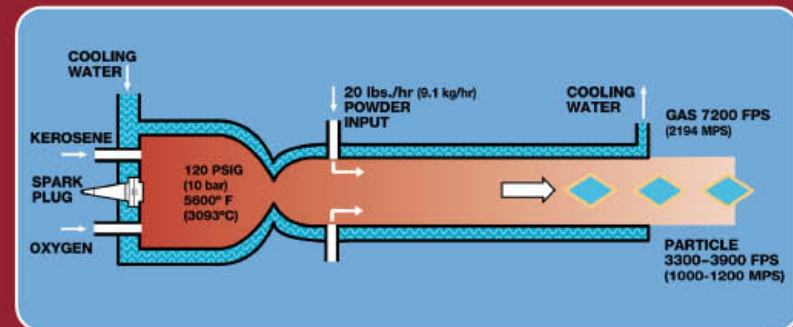
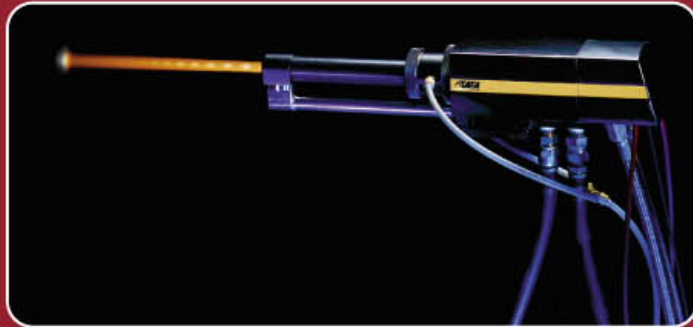


## The Process

The Extreme Coatings process expands on the natural tendency of a molten particle to bond mechanically to another material upon impact and rapid solidification of the molten particle. This is comparable to a weld splatter droplet adhering to the base metal being welded. The thermal spray process harnesses the extremely high temperatures and forces of combustion to accelerate ultra-fine particles, typically less than .003" (0.1 mm), to high velocity, molten particles traveling in excess of 2,500 feet per second (750 m/sec). Upon impact, the particles flatten, solidify, and form an interlocking bond within the coating layers and between the coating and the prepared substrate. Deposit density exceeds 90% and in many cases approaches 100%.



As the gas mixture burns, the coating particles are melted and accelerated down the barrel. Temperatures above 6000°F (3300°C) are attained within the combustion chamber while the work piece is maintained below 350°F (175°C) by a gas cooling system. The kinetic energy released by impingement upon the substrate contributes additional heat and promotes bonding and high hardness values. The coating is deposited to the specified thickness while the work piece is rotated in front of the thermal spray gun.



## Typical Applications:



Chill Rolls



Continuous Mixing Rotors



Plunger Heads



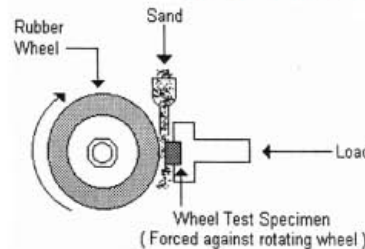
No feed screw geometry is too complex!

Extreme Coatings™

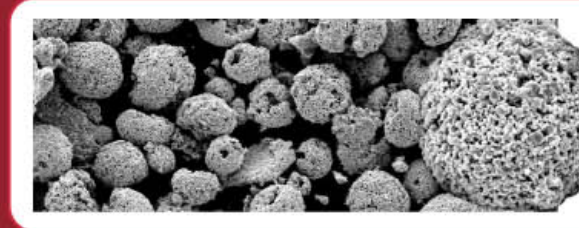
## The Coatings

TYPE	Rc	DESCRIPTION
XC1000	Rc68-71	A composition of Cobalt or Nickel saturated with 80-90% Sub-Micron sized Tungsten Carbide with a particulate hardness average of Rc82, providing ultimate abrasion resistance.
XC1000-17	Rc67-70	A composition of 83% Tungsten Carbide and 17% Cobalt. Higher concentration of Cobalt provides more ductility than XC1000. Suggested for small diameter feedscrews.
XC4000	Rc55-65	A Composition of Nickel, Chromium, and Chromium Carbide producing an abrasion resistant coating with extreme corrosion resistance and excellent ductility, relative to hardness.
XC9000	Rc65-70	Our Millennium Carbide is a Tungsten Carbide / Cobalt featuring a unique sub-micron manufacturing process providing improved wear resistance over traditional Tungsten Carbide coatings. Excellent for sub-micron particle abrasion.

### Abrasive Wear Test Unit ASTM G65 (Dry Sand)



Tested for 2000 revolutions at a load of 30 lb. (13.6kg) using a 9 inch (229 mm) diameter rubber wheel and dry sand.



Tungsten Carbide/Cobalt powder

## Abrasion Resistance Test Data

Coating or Alloy	Chemical Composition	Application Process	Average Hardness RC	Volume Loss mm <sup>3</sup>
XC9000	88%Wc / 12% Co	Extreme Coatings	68-71	2.4
XC1000	88%Wc / 12% Co	Extreme Coatings	68-71	3.0
XC1000Ni	90%Wc / 10% Ni	Extreme Coatings	68-71	3.0
XC1000-17	83% Wc / 17% Co	Extreme Coatings	67-70	4.7
XC4000	75% Cr3C2 / 25 % NiCr	Extreme Coatings	62-64	3.2
Stellite 6	Co/Cr/W	Weld overlay	40	29.0
Stellite12	Co/Cr/W	Weld overlay	47	19.0
Stellite 1	Co/Cr/W	Weld overlay	54	12.0
Colmonoy 83	Ni/Cr/Boron/Wc	Weld overlay	48	10.0
Colmonoy 56	Ni/Cr/Boron	Weld overlay	49	15.0
D2 Steel	Cr/V/Mo (1.2379)	Wrought steel	60	12.0
CPM-9V	Cr/V/Mo	HIP Powder Metallurgy	54-56	9.5

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We provide our Extreme Coatings service through your current feeds screw supplier so it is not necessary to change vendors. When ordering a new or rebuilt feed screw simply ask your supplier for Extreme Coatings and we will coordinate all the details. Contact us directly to answer any technical questions.



# Extreme Coatings™

## Carbide Encapsulated Feedscrews

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