CURTISS-WRIGHT
SURFACE TECHNOLOGIES DIVISION

Smooth Tungsten Carbide Coating
For Wear and Erosion Resistance

Service Information

Curtiss-Wright Surface Technologies (CWST) proprietary High Velocity Oxygen Fuel (HVOF) nano-tungsten carbide coating offers a lower surface roughness, tighter and more uniform thickness, as well as improved wear and erosion-resistance. This option of hardface surface treatment and smooth surface finishing enables customers to create high-performance components for specialized products in the aero-turbine and other industries.

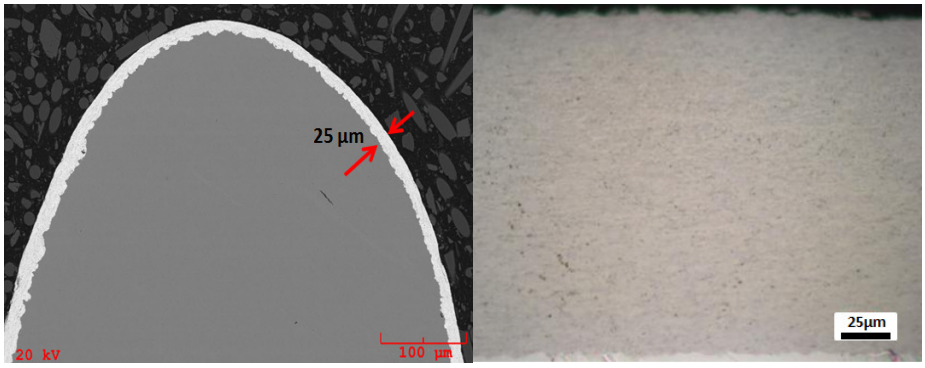
Applications

CWST HVOF nano-WC technology can impart properties unobtainable by base metal selection alone or conventional WC coating on various products including:

- Compressor blades
- Transmission shifter forks
- Piston rings
- Valve stems and seat area
- Increased reliability

Benefits

CWST HVOF WC technology has various benefits, on products such as aero-turbine compressor blades including:



Typical aero-turbine compressor blades coated on leading edge areas with as-sprayed smooth and thin wear/erosion resistant coating

Typical Microstructure of High Velocity Oxygen Fuel (HVOF) tungsten carbide coating with a full density and smooth surface

- Smooth surface finish, Ra < 80 µinch
- Near-zero porosity <1%
- Even coating thickness as low as 25 µm
- Microhardness HV300 >1,500 dph
- Erosion rate about 2X lower compared to conventional WC coating
- Nano and submicron-sized WC in coating enhances hardness and toughness

Process Advantages

CWST HVOF process delivers superior value as compared to conventional WC processes:

- High deposition efficiency
- Capable of applying coating at thin and uniform thickness on airfoil
- Can be more cost-effective by eliminating grinding for surface finish

lano-Smooth WC-CoCr oating (Ra <50 µinch) on a ï-alloy blade after polishing

Curtiss-Wright Surface Technologies (CWST) is a provider of value added surface treatment technologies, including engineered coatings, shot peening, laser peening and materials testing, for demanding industrial applications. With a network of over 75 facilities located in North America, Europe and Asia, Curtiss-Wright Surface Technologies is a Division of the **Curtiss-Wright Corporation** (NYSE:CW), a diversified global provider of highly engineered products and services.

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