

FORTIPHY™ XVD

DLC



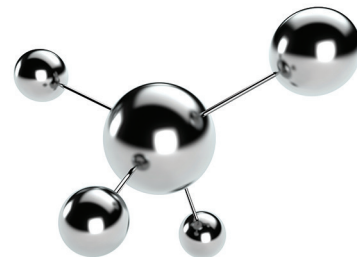
FortiPhy XVD DLC is a Diamond-like Carbon coating supported by a layer of Chromium Nitride (CrN) deposited through Phygen's patented XVD (Xcelerated Vapor Deposition) process.

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

- Superior abrasive wear resistance
- Extremely lubricious coating
- Improves scuffing resistance
- Prevents galling and adherence
- Chemically inert and biocompatible
- Strong coating adhesion and cohesion
- Thin film coating preserves critical dimensions

INDUSTRIES

Aerospace
Automotive
Medical
Plastic Processing
Other Precision Machine Components

APPLICATIONS

Power transmission gears
Engine valves
Piston rings
Plastic molds
Medical instruments and implants
Out-of-the-box applications

COATING PROPERTIES

Composition	CrN + DLC
Crystal structure	FCC (CrN) + amorphous DLC
Modulus of Elasticity, GPa	200–235
Nano-Indentation Hardness, GPa	18–22
Adhesion strength (scratch test critical load), N	80–105
Coefficient of Friction (CoF)	0.03 ±0.005 (DRY, AGAINST 440C BALL)
Coating Wear Rate, mm³/Nm	(6–8) × 10 ⁻⁸
Oxidation Temperature	350°C (660°F) max.
Color	Black