

versimax™ Composite



Diamond Innovations
the art & science of superabrasives

Versimax™ Composite

[CERAMIC-BONDED DIAMOND COMPOSITE]

Wear Resistant, Unaffected by Corrosives, Strong

The Versimax family of products is a ceramic-bonded diamond composite with superior wear resistance, mechanical strength, high temperature performance, and low weight. The new composite has wear resistance approaching sintered diamond but provides substantially higher thermal stability. The ceramic-bonded composite is impervious to most corrosives.



eNHANCED DESIGN FEATURES

- Excellent abrasion resistance
- Electrical conductivity
- High thermal stability

mEASURABLE BENEFITS

- Four times harder than carbide - tool life lengthened
- Large geometries supported - 38 mm height, 36 mm diameter
- Tool usable @ 1,200°C

Select Applications for Versimax Composite

Wear Applications

Excellent wear resistance properties combined with superb high heat tolerance make Versimax composite an ideal fit for your demanding wear applications.

Shapes of Complexity

Applications that require complex, three dimensional shapes will find Versimax composite to be the perfect partner. This ceramic-bonded diamond composite is electrically conductive and easy to EDM to create the ideal shape and size for your specific application.

Lengthened Tool Life

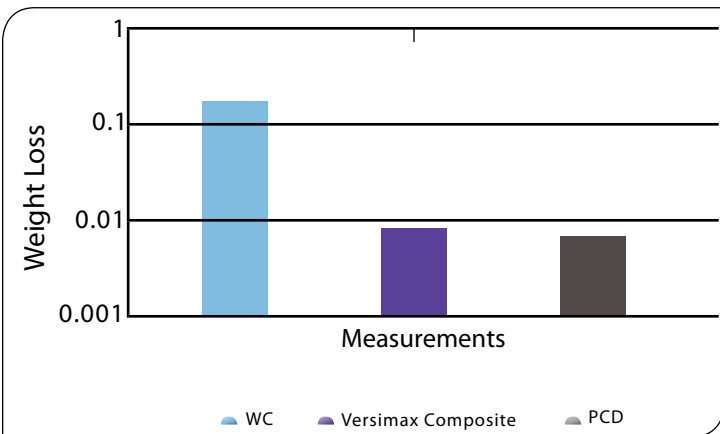
Versimax composite is significantly harder than carbide and closely approaches the hardness of diamond. For applications that require a resistant and effective tooling product, Versimax composite is the answer.



Product Specifications

Property	Description	Polycrystalline Diamond (PCD)	Versimax Composite	Tungsten Carbide (WC)
Diamond	Diamond Content (% vol)	85 - 95	80	0
Density	(g/cc)	3.9 - 4.1	3.38 - 3.41	12 - 15
Stiffness	Elastic Modulus (GPa)	850 - 1,150	1,050	450 - 650
Strength	Transverse Rupture Strength (GPa)	0.9 - 1.7	0.65	3.2 - 4.4
Hardness	Knoop Hardness (3kg load) (kg/mm ²)	> 4,000	4,000	800 - 1,500
Heat Transfer	Thermal Conductivity (W/mK)	500 - 600	350	100
Fracture Toughness	Notched Beam (Mpa*m ^{1/2})	PCD 5.0 Solid PCBN 2.5	4	15

Abrasion Resistance



Versimax composite squares (l-r) _ unused straight cut tool, unused chamfered tool, tool used in granite application



Diamond Innovations

World Headquarters
6325 Huntley Road
Columbus, OH 43085

614 . 438 . 2000
800 . 443 . 1955

diamondinnovations.com