



ULTRAC™-HT COATING

Exceptionally tough diamond-like carbon

Overview

Entegris uses its proprietary low-temperature plasma enhanced chemical vapor deposition process to deposit UltraC™-HT coatings. UltraC-HT is an innovative, multilayer, fully dense coating based on our UltraC Diamond hard carbon coating technology. This mono-dimensionally modulated (MDM) coating system, is engineered to consist of multiple layers of two different materials with different elastic modulus. The UltraC-HT coatings have high strength, toughness and excellent resistance to erosion and wear. UltraC-HT coatings are suitable for a wide range of demanding applications in aggressive environments encompassing semiconductor wafer processing, oil exploration, biomedical engineering and aerospace.

Applications

- Semiconductor wafer handling devices
- Oil exploration equipment
- Aerospace turbine compressor blades
- Air bearings
- Surgical tools
- Metal forming

Features

- Multilayer coatings provide high strength and extreme toughness
- Maintains lubrication in both dry and humid air
- Excellent abrasive/erosion wear resistance
- Super lubricious



Stainless steel component coated with UltraC-HT coating.



Rotating vacuum seal surfaces on an aluminum component coated with UltraC-HT coating.

Specifications

Substrate:	Compatibility	Most metals and ceramics (AlN, Al ₂ O ₃ , quartz, YSZ, silicon, graphite, etc.), silicon wafers and polymers
	Size	Up to 91 cm (36")
	Geometry	Any shape, including complex geometries
Structure:	Dense, amorphous, mono-dimensionally modulated (MDM), multilayered	
Temperature:	Deposition	150°C (302°F)
	Use	-50 to 400°C (-58 to 752°F)
Coating thickness:	1–50 µm	
Electrical resistivity:	~10 ⁸ Ω-cm	
Coefficient of friction:	0.04–0.08	
Hardness:	2040–2650 HV (20–26 GPa)	
Wear resistance:	Excellent	
Corrosion resistance:	Resistant to most acids and alkalis, acid fluxes and solders	

For More Information

To learn more about how Entegris' high-purity specialty coatings help customers enhance yields, improve productivity and meet future technological needs, call Entegris at +1 781-538-8745.

To review Entegris' specialty coatings offering, visit Entegris' website at www.EntegrisSpecialtyCoatings.com.

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