

Coatings----Surface Technology At Its Best----Mastering The Elements

Thermal Spray Technology

High Velocity Air Fuel (HVOF II), Plasma, High Velocity Oxygen Fuel (HVOF), Wire Arc

Heany can apply more than 100 different coatings of metals, carbides, ceramics or cermets on virtually any substrate. The following pages detail the technical properties of the coatings most often used to provide wear and corrosion resistance and thermal electrical insulation - qualities designed to extend the life and increase the productivity of your critical production equipment.

Design Benefits

Cost-effective and easy to apply to selected areas, coatings of ceramics and metallic materials are a highly effective way to add superior performance to process components. A wide variety of machinery parts can be manufactured from economical materials and coated to provide wear and corrosion resistance, and improved electrical or thermal insulation characteristics.

Wear Resistance

Coatings of ceramics, carbides and metals provide tough wear-resistant surfaces for industrial components. Carbide coatings can provide surface hardness values to Rc 60-69 Rockwell. Coated surfaces can be precision-ground and super-finished to provide finishes as low as 1 μ in (Ra).

Thermal Insulation

Thermal Barrier Coatings (TBC) are applied to engine and industrial parts to protect against thermal fatigue and high-temperature oxidation and corrosion.

Corrosion Resistance

Thermal spray coatings of ceramic materials provide for a corrosion resistant layer which increases part durability. Materials such as Aluminum Oxide remain stable in high-temperature corrosive applications. Many grades of stainless steels and super alloys also provide enhanced corrosion protection.

Electrical Insulation

Electrically conductive metal substrates can be coated to form insulating surfaces. Coating resistivity can be controlled over a wide range and dense ceramic coatings can withstand up to 10,000 volts.

Support Services

Our In-house Machine Shop capabilities provide component fabrication, grinding, and super-finishing services. A comprehensive Metallographic Laboratory ensures coating quality.

All thermal spray units are attached to 6-axis robots for quality, repeatability, and efficiency.

High Velocity Air Fuel (HVOF-II)

Our (HVOF II) system is the latest in the development of an advanced combustion process for applying premium carbide, metal and alloy coatings. Coatings provided by this process are 99% dense and contain no measurable porosity. The high productivity of this system generates cost effective solutions for coating applications for wear resistance, corrosion resistance, or material restoration.

MATERIALS	HARDNESS	BOND STRENGTH	APPLICATION
Tungsten Carbide Cobalt	Rc 60-67	>10,000 psi	Wear Resistance
Tungsten Carbide Cobalt-Chrome	Rc 60-65	>10,000 psi	Corrosion Resistance Wear Resistance
Bronze	Rb 80-100	8,000 psi	Bearing Surfaces
Hastelloy 273 Inconel 625	Rc 30-35	10,000 psi	Corrosion Resistance High Temperature
Stellite 6	Rc 50	10,000 psi	Wear Resistance Corrosion Resistance

High Velocity Oxygen Fuel (HVOF)

High Velocity Oxygen Fuel (HVOF) is an advanced combustion process for applying premium metallic, carbide, and ceramic coatings. It is an effective alternative to hard-chrome plating.

MATERIALS	HARDNESS	BOND STRENGTH	APPLICATION
Alumina Titania	Rc 62	6,000 psi	Wear Resistance
Tungsten Carbide Cobalt	Rc 65	10,000 psi	Wear Resistance

Plasma Spray

The most versatile coating technology, plasma spray permits the combination of the desirable bulk properties of any base metal, composites, or ceramic with the enhanced surface qualities of a coating.

MATERIALS	HARDNESS	BOND STRENGTH	APPLICATION
Aluminum Oxide	Rc 65	5,500 psi	Wear Resistance Dielectric Corrosion Resistance
Chromium Oxide Silica	Rc 70	6,000 psi	Wear resistance
Tungsten Carbide Cobalt	Rc 62	8,500 psi	Wear Resistance
Aluminum Oxide Titanium Oxide	Rc 55	5,000 psi	Wear Resistance
Zirconium Oxide (YSZ)	Rc 30	3,000 psi	Thermal Barrier