

FORTIPHY™ XVD

SiC



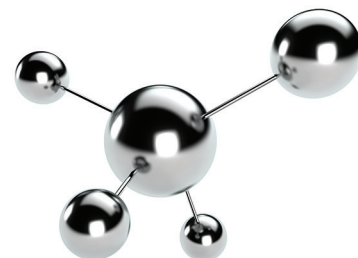
FortiPhy XVD SiC is a Silicon Carbide (SiC) coating supported by a layer of Chromium Nitride (CrN) deposited through Phygen's patented XVD (Xcelerated Vapor Deposition) process.

FortiPhy XVD goes beyond conventional cathodic arc technologies by utilizing magnetic fields to increase ionization efficiency. This increases plasma density while accelerating the enhanced plasma collectively by means of an electromagnetic force. Phygen's accelerated plasma process results in a large number of ions with a velocity within a specific range bombarding the substrate during coating deposition. Intense bombardment by ions of moderate energy ensures that crystalline configurations with weaker bonding can be minimized while preserving stronger bonds. As a result, Phygen coatings feature stronger adhesion, superb crystalline structure, denser coating with fewer defects and exceptional mechanical properties.



FEATURING PATENTED NANOPERFECTION™ TECHNOLOGY

Phygen's FortiPhy™ XVD process is based on our patented Nanoperfection™ technology, a revolutionary breakthrough in plasma acceleration science. FortiPhy™ XVD delivers smaller, more consistent nanoparticles while eliminating 90% of the macroparticle flaws and surface defects common to conventional PVD surface coatings.



FORTIPHY™ XVD



ADVANTAGES

- High wear resistance at elevated temperatures
- Lubricious coating for high temperature service
- Chemically inert
- Strong coating adhesion and cohesion
- Thin film coating preserves critical dimensions

INDUSTRIES

Aerospace
 Marine
 Medical
 Plastic Processing
 Precision Machine Components
 And others

APPLICATIONS

Water pump seals
 Pump components
 Bearings
 Heat exchanger plates
 Out-of-the-box applications

COATING PROPERTIES

Composition	CrN + SiC
Crystal structure	FCC (CrN) + amorphous SiC
Modulus of Elasticity, GPa	250–280
Nano-Indentation Hardness, GPa	27–30
Adhesion strength (scratch test critical load), N	80–90
Coefficient of Friction (CoF)	0.08–0.12 (DRY, AGAINST 440C BALL)
Coating Wear Rate, mm³/Nm	2.3 x 10 ⁻⁶
Oxidation Temperature	600°C (1100°F) max.
Color	Dark grey