

CARBIDE COATINGS

Applied via Impact-Fusion HVOF

At MBI we utilize the most advanced technologies available for applying carbide coatings. Depending on the application, there are many carbide alloys available to consider. Tungsten carbide for one is best applied using our advanced "Impact Fusion" HVOF which produces coatings that are the toughest and with virtually zero porosity.

An HVOF carbide coated surface has a uniform matte-like finish with extremely hard and durable properties. Thicker coatings can be applied and finished by diamond grinding and polishing to produce mirror-like finish.

Other methods such as flame spray /fuse coatings, arc spray, and plasma spray are also used for specific application requirements such as rougher finishes for gripping, impact resistance, thicker build-up, plasma-release type coatings and more!

Typical Properties:

Temperatures: Flame temp reaches 2600° C, but parts being coated remains below 200° C

Hardness: Very high, ranging 75Rc

Bond Strength: Very high, Over 25,000 psi

Thickness: From .0005" - .050"+ build-up

Texture: Customizable; can be varied from appx. 100Ra (as-sprayed) or ground and lapped to a mirror-like finish

Porosity: Virtually none ; ≤ 1%



MAIN FEATURES:

MBI HVOF has even faster particle velocities resulting in what is called **Impact Fusion**. The carbide material particles are practically forge welded together forming a coating layer. Higher particle velocities and Impact Fusion result in denser, better bonded coatings. Compressive stresses within the coating ensure very high adhesion. Conventional coatings have higher residual stresses which are in tension, this condition can cause cracking or dis-bonding. MBI's HVOF coatings are in compression. This condition results in better coating integrity, enhanced corrosion properties and improved thermal fatigue properties.

CARBIDE COATINGS as an ENGINEERING TOOL:

Chrome Replacement—MBI carbide coatings are excellent alternatives to hard chrome plating. They provide better bond, wear and corrosion resistance as well as hardness.

Clad Replacement - HVOF Carbide coatings contain higher carbide percentage than Clad-carbide methods, which means more wear resistance at lower thickness; thus, the process avoids excess waste and the higher cost associated with cladding. Also, unlike cladding the temperature of the parts remains relatively cool (no oven baking required); thus, eliminating the possibility of distortion, warping and structural damage to the base metal.

Carbide coatings are specified and used in a variety of aerospace, chemical, oil field and endless general industrial applications.



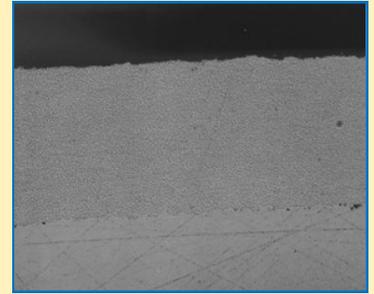
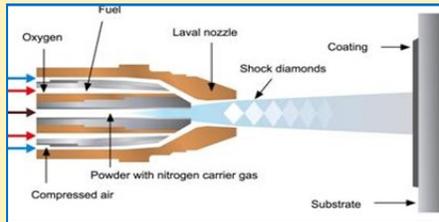
Other advantages of CARBIDE coatings include:

- Wide material range has ability to meet any specification
- Minimal build-up needed for an effective coating
- Can be used in conjunction with MBI's Traclon release coatings
- Endless variations for specific property and application needs
- Offers superb abrasion and wear resistance compared to other coatings
- Ground finish offers mirror-shine that mimics plated chrome



Better Carbides with MBI's HVOF

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Application examples:

Industries include: Non-woven, Tire & Rubber, Paper, Printing, Mills and Refineries, Mining, Oil and Gas, etc.

Machine parts of all types where abrasion-resistant properties with maximum hardness are required, such as:

Rolls of all types include:

Replacing Chrome Rollers

Chill Rolls

Pump Components

Idler Roller

Laminating Rollers

Blowers/Fan Blades

Tracks & Screw Conveyors

Dampener Fingers

Drilling Bores and Bits

Deflector Plates

Shredding Components

Grip Fingers

Knives, Rotary, Slitters

Peeler bars, Seal bars

Typical Variations of CARBIDE coatings:

HV-50 TUNGSTEN CARBIDE *This HVOF coating incorporates 5% chrome to add excellent corrosion resistance along with its great wear resistance. This added 5% chrome also allows this coating to have mirror-like finish when ground and polished.*

FS-60 Ni_Cr_B *This flame-applied coating has elements of nickel, chrome and boron for extreme hardness and wear resistance. This coating offers mild texture and can serve as an excellent corrosion barrier.*

AR-18 BORON CARBIDE *This coating is applied by our high velocity arc spray method that allows us to increase the thickness of build-up without the fear of delamination and spalling. It is extremely hard; over 70 Rc, extremely effective on high abrasion wear applications.*

HV-88 CHROME CARBIDE *This coating is considered an excellent choice for applications that require resistance to wear and corrosion combined. It is also considered as an excellent replacement for chrome plating.*

HV-43 TUNGSTEN CARBIDE *This coating consists of tungsten carbide –cobalt alloy (87-13), it is applied by our HVOF process and considered to be extremely tough and effective on applications subjected to mechanical shock and impact.*