COMMON MATERIALS

Process Used	Nomenclature	Composition	Hardness	Max. Thickness	Temperature Limitation (°F)	Finish Ground (µin Ra)	Bond Strength (psi)
Comb. Wire	400 Series Stainless - #2	13% Cr, 0.5% Si, 0.5% Ni, 0.5% Mg, 0.35% C, 0.28% P, 0.02% S, Fe-balance	33 HRC	0.125”	1,000	16-32	5,000
Comb. Wire	Nickel Aluminide - Bond	80% Ni, 20% Al	22 HRC	N/A	1,200	N/A	3,500
Plasma	Aluminum Oxide	96% Al_2O_3, 2% TiO_2	65 HRC	0.020"	1,000	16-20	4,500
Plasma	Zirconium Oxide	92% ZrO_2, 8% Y_2O_3	25-35 HRC	0.040"	1,800	N/A	N/A
Plasma	Premium Chrome Oxide	92% Cr_2O_3,3% TiO_2, 5% SiO_2	62-64 HRC	0.080"	1,000	10-15	4,000
Spray & Fuse	Metco 12C, Colmonoy 4, Deloro 40	77-87% Ni, 10-17% Cr, 3% B, 3% Si	35-40 HRC	0.060"	1,500	16	40,000 + Fused Metallurgical
Spray & Fuse	Metco 14E, Colmonoy 5, Deloro 50	13.8% Cr, 2.1% B, 3.3% Si, 4.9% Fe, Ni-balance	48-52 HRC	0.060"	1,500	16	40,000 + Fused Metallurgical
Spray & Fuse	Colmonoy #6 Spray & Fuse	1% C, 15% Cr, 3.5% B, 3.75% Si, 4.25% Fe, Ni-balance	56-61 HRC	0.060"	1,500	10-16	40,000 + Fused Metallurgical
Spray & Fuse	Colmonoy #69	16.5% Cr, 5% Mo, 4.5% Si, 3.8% B, 3% Fe, 2.1% Cu, 0.55% C, Ni-balance	58-63 HRC	0.060	1,500	16	40,000 + Fused Metallurgical
Spray & Fuse	Cobalt S/F Wallex 50	19%Cr, 18% Ni, 10% W, 3.5% B, 2.75% Si, 1% Fe, 0.8% C, Co-balance	56-61 HRC	0.060	1,800	16-32	40,000 + Fused Metallurgical
Spray & Fuse	Cobalt S/ F Stellite #6	19% Cr, 0.7% C, 2.3% Si, 3% Fe, 13.5% Ni, 1.7% B, 7.5% W, 1% Mn, Co-balance	41 HRC	0.060"	1,800	10-16	40,000 + Metallurgical
Spray & Fuse	NiCrB / Tungsten Carbide Bimetallic Carbide Material	17% W, 15% Cr, 4% Si, 3.5% Fe, 3% B, 0.8% C, Ni-balance	58-63 HRC	0.080"	1,800	16	40,000 + Metallurgical
Plasma	MCrAlY	22% Cr, 10% Al, 1% Y, Ni-balance	N/A	N/A	1,800	N/A	6,000 +
Plasma	MCrAlY	32% Ni, 21% Cr, 8% Al, 0.5% Y, Co-balance	N/A	N/A	1,900	N/A	6,000 +
Plasma	Nickel Aluminide	95% Ni, 5% Al	65-80 HRB	0.125"	1,500	16	6,000

Process Used	Nomenclature	Composition	Hardness	Max. Thickness	Temperature Limitation (°F)	Finish Ground (µin Ra)	Bond Strength (psi)
Rokide	Rokide “C” Rods / TX-603	90.33% Cr_2O_3, 3.67% Al_2O_3, 5.62% SiO_2, 0.27% Fe_2O_3, 0.11% MgO	65 HRC	0.030"	1,000	16	3,500
Arc	Aluminum Bronze	90% Cu, 9% Al, 1% Fe	65-68 HRB	0.250"	450	16	7,000
Twin Wire Arc	420 Stainless Steel	0.3% C, 1% Ni, 1% Mn, 12-14% Cr, 0.08% Si, Fe-balance	40-43 HRC	0.125"	1,000	16-32	5,000
Arc	Nickel Aluminide	95% Ni, 5% Al	55-80 HRB	0.100"	1,500	16-32	9,100
Arc	Armacor M-Amtech	High Chrome Steel Alloy	1180 $HV_{0.3}$	0.060"	1,700	10	5,775
HVOF	Tribaloy T-800	17.5% Cr, 28.5% Mo, 3% Ni & Fe, 3.4% Si, Co-balance	55 HRC	0.025"	1,800	16-32	10,000 +
HVOF	Tungsten Carbide / Chrome / Nickel	73% WC, 20% Cr, 7% Ni	68-70 HRC	0.020"	1,000	9-10 1-2 Lap	12,000 +
HVOF	Tungsten Carbide / Cobalt / Chrome	85% WC, 11% Co, 4% Cr	68-70 HRC	0.020"	1,000	16 1-2 Lap	12,000 +
HVOF	Nickel / Chrome / Boron	4% B, 5% C, 16.5% Cr, 3.5% Fe, 6.22% Mo, 3.5% Si, 2% Cu, Ni-balance	58-62 HRC	0.060"	1,500	16	40,000 + Fused Metallurgical
HVOF	Chrome Carbide	9.6% C, 17.5% Ni, Cr-balance	64-68 HRC	0.040"	1,800	16-32 2-4 Lap	12,000 +
HVOF	Nickel Chrome Boron (Bi and Tri-Metallic Hard Phases)	15% Cr, 0.8% C, 4% Si, 3.5% Fe, 13.5% Ni, 3% B, 17.3% W, Ni-balance	58-62 HRC	0.060"	1,800	10-16	40,000 + Metallurgical
HVOF	Spray & Fuse Cobalt Base (Wallex 50)	19% Cr, 2.75% Si, 3.5% B, 10% W, 18% Ni, 1% Fe, Co-balance	58-60 HRC	0.060"	1,800	16-20	40,000 + Metallurgical

Process Used	Nomenclature	Composition	Hardness	Max. Thickness	Temperature Limitation (°F)	Finish Ground (µin Ra)	Bond Strength (psi)
HVOF	Fused Tungsten Carbide / Nickel Chrome Boron	45% W, 7% Cr, 3.4% C, 2% Fe, 1.3% B, 2.2% Si, Ni-balance	50-52 HRC	0.025" HVOF 0.040" Fused	1,200	16-32 1-2 Lap	10,000 (as sprayed) 40,000 Metallurgical
HVOF	Spray & Fuse Cobalt Base with Tungsten Carbide (Wallex 55)	19% Cr, 2.75% Si, 3.5% B, 10% W, 18% Ni, 1% Fe, Co-balance (50% WC / Cobalt 88/12 Agglomerated)	58-60 HRC	0.060"	1,800	16-20 1-2 Lap	40,000 + Metallurgical
HVOF	MCrAlY	22% Cr, 10% Al, 1% Y, Ni-balance	N/A	N/A	1,800	N/A	10,000 +
HVOF	MCrAlY	32% Ni, 21% Cr, 8% Al, 0.5% Y, Co-balance	N/A	N/A	1,900	N/A	10,000 +
HVOF	Alloy625	21% Cr, 3% Fe, 8% Mo, 3.5% Nb, 64% Ni, others-Balance	35-40 HRC	0.100"	1,500	16-32	10,000 +
HVOF	Alloy 718	53% Ni, 19% Cr, 19% Fe, 5% Nb, 3% Mo	350-450 $HV_{0.3}$	0.100"	1,600	16-32	10,000 +
HVOF	Tungsten Carbide / Cobalt	88% WC / 12% Co	66 HRC	0.030"	1,000	10 1-2 Lap	10,000
HVOF	Tribaloy T-800	17.5% Cr, 28.5% Mo, 3% Ni & Fe, 3.4% Si, Co-balance	55 HRC	0.050"	1,800	16-32	10,000
HVOF	Tungsten Carbide / Chrome Nickel	73% WC, 20% Cr, 7% Ni	68-70 HRC	0.040"	1,000	16-32 1-2 Lap	12,000 +
HVOF	Hasteloy C-276	15% Cr, 5% Fe, 16% Mo, 3% W, Ni-balance	35-40 HRC	0.100"	1,500	16-32	10,000 +
HVOF	Tungsten Carbide / Cobalt Chrome	11% Co, 4% Cr, 5% C, W-balance	68-70 HRC	0.040"	1,000	16-32 1-2 Lap	12,000 +
HVOF	Tungsten Carbide / Cobalt	83% WC, 17% Co	68-71 HRC	0.100"	1,000	16-32 1-2 Lap	10,000 + (Epoxy Break)
HVOF	Tungsten Carbide / Nickel	90% WC, 10% Ni	Macro -64 HRC/ Micro 1200 $HV_{0.3}$	0.050"	1,000	16	12,000 +
HVOF	Chrome Carbide	9.6% C, 17.5% Ni, Cr-balance ($75Cr_3C_2$-25NiCr)	66-70 HRC	0.040"	1,800	16-32 2-4 Lap	12,000 +