

NCS



One Nation . . .

Infinite Possibilities!

HVOF • Plasma • Arc Spray

NADCAP – FAA Repair – AS9100 with ISO



www.nationcoating.com

Nation Coating's Four Major Thermal Spray Technologies

HVOF

High velocity oxy / fuel is the most elite thermal spray process, providing the highest bond strength and highest coating density. HVOF's high kinetic energy produces coating with virtually zero porosity.



Plasma

The major advantage of plasma is versatility: its high flame temperature makes it compatible with all sprayable ceramics, as well as most metallic and cermet materials.



Arc Spray

This is the most economical of the thermal spray processes. Nation Coating Systems technicians use arc spray extensively for part restoration because it builds faster and thicker than alternative processes. Thickness tolerances for as-sprayed arc spray coatings are $+0.002$ to $+0.005$, depending on the application



Oxy / Fuel Thermal Spray

Thermal spray is used exclusively for abradable (sacrificial) coating projects. Abradable coatings preferentially abrade when they contact a mating part. Nation Coating Systems works with numerous abradable coating chemistries, which accommodate different service environments, temperatures, and mating materials.



Our Coatings Solve Industry's Toughest Challenges

Nation Coatings is a leading developer of engineered thermal spray coatings. We specialize in innovative coating solutions that broaden the world market for cost-efficient thermal spray technology. Our expertise includes metals, ceramics, composites, thermoplastics, epoxies – and combinations of these.

Coatings developed by Nation Coatings meet complex combinations of performance criteria specified by our customers, including:

Coatings that Enhance:

- ▼ Fatigue strength
- ▼ Release properties
- ▼ Thermal barrier
- ▼ Dielectrics
- ▼ Electrical conductivity
- ▼ Traction
- ▼ Sealing
- ▼ Shielding

Coatings that Protect against:

- ▼ Abrasive wear
- ▼ Corrosion
- ▼ Oxidation
- ▼ Galling and seizing
- ▼ Extreme temperatures

Coatings that Provide:

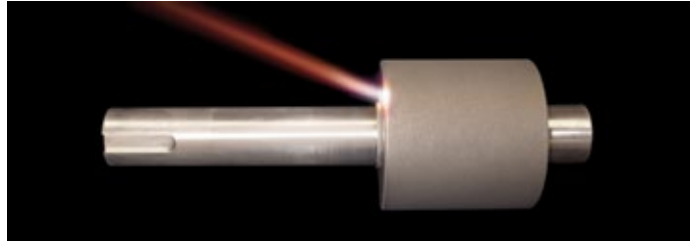
- ▼ A specific film thickness
- ▼ High chemical resistance
- ▼ Greater deposition consistency
- ▼ Longer service life
- ▼ A high-performing replacement for chrome
- ▼ A more sustainable coating solution
- ▼ Improvements in manufacturing productivity



We Have the Capability – and Capacity to Meet Your Needs

Nation Coatings has the experience and resources to develop the most effective solution for your application, including:

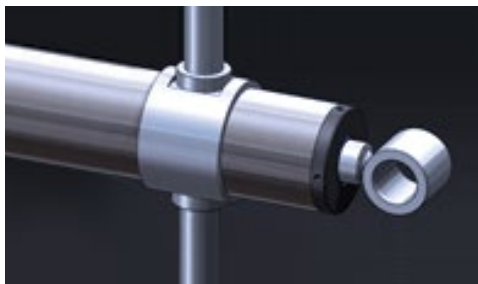
- ▶ A dedicated spray booth for R&D projects
- ▶ HVOF, Plasma, Arc Spray, polymer and thermoplastics coating operations
- ▶ Three 6-axis robots
- ▶ One of the industry's most extensive thermal spray databases



A Sample of Project Profiles

(5 Photos from left, below)

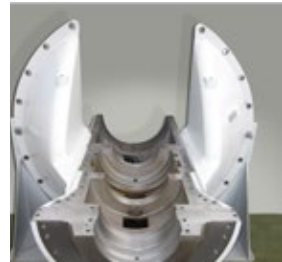
- ▶ Nation Coating developed a thermal spray coating that allowed this spline gear assembly to run for 30,000 hours.
- ▶ Thermal sprayed zinc/aluminum alloys are highly effective for wind turbine components.
- ▶ Landing gear components are protected from corrosion by Nation Coating technology.
- ▶ Hydraulic actuators coated with chrome carbide at 0.003-0.015” in thickness.
- ▶ Coating with TSA (thermal sprayed aluminum) is ideal for aluminum wheels.



Expert New Product Development

Nation Coating Systems specializes in programs for the aerospace, automotive, graphic arts, powergen, business equipment, and construction industries.

We have extensive credentials in the defense sector, and in programs involving large castings, engines, bearings, pump parts, ceramic rolls, turbines and other complex systems.



The Nation Story

Nation Coating Systems was founded in 1992 with a four-fold mission:

- ▼ To develop original, high-performing thermal spray coatings
- ▼ To provide industrial and military customers worldwide with an experienced, proven source for thermal spray coatings and testing
- ▼ To develop protocols that optimize thermal spray application and reproducibility
- ▼ To train customer technicians in Best Practices for thermal spray application, and to educate manufacturing engineers and others regarding new developments

The Nation Development Team has more than 30 years' experience in thermal spray technology, application and testing. We have the resources and capacity to develop coatings to meet specific criteria for performance, service life, deposition and economics.

NCS



Member:

*American Society for Quality
American Welding Society
ASM International
ASM Thermal Spray Society
International Thermal Spray Assn.*

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