



VTEC™ PI Polyimide Parts & Shapes

A superior polyimide polymer that performs like a ceramic

- High temperature resistance
- Superior mechanical properties
- Excellent chemical resistance
- Extremely dimensionally stable
- Easy machining and tolerance control
- Outstanding electrical properties
- Non-abrasive to mating parts
- Very low outgassing
- Strength at elevated temperature
- Very low thermal expansion coefficient
- Extremely low moisture absorption – 1/16th of Vespel SP-1
- Equal thermal expansion in X, Y and Z directions
- Compliant without deforming under load and temperature
- Wear resistance, low friction, self-lubricating
- High compressive strength and creep resistance
- Zero metal and mineral extractables

VTEC PI PHYSICAL PROPERTIES

VTEC PI — THE CERAMIC PLASTIC™	Test Method	Unit	VTEC™ PI
Specific Gravity	D792	—	1.41
Hardness	D785	Durometer D	86
Tensile Strength	D638	kgf/cm ²	910
Elongation	D638	%	6
Compressive Stress (10% strain)	D695	kgf/cm ²	2,560
Compressive Modulus	D695	kgf/cm ²	26,000
Compressive Creep	D621	%	0.20
Flexural Strength	D790	kgf/cm ²	2,086
Flexural Modulus	D790	kgf/cm ²	31,135
Impact Strength, Izod Notched	D256	kg cm/cm	6.95
Coefficient Of Thermal Expansion	D696	in./in. °F 10 ⁻⁶	25
Dimensional Stability (% change, 24 hrs@ 500°C)	—	%	0.00
Thermal Conductivity	Cence Fitch	kcal/m. hr. °C	0.265
Dielectric Constant (23°C, 10 ⁶ Hz)	D150	—	3.02
Dielectric Constant (23°C, 10 ¹² GHz)	D150	—	2.90
Dissipation Factor (23°C, 10 ⁶ Hz)	D150	—	.003
Dissipation Factor (23°C, 10 ¹² GHz)	D150	—	.001
Dielectric Strength (Short Time, 80 mils thick)	D149	MV/m	21.5
Volume Resistivity	D257	ohms-m	10¹⁴-10¹⁵
Surface Resistivity	D257	ohms	10¹⁵-10¹⁶
Water Absorption	D570	%	<0.1
Abrasion Coefficient	Matsubara Method	$\frac{\text{cm}^3 \text{ sec}}{\text{kg/m/hr}} \times 10^5$	2.46
Dynamic Friction Coefficient	—	µm	0.35

VTEC ‘CERAMIC PLASTIC’ AVAILABILITIES & CAPABILITIES

• STOCK SHAPES	Rod, sheet, tube and custom shapes for machined parts
• DIRECT FORMING	Net and near-net blanks (higher volume applications)
• MACHINING	RBI offers complete CNC machining of finished VTEC parts and components
• CUSTOM COMPOUNDS	VTEC grades can be engineered based on individual service and application needs. Fillers include glass, carbon, graphite, Teflon, MoS ₂ , minerals, etc.

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