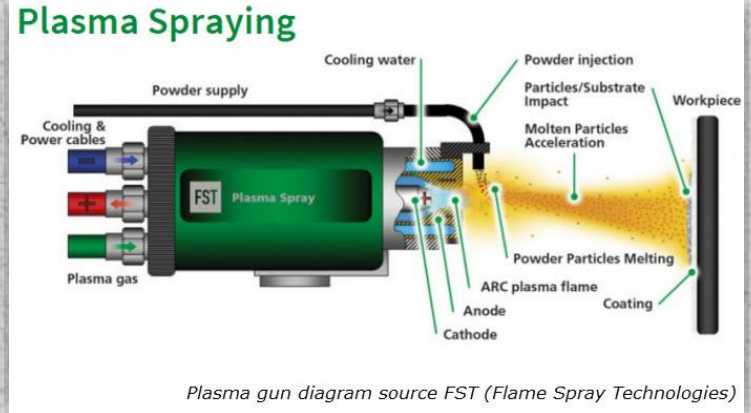
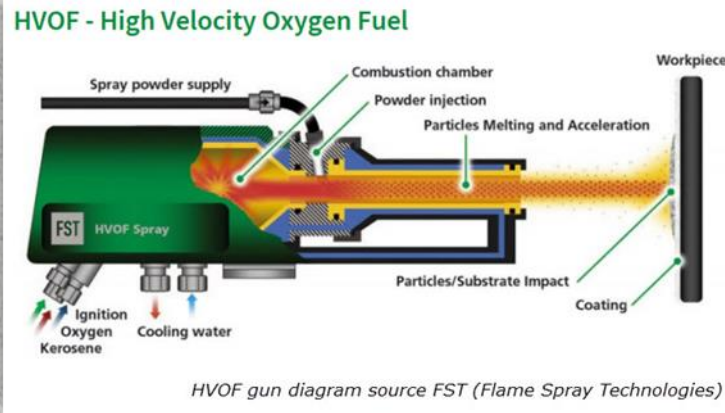


Thermal Spray Coatings HVOF & Plasma

The **HVOF** (High Velocity Oxy-Fuel) system uses a high velocity, low temperature process to produce hard face surfaces which help protect components against wear and corrosion.

The **APS Plasma** process utilizes the heat of an inert ionized gas to create thermal energy to melt and propel ceramic powder onto surfaces creating extremely hard, dense, wear and corrosion resistant coatings.



Over 40 Coatings available...

If we don't have what you need, please give us a call

HVOF	WC Co-Cr (86-10-4)
	WC Ni (88-12)
	WC Co (88-12)
	WC CrC-Ni (73-20-7)
	Cr ₃ C ₂ Ni-Cr (75-25)
	STELLITE #1, #6, #12
	COLMONOY #5, #6

PLASMA	Cr2O3
	TiO2
	Al2O3
	Al99%
	Cr2O3-SiO2-TiO2
	Cr2O3-Al2O3

Thermal Spray Coating List HVOF & Plasma

RTAPS-01	Cr₂O₃ Chromium Oxide 99.5%	Amperit 707.054 Cr ₂ O ₃ 99.5%, fuse & crush, -45/+10µm	- Plasma (CERAMIC) - Hard, corrosion and wear resistant ceramic coating - Insoluble in acids, alkalis and alcohol - Useful up to 540°C (1000°F) - Used for anilox rolls in printing machines, pump seal areas, wear rings etc.
RTHVOF-02	Cr₃C₂ Ni-Cr (75-25) Chromium Carbide Nickel-Chrome CURRENTLY INACTIVE (see RTHVOF-05)	Amperit 588.074 Cr ₃ C ₂ Ni-Cr (75-25) agglom & sint, -45/+15µm	- HVOF - Max. operating temperature 870°C (1600°F) - Good corrosion, abrasion, particle erosion, fretting and cavitation resistance - Excellent for high temperature wear applications
RTHVOF-03	WC Co-Cr (86-10-4) Tungsten Carbide Cobalt-Chrome	Amperit 558.074 WC Co-Cr (86-10-4) agglom & sint, -45/+15µm	- HVOF - The CoCr matrix shows higher corrosion and abrasion resistance than the Co matrix materials - Useable in wet corrosive environments - Dense, smooth coatings with fine microstructure and high bond strengths - Used for Hard Chrome Replacement - Diamond wet grinding
RTHVOF-04	NiCrMoNb 625 Inconel Superalloy	Amperit 380.074 NiCrMoNb (Ni Superalloy 625) gas atom, -45/+15µm	- HVOF - Max. operating temperature 1000°C - Excellent oxidation and corrosion resistance - Used in boilers and chemical industry - Similar properties to 316L stainless steel (in wrought form) - Also used as stainless steel substrate buildup
RTHVOF-05	Cr₃C₂ Ni-Cr (75-25) Chromium Carbide Nickel-Chrome	Amperit 584.054 Cr ₃ C ₂ -NiCr (75-25) aggl. & sint, -45/+10µm	- HVOF - Max. operating temperature 870°C (1600°F) - Good corrosion, abrasion, particle erosion, fretting and cavitation resistance - Excellent for high temperature wear applications
RTHVOF-06 <i>Colmonoy 6</i>	NiCrBSi Nickel Chrome Boron Silicon	COLMONOY 63HV NiCrBSi	- HVOF - Nickel-based hard-surfacing alloy for wear, corrosion, heat, and galling resistance - Max operating temperature 650°C / 1200°F - Hard nickel-chromium-boron alloy containing chromium carbides - Can be used as chromium replacement - Hardness range Rockwell C 56-62
RTAPS-07 <i>Rokide</i>	Cr₂O₃ SiO₂-TiO₂ Chromium Oxide - Silica-Titania (ROKIDE)	SAINT-GOBAIN #341 Cr ₂ O ₃ - SiO ₂ -TiO ₂ Grain Code 959715-45mic	- APS Plasma (CERAMIC) - Chromium oxide with TiO ₂ and SiO ₂ increases the deposit efficiency and improved finishing characteristics as compared to pure Cr ₂ O ₃ . The additives increase wear resistance by solidifying between the grains to reduce grain pullout - Used for wear and corrosion resistance on pumps, shafts, seals and rolls
RTAPS-08 <i>Rokide</i>	Cr₂O₃ TiO₂-SiO₂ (92-3-5) Chromium Oxide - Titania-Silica	AMPERIT 716.054 Cr ₂ O ₃ TiO ₂ -SiO ₂ (92-3-5) Blended	- APS Plasma (CERAMIC) - Hard, dense and wear resistant coatings - Good corrosion resistance - Higher mechanical shock resistance than pure Cr ₂ O ₃
RTHVOF-09 <i>RAM 11</i>	WC Ni (88-12) Tungsten Carbide-Nickel	AMPERIT 547.074 WC-Ni (88-12) Agglomerated, Sintered 45/15µm	- HVOF - Max. operating temperature 580°C (900°F) - Higher corrosion resistance than WC-Co and better ductility
RTHVOF-10 <i>RAM 25</i> <i>LW-5</i>	WC CrC-Ni (73-20-7) Tungsten Carbide-Chromium Carbide-Nickel	WOKA 3702-1 WC-CrC-Ni (73-20-7) Agglomerated, Sintered 45/15µm AMPERIT 551.074 WC-CrC-Ni (73-20-7) OBSOLETE Agglomerated, Sintered 45/15µm	- HVOF - Max. operating temperature 700°C (1290°F) - Higher oxidation and corrosion resistance than pure WC-Ni based coatings - Smooth coatings with fine microstructure and high bond strengths - Used for pins, mud pump rotors, paper rollers - Hardness 900-1350 HV0.3
RTHVOF-11 <i>Stellite #1</i>	Co Cr WC (56-30-12-2.5) Cobalt Chromium Tungsten Carbide	KENAMETAL STELLITE 1 JK575 Co Cr WC (56-30-12) Gas Atomized 53/10µm	- HVOF - Cobalt based alloy providing high resistance to abrasion, corrosion, oxidation, erosion, and elevated temperatures - Harder than Stellite 6 and Stellite 12. - Recommended for metal-to-metal wear use and retains hardness to 760°C (1,400°F)
RTHVOF-12 <i>Stellite #6</i>	Co Cr WC (65-28-4.5-1) Cobalt Chromium Tungsten Carbide	KENAMETAL STELLITE 6 JK576 Co Cr WC (65-28-4.5) Gas Atomized 53/10µm	- HVOF - High Cobalt based alloy providing high resistance to abrasion, corrosion, oxidation, erosion, and elevated temperatures - Softer than Stellite 1 and Stellite 12 (less resistant for abrasive and erosive service, but more applicable than other materials) - Retains hardness at temperatures over 800°C (1,470°F)
RTHVOF-13 <i>Stellite #12</i>	Co Cr WC (60-29.5-8) Cobalt Chrome Tungsten Carbide	KENAMETAL STELLITE 12 JK572 Co Cr WC (60-29.5-8) Gas Atomized 53/10µm	- HVOF - Cobalt based alloy providing high resistance to corrosion, oxidation, and elevated temperatures - Between Stellite 1 and Stellite 6 for hardness making it more abrasion resistant than Stellite 6, and more resistant to thermal shock and impact than Stellite 1.
RTHVOF-14	FeCrNi (Cr33-Ni8-B4.8) Iron Chromium Nickel	DIAMALLOY 1009 - Oerlikon METCO FeCrNi(Mo)C (33Cr-8Ni-4.8B) Gas Atomized -53+20µm (spheroidal)	- HVOF - Iron-based corrosion resistant hard coating for ferritic and martensitic stainless steels - Applications below 650°C (1200°F) - High hardness (740-750 HV0.3) 61-62 Rc - Salt spray corrosion resistance potential thermal coating alternative to hard chrome plating
RTHVOF-15	FeCrNi (Cr17-Ni12) Iron Chromium Nickel	DIAMALLOY 1003 - Oerlikon METCO FeCrNi(Mo)C (17Cr-12Ni) Gas Atomized -45+11µm (spheroidal)	- HVOF - Austenitic nickel chromium stainless steel powder similar to 316L - bright dense resistant to corrosion and wear - build up of worn or machined parts - Hardness (300-350 HV0.3) 30-35 Rc - Operating temperatures <540°C (1000°F)
RTHVOF-16	UNDERLAY for 431SS	DIAMALLOY 1009 (50%) - Oerlikon METCO DIAMALLOY 1003 (50%) - Oerlikon METCO	- HVOF - Build up for 431SS substrate to balance martensitic structure with adequate Chromium/Nickel/Hardness for thermal expansion and corrosion properties
RTHVOF-17	WC Co Ni (Superalloy) (WC12Co-25Ni Superalloy)	METCO 5803 - Oerlikon METCO WC Co Ni (WC12Co - 25Ni Superalloy) Coarse Blend -63+5µm (spheroidal/irregular)	- HVOF - Agglomerated Tungsten carbide / 12 wt. % cobalt powder mechanically blended with a 25 wt. % nickel based Superalloy. - developed for hard chrome plating replacement MIL-STD-1687A - excellent machinability. - fatigue properties equal or better to chromium plating - resistant to wear by abrasion, contact with hard surfaces, erosion, fretting up to 500°C (930°F) - salt fog tests comparable to hard chromium plating
RTHVOF-18	WC-Co-Cr (86-10-4) Tungsten Carbide Cobalt-Chromium	WC-10Co-4Cr HOWARD ALLOY Inc WC-10Co-4Cr -45/+10µm	- HVOF - The CoCr matrix shows higher corrosion and abrasion resistance than the Co matrix materials - Useable in wet corrosive environments - Dense, smooth coatings with fine microstructure and high bond strengths - Used for Hard Chrome Replacement - Diamond wet grinding
RTHVOF-19 <i>RAM 21</i>	WC-Co-Cr (86-10-4) Tungsten Carbide Cobalt-Chromium	WOKA 3652 - Oerlikon METCO WC-10Co-4Cr -45/+10µm	- HVOF - Suitable where both wear and corrosion resistance is required - Excellent alternative to hard chromium plating - Dense, good bond strength, smooth as sprayed surfaces - Diamond wet grinding
RTHVOF-20 <i>Colmonoy 5</i>	NiCrBSi Nickel Chrome Boron Silicon (Colmonoy 5)	COLMONOY 53HV NiCrBSi	- HVOF - Increased ductility, better impact resistance, slightly less abrasion resistance compared to COLMONOY 6 - Nickel-based hard-surfacing alloy for wear, corrosion, heat, and galling resistance - Max operating temperature 815°C / 1500°F - Hard nickel-chromium-boron alloy containing chromium carbides - Hardness range Rockwell C 45-50
RTAPS-21	Cr₂O₃ - TiO₂ Chromium Oxide - Titanium CURRENTLY NOT IN USE - Replaced by RTAPS-32 for Customer	METCO 106F Cr ₂ O ₃ TiO ₂ 95.8%, fuse, sintered & crush, -53/+5 µm	- APS PLASMA - Hard, wear resistant, chemically inert - Small amounts of Titania, increasing fracture toughness - Service up to 540°C / 1000°F
RTHVOF-22	CoMoCrSi (Tribaloy)	DIAMALLOY 3002NS CoMoCrSi (Tribaloy) gas atom, -45/+5.5µm	- HVOF - Good oxidation and corrosion resistance to operating temperature 760°C / 1400°F - Used in pump components, gas turbine applications - Similar properties to Tribaloy T-400 - Low coefficient of friction

Thermal Spray Coating List HVOF & Plasma

RTHVOF-23	NiCrMoNb 625 Inconel Superalloy	DIAMALLOY 1005A NiCrMoNb (Ni Superalloy 625) gas atom, -53/+20µm	-HVOF - Good 815oC / 1500oF - Excellent oxidation and corrosion resistance - Used in boilers and chemical industry - Similar properties to 316L stainless steel (in wrought form) - Also used as stainless steel substrate buildup
RTHVOF-24	WC-Co-Cr (86-10-4) Tungsten Carbide Cobalt-Chromium	TAFA 1350VM Tungsten Carbide Cobalt Chromium WC-10Co-4Cr -45µm /+10µm	-HVOF - Suitable where both wear and corrosion resistance is required - Excellent alternative to hard chromium plating - Dense, good bond strength, smooth as sprayed surfaces - Diamond wet grinding
RTHVOF-25	Ni/Co Cr B Si C Nickel/Cobalt Self Fluxing Alloy	METCO 15F Nickel/Cobalt Self Fluxing Alloy Ni/Co Cr B Si C -53µm /+15µm	-HVOF - Self-fluxing alloy, nickel or cobalt based - Excellent wear and corrosion protection - Service temperature up to 540°C (1000°F) - Hardness up to 60HRC
RTAPS-26	Cr₂O₃-SiO₂-TiO₂ Oxide Ceramic - Chromia based Chromium Oxide - Silicon Dioxide - Titanium Dioxide	METCO 136CP Cr ₂ O ₃ SiO ₂ TiO ₂ Mechanically clad, -90/+16 µm	-APS Plasma - Silicon dioxide acts as dampening medium that absorbs impact loading and prevents grain loosening - Excellent wear and corrosion protection - Hard, dense and extremely wear resistant in most acids, alkalis, and alcohol. - Service temperature up to 200°C (400°F) in corrosive chemical environments - General Service temperature up to 540°C (1000°F) in corrosive chemical environments - Hardness up to 60HRC
RTAPS-27	Al₂O₃ Aluminum Oxide (alumina)	METCO 105NS Al ₂ O ₃ Fused and crushed, -45/+15 µm	-APS Plasma - Hard, wear resistant, chemically inert and stable at high temperatures - Excellent electrical insulation (dielectric characteristics) and thermal conductivity - General Service temperature up to up to 1650°C (3000°F) - Hardness up to 60HRC
RTAPS-28	Cr₂O₃-Al₂O₃ Chromium Oxide - Aluminum Oxide (LC-19 Union Carbide equivalent)	PRAXAIR CRO-197 Cr ₂ O ₃ -Al ₂ O ₃	-APS Plasma - Chromium Oxide - Aluminum Oxide blend (70/30)
RTHVOF- 29	WC Co (88-12) Tungsten Carbide Cobalt	WOKA 3102 WC-Co (88-12) Agglomerated, Sintered -45/15µm	-HVOF - Protects substrate from effects of fretting, abrasive grains, particle erosion, cavitation and dynamic contact with hard surfaces - Service temperature up to up to 500°C / 932°F - Can be used for abrasion-resistant coatings in dry, non-corrosive environments - Hardness range Rockwell C 66-74
RTHVOF- 30	WC Co (88-12) Tungsten Carbide Cobalt	TAFA 1342VM WC-Co (88-12) -45/15µm	-HVOF - Protects substrate from effects of fretting, abrasive grains, particle erosion, cavitation and dynamic contact with hard surfaces - Service temperature up to up to 500°C / 932°F - Can be used for abrasion-resistant coatings in dry, non-corrosive environments - Hardness range Rockwell C 66-74
RTHVOF- 31	CHROMIUM CARBIDE - 25% NICHROME	TAFA 1375VM Cr3C2 25% NiChrome -45/15µm	-HVOF - Well suited for fretting or abrasive wear and hard surfacing - Resistant to corrosion, heat and oxidation in temperatures to 1500°F (815°C) - Excellent replacement for hard chromium - Finish grinding can be done with silicon carbide grind wheel - also good for some nuclear applications where WC-Co cannot be used
RTAPS-32 <i>(Durchrome)</i>	CHROMIUM OXIDE-TITANIA	Saint-Gobain #307 Chromium Oxide- Titania Sintered and Crushed -45/15µm	-APS Plasma - Chromium Oxide - Titania - extremely corrosion resistant - used for wear and corrosion on pumps, shafts, seals, pistons and rolls
RTAPS-33	Al 7Si 40Polyester	METCO 601NS Al 7Si 40Polyester -106 / +10µm	-APS Plasma - Blend of Silicon-Aluminum and polyester powder especially developed for machine element clearance control - high degree of abrasibility - excellent resistance to oxidation at temperatures up to (345°C) 650°F
RTAPS-34	Ni 5%Aluminum (Bondcoat)	METCO 450NS Ni 5% Aluminum -90 / +45µm	-APS Plasma - general purpose materials for worn or mismachined components - also used as bond coats for general industrial applications under top coats such as ceramics and compressor abrasibles - high temperature particle erosion resistance - good oxidation resistance at temperatures up to (800°C) 1470°F
RTHVOF-35	WC-Co-Cr (86-10-4) Tungsten Carbide Cobalt-Chromium	WOKA 3652 FC - Oerlikon METCO WC-10Co-4Cr -45/+10µm "FC" Fine Carbide (purchased in kg from Germany)	-HVOF - Suitable where both wear and corrosion resistance is required at service temperatures below (500°C) 930°F - Dense, good bond strength, smooth as sprayed surfaces - "FC" Fine Carbidess homogenously distributed serve to increased coating hardness and great wear properties - Diamond wet grinding
RTHVOF-36 <i>Colmonoy 88HV</i>	NiCrBSi (W)15.5% Nickel Chrome Boron Silicon Tungsten	COLMONOY 88HV NiCrBSi (W)15.5%	-HVOF - Nickel-based hard-surfacing alloy with Tungsten for wear, corrosion, heat, and galling resistance - Max operating temperature 982°C / 1800°F - Hard nickel-chromium-boron alloy containing chromium carbides and Tungsten - RESists extreme abrasion and corrosion. - Hardness range Rockwell C 59-64
RTAPS-37	TITANIUM OXIDE - 45%CHROMIUM OXIDE	METCO 111 TITANIUM OXIDE - 45%CHROMIUM OXIDE	-APS Plasma - Pure Titania dense, smooth and relatively ductile oxide ceramic coating - wear, heat, and corrosion resistance. - high temperature particle erosion resistance - Service temperature up to (540°C) 1000°F
RTAPS-38 <i>J</i>	Cr₂O₃-SiO₂-TiO₂ Oxide Ceramic - Chromia based Chromium Oxide - Silicon Dioxide - Titanium Dioxide	METCO 136F Cr ₂ O ₃ SiO ₂ TiO ₂ Mechanically clad, -63/+5 µm	-APS Plasma - Chromia - Silicon composite powder hard, dense, and extremely wear resistant - choose when a coating that is harder and more wear resistant than pure titania is needed. - choose when when needing a higher fracture toughness, higher density and smoother surface than pure chromia - Service temperature up to (540°C) 1000°F
RTHVOF- 39	WC Ni (90-10) Tungsten Carbide Nickel	WOKA 3302 WC-Ni (90-10) Agglomerated, Sintered -45/+15µm	-HVOF - Coatings resist fretting, abrasion, hammer and sliding wear - Service temperature up to up to 500°C / 932°F - The absence of cobalt allows coating to be used in radioactive environments.environments - Hardness range Rockwell C 69-72
RTHVOF-40 <i>RAM 11</i>	WC Ni (88-12) Tungsten Carbide-Nickel	CASTOLIN EUTECTIC TEROJET 55 590 WC-Ni (88-12) Agglomerated, Sintered -45/+15µm	-HVOF - Max. operating temperature 580°C (900°F) - Higher corrosion resistance than WC-Co and better ductility
RTAPS-41	Al 99.0% Aluminum 99.0+%	METCO 54NS 99.0+% Aluminum Gas Atomized, -90/+45 µm	-APS Plasma - Non-magnetic, good electrical and thermal conductivity - Corrosion resistant in coastal and industrial atmospheric conditions and good shock resistance - Useful for salvage build-up on aluminum, magnesium (and alloys of) substrates - Melting point (660°C) 1220°F
RTAPS-42	Al₂O₃-40%TiO₂	METCO 131VF Aluminum Oxide 40% Titanium Dioxide -45/+5 µm	-APS Plasma - High fracture toughness compared to pure alumina coatings - Operating Temperature <540°C (1000°F) - Melting point (1840°C) 3340°F
RTHVOF- 43	WC Co (83-17) Tungsten Carbide Cobalt	METCO 5143 WC-Co (83-17) Sintered and Crushed -45 / +15µm	-HVOF - Because of the high cobalt matrix coating can be sprayed to higher thickness - Good resistance against most types of erosive and abrasive wear. - Service temperature up to up to 500°C / 930°F - Hardness range Rockwell C 64-68
RTAPS-44	Cr₂O₃ Chromium Oxide 99.5%	Amperit 707.053 Cr ₂ O ₃ 99.5%, fuse & crush, -25/+10µm	-APS Plasma (CERAMIC) - Hard, corrosion and wear resistant ceramic coating - Insoluble in acids, alkalis and alcohol - Useful up to 540°C (1000°F) - Used for anilox rolls in printing machines, pump seal areas, wear rings etc.
RTAPS-45	Ni +(Al/Mo/Fe)	CASTOLIN EUTECTIC ULTRABOND 50000 -45/+15 µm	-APS Plasma - Nickel based, Fe, Mo,Al (bond coat layer) - Eutectic UltraBond 50000 is a multicomponent, pre-alloyed, nickel-base alloy powder which was developed utilizing patented ProXon® technology. - Operating Temperature <648°C (1200°F) - Melting point (1352°C) 1200°F
RTAPS-46	TiO₂	CASTOLIN EUTECTIC METACERAM 25040 TiO ₂ -45/+15 µm	-APS Plasma - The coatings produced are hard, dense, exhibit excellent resistance to wear caused by abrasive particles and offer a low coeffi cient of friction with most mating surfaces. - Ship Screws, Impellers, Turbine Blades, Pump Sleeves - Operating Temperature <538°C (1000°F) - Melting point (1806°C) 3340°F