



# Longer Cylinder Life

Featuring Tungsten Carbide Coating

A close-up photograph of a hydraulic cylinder. The cylinder is dark grey and has a bright red, glossy coating on its surface. The background is dark and out of focus.

 **Central Metallizing  
& Machine**

**Through Our State-Of-The-Art Thermal Spray Process, Tungsten Carbide is the Most Durable and Long-Lasting Coating Available.**



### Advantages of Thermal Spray

- Cold Process: Max. substrate Temp. 400° F
- No Warping or Annealing of Substrate
- Thickness: .002" to .200"
- Any Surface: Flat, Sliding, I.D. or O.D.
- Faster than Welding, Sleeving, or Plating
- Out Performs Hard Chrome five times
- Out Wears Tool Steel five times
- Reduction of Coefficient of Friction up to 50%
- Fast Turnaround Times

### Advantages of Carbide Coating vs Chrome Plating

- Rc 90 vs Rc 60
- Corrosion Resistance is equal to 316 SS
- Wear resistance equals 3-5 times that of chrome
- Bond strength is more than twice that of chrome
- Carbide can be applied to any metal: copper, aluminum, cast iron, all steels
- The actual Carbide Coating has a maximum thickness of .020" (with a stainless underlay the carbide coating capability is up to .150" thick)
- Carbide Coating is a cold process... no distortion/warping or annealing... max 350°F
- No effects to substrate
- No hydrogen embrittlement

### Application Wear Guide

- Abrasive, Erosive, Adhesive/Galling, Fretting, Sliding, or Cavitation.
- Corrosion...Chemical, Atmospheric, and High Temperature Corrosion Problems.
- Chrome Plate Replacement... many coatings out perform hard chrome (up to 5 times in severe abrasive conditions.)
- Thermal Barrier and Dielectric or Conductive Coatings.
- Dimensional Restoration.



2 plungers that pumped tar with grit for 6 months  
(LEFT) New Carbide Coating  
(RIGHT) New Chrome



Carbide Coating after 5 years of use



### Coatings Available

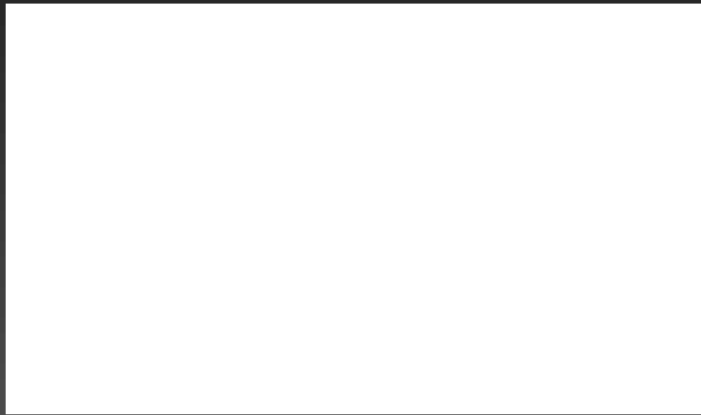
- Stainless Steels
- Carbon Steels
- Tungsten Carbides
- Chrome Carbides
- Aluminum Bronze
- Ceramics
- Super Alloys
- Hastalloys
- Inconels
- Copper
- Aluminum
- Monel
- Molybdenum
- Babbitt
- Chrome Plating



### Carbide vs Chrome Specifications

	CARBIDE HARDFACING	CHROME PLATING
<b>Hardness</b>	Rc90	Rc 60-65
<b>Thickness</b>	up to .150"	up to .015"
<b>Porosity</b>	Impermeable	Inherently Cracked
<b>Corrosion Resistance</b>	Equal to 316 SS	Cracks create paths to substrate
<b>Bond Strength</b>	>12,000 PSI	6000 PSI
<b>EPA/OSHA</b>	Approved Green Process	Toxic Process
<b>Dept. Defense</b>	Approved Green Process	Not Approved





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