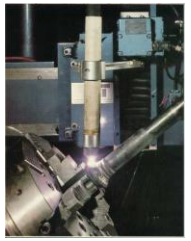
Thermal Spray Quick Reference

	HVOF - METCO	HVOF - TAFA	Spray & Fuse	Combustion Spray	Plasma Spray	Arc Spray	PTA
Process Description	Combusts propylene and oxygen to produce a high velocity jet in which coating material is injected.	Combusts kerosene and oxygen to produce a higher velocity jet than the Metco HVOF – velocities reach several times the speed of sound	A two step oxy-acetylene combustion process that applies the coating first, then fuses it in to produce maximum density and bond strength.	An oxy-acetylene combustion process that applies a verity of wire and powder based coatings.	A plasma jet produces a temperature jet that allows the ceramic coatings to partly melt and subsequently be propelled onto the part	Wire coating material is melted by an electric arc and propelled to the part via an air jet.	A special form of welding that uses a plasma arc with a imposed background polarity to transfer the arc and heating to the substrate.
Common Coating Materials Applied	Tungsten carbides, Chrome carbides, Stainless Steels, Inconels, Monels And more	Tungsten carbides, Chrome carbides, Stainless Steels, Inconels, Monels And more	Nickel based coatings, Colmony, Metco, Wallex, Stellite,	Stainless Steels, Abradable coatings, Aluminum, Molybdenum, Babbit	Chrome oxide including Rokide Type, Titanium oxide, Aluminum Oxide, TBCs,	Stainless Steels Monels, Inconel Ni/Al coats, Armacor, And more	Tungsten carbides, Chrome carbides, Stellite coatings, Stainless steels, And more
Bond Mechanism	High strength Mechanical	High strength Mechanical	Metallurgical: Brazing	Mechanical	Mechanical	Mechanical	Metallurgical: Welded
Max Spray Process Temperature	320°F (160°C)	320°F (160°C)	2012°F (1100°C)	302°F (150°C)	302°F (150°C)	302°F (150°C)	1472°F(800°C+)
Max Coating Thickness*	0.020”	0.150”	0.150”	0.250”	0.020”	0.250	0.500”+
Special Features*	High carbide coatings, no heat distortion on part, 89%+ density	High carbide coatings, no heat distortion on part, residual compressive stress state, 94-98% density	Theoretical density coating, economical	Economical, no heat distortion	Capable of applying highly corrosion resistant ceramic coatings, no heat distortion	Economical, no heat distortion	Less than 10% substrate dilution, Low part heat input, Little to no porosity in bead.
Typical coating wear resistance	Excellent	Best	Above Average	Acceptable	Average	Good	Very Good
Typical coating corrosion resistance	Very Good	Very Good	Very Good	Good	Best	Acceptable	Excellent









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* Materials dependent