

# Surface Technologies for MRO



## COMPLETE SOLUTIONS UNDER ONE ROOF

**MTC** develops and customizes Thermal Spray Coatings for the maintenance, repair, overhaul and enhancement of mechanical components and assemblies. The coatings are applied during an environmentally-friendly process performed by a multi-functional, computer-controlled robot. The result of the application is a guaranteed strong bond and highly resistant coating.

### Key Points

- Coating Technologies include **HVOF** (High Velocity Oxygen Fuel), **Plasma**, **Arc-Spray** and **Flame-Spray**.
- Complementary Technologies include **Shot Peening**, **Abrasive Blasting**, **Welding** and **Finishing**.
- Coating Thickness ranges between 10µm and 5mm.
- Final Dimensions and Surface Quality is obtained by machining which includes turning, grinding and lapping.
- Coating Materials include a range of Metals, Alloys, Ceramics and Carbides.
- The coating materials have a hardness range of between 30HRB and 72HRC.
- Metallurgical and Dimensional Control Laboratories in-house.
- Environmentally friendly.

### Features

- Dimensional Restoration.
- Enhanced Surface Characteristics to significantly extend the useful life of the product.
- Thermal Insulation.
- Electrical Insulation or Conductivity.
- Resistance from Abrasion, Corrosion, Erosion, Fretting, Galling and Chemical Attack.
- Sealant.
- Replaces obsolete processes such as Hard Chrome Plating.

### Examples of Coating Types

Coating Materials	Hardness Range	Bond Strength (PSI)	Working Temperature (C°)
<b>Pure Metals</b> Al, Cu, Mo, Ni, Ti	30 HRB - 40 HRC	4,000 - 7,000	Up to 750
<b>Alloys</b> Ni, Co, Fe, Bronze, CuAl base, e.g., Stainless Steel, Cobalt and Self Fused	35 HRB - 65 HRC	4,000 - 7,000	Up to 1,000
<b>Ceramics</b> Al <sub>2</sub> O <sub>3</sub> , Cr <sub>2</sub> O <sub>3</sub> , ZrO <sub>2</sub> , TiO <sub>2</sub> , Fe <sub>2</sub> O <sub>3</sub>	45 HRC - 72 HRC	4,000 - 10,000	Up to 2,000
<b>Carbides</b> WC, Cr <sub>3</sub> C <sub>2</sub> , TiC	45 HRC - 72 HRC	5,000 - 10,000	Up to 815

# Examples of Thermal Spray Coatings

The following examples are a few Thermal Spray Coating projects undertaken by MTC for a range of Civilian, Aerospace and Defense Industries.



Gas Turbine Engine Compressor House Contour Restoration - Using a Metal Alloy, MTC restores the OEM dimensions.

Combustion Chamber Liner - Yttria-stabilized Zirconia, a Thermal Barrier Coating (TBC) for protection against excessive heat.



Helicopter Hub Sub-Assembly - Abradable Coating performed by Plasma technology using a Copper Aluminum Polyester.



End Plate of a UAV Engine - A pure Molybdenum Coating performed by Arc-Spray for protection from Galling.



Thermopile Disk - An Unreflective Chrome Oxide Coating is used to protect Aluminum or Copper from Laser damage.



Thermopile Disk - Alumina creates an Electrical Insulation Coating to prevent a short circuit.



Hydraulic Piston Rods from a Military Aircraft - Coated with Tungsten Carbide (by HVOF) to protect from Scratching and Erosion.



Damper System from a Helicopter - Coated with Tungsten Carbide to protect from Scratching and Erosion.



Pressure Rods from a Chemical Reactor - A neutral Chrome Oxide Coating protects from Chemical Attack.



Sub-Sea Ball Valve - A multi-layer Titanium Oxide, Chrome Oxide & Tungsten Carbide Coating results in a Hermetic Seal and protection from Erosion.



Commercial Printer Paper Feed Roller - An Alumina Coating is used to increase Friction for feeding paper through the printer.



Landing Gear Fork - Coated with Tungsten Carbide to protect from Scratching and Erosion.

Contact: Howard Glick, Int'l Marketing & Business Development  
**Israel:** +972 4 998 7772  
 marketing@mtcind.com  
 www.mtcind.com

**USA:** +1 (972) 926 0600  
 marketing@mtcenterprises.com  
 www.mtcenterprises.com