Thermal Conductivity (BTU-in/ft²-hr-°F)	C177	2.0
Flammability Rating	UL94	V-0
ELECTRICAL		
Dielectric Strength (V/mil) short time, 1/8" thick	D149	560
Dielectric Constant at 1 MHz	D150	3.55
Dissipation Factor at 1 MHz	D150	0.0034
Volume Resistivity (ohm-cm) at 50% RH	D257	$>10^{14}$

Key Benefits

- Usable to 300°C (572°F) in continuous heat and 500°C (932°F) for intermittent use
- Low coefficient of friction and high wear resistance
- Chemically resistant to many common acids, salts, and oils
- Excellent radiation resistance, creep resistance, and flame retardance
- Low out gassing, low particle generation and inherent purity

VESPEL – Tensile Data

Temperature (°F)	Ultimate Tensile (ksi)
Room Temp.	12.5
500	6.0