



Surface Engineering & Alloy Company

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Extreme Coatings™

Feedscrew Coating Chart

Surface Engineering's Extreme Coatings™ process utilizes emerging thermal spray technologies to apply extremely wear resistant and/or corrosion resistant protective coatings to virtually any size injection molding or extrusion feedscrews. Our process provides a crack free and porosity free coating with hardness values over 60Rc and coating thickness' ranging from .005"-.030". This process completely eliminates the necessity for tool steels, chrome plating, flame hardening, or Nitriding; as the entire screw surface is coated, including the root, flight sides and flight lands. In addition to full encapsulation, our carbide coatings can be applied to the flight lands only; for single and twin feedscrews. Another unique characteristic of the process is the capability to rebuild flights on worn CPM® (1) screws, provided wear is limited to approximately .015" per side or .030" overall.

The Coatings

XC1000™ – 88% Tungsten Carbide (Wc), 12% Cobalt (Co) matrix

High abrasive wear applications (Fiberglass, mineral and magnetic filled polymers)

XC1000Ni™ - 90% Tungsten Carbide (Wc), 10% Nickel (Ni) matrix

High abrasive wear applications with improved corrosion resistance (hydrochloric acid)

XC1000-17™ - 83% Tungsten Carbide (Wc), 17% Cobalt (Co) matrix

High abrasive wear applications with improved ductility (recommended for smaller screws)

XC9000™ – 88% Tungsten Carbide (Wc micron and nanometer particles) 12% Cobalt (Co) matrix

High abrasive wear applications with sub-micron particle abrasion (TiO₂, Silica)

XC4000™ – 75% Chrome Carbide (Cr₂C₃), 25% Nickel Chrome (NiCr) matrix

High corrosion, high temperature and high abrasion applications (Fluoropolymers, bromine and PEEK)

Feedscrew Processing Environments

Extreme Coatings™	High Abrasive Wear	Moderate Corrosion	Excessive Corrosion	Reduce Black Specks	Higher Ductility	Sub-micron Particle Abrasion	Surface Temperature Threshold °F
XC1000™	X	X		X			800-900
XC1000Ni™	X	X	X	X			800-900
XC1000-17™	X	X		X	X		800-900
XC9000™	X	X		X		X	800-900
XC4000™	X	X	X	X	X		1200-1300

(1)“CPM”®is a registered trademark of Crucible Specialty Materials.