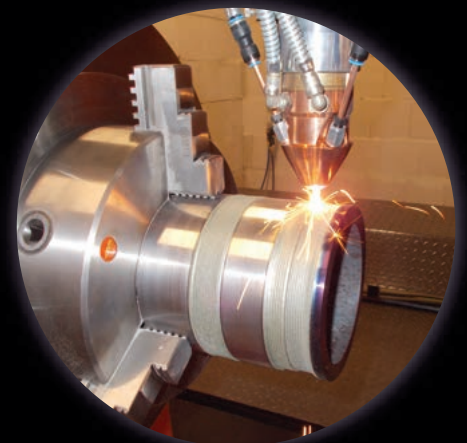
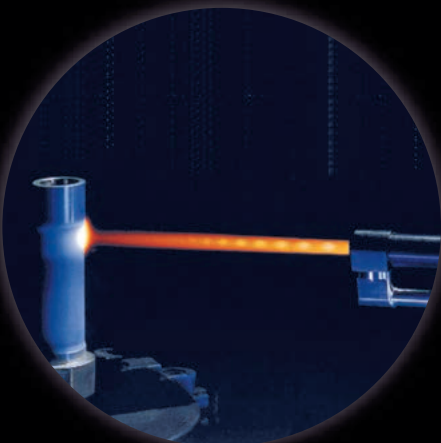
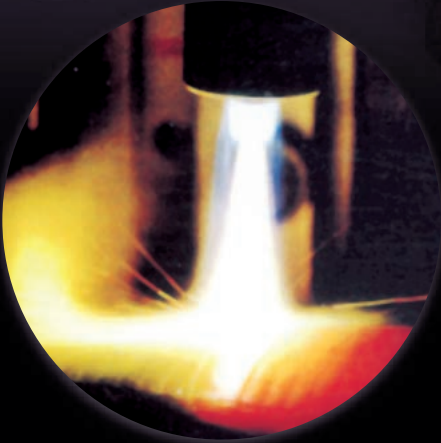




HIGH ALLOY POWDERS FOR THERMAL SURFACING





*One Company –
Many High Performance Solutions*

Quality Consistency, Innovation and Technological Support

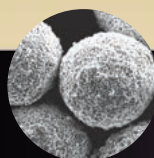
Dura-Metal® offer unique expertise in high-tech powder materials and their delivery systems for a wide range of industries to combat wear in the most aggressive environments. Through years of research, development and field testing, **Dura-Metal®** have developed a complete range of powdered alloys for wear protection of virtually all types of industrial machinery & wear components. In the manufacturing of **Dura-Metal®** thermal surfacing powder alloys, a carefully controlled atomization process is used, and quality assurance begins with the very first procedure. Each powdered alloy is a specialized compound which has been formulated to achieve specific performance levels. The controlled particle size of each alloy, and its chemistry, ensures effective melting during passage through the torch flame while providing high deposition efficiency and wear resistance coating. Powder particles are specially treated and are ultra clean to improve powder flow, reduce oxides formation and deposit contamination.

The following tabulated information exhibit various alloy groups and application data related to **Dura-Metal®** thermal surfacing powder range. Other custom made products are also available upon request.

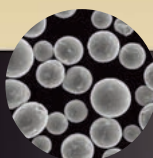
Please feel free to contact us and our application engineer will assist you to select the best solution that suits your application requirement.



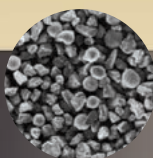
HIGH VELOCITY OXY-FUEL (HVOF)



Agglomerated & Sintered



Gas Atomized



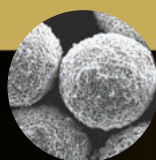
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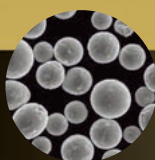
Durajet HV3000

PRODUCT	BASE MATERIAL	PRODUCT DESCRIPTION	HARDNESS
H 316L	Iron	A QUALITY 316 STAINLESS POWDER GRADE FOR HVOF PROCESS. Coatings exhibit less than 1% porosity. Good erosion, cavitation and corrosion resistance properties. Finish by machining. Applications: exhaust fan, pump repairs, print rolls, seals and stainless repairs.	27 HRC
H 420 S	Iron	A SPECIALLY FORMULATED MEDIUM HARDNESS CHROME STEEL ALLOY POWDER DESIGNED FOR HVOF PROCESS. Coating exhibit moderate abrasion resistance and good toughness. An excellent choice for dimensional restoration. Applications: shafts, rods, sleeves, rollers, seals and decanter bowl etc.	42 HRC
H 431S HC	Iron	A SPECIALLY FORMULATED STAINLESS STEEL ALLOY POWDER FOR HIGH VELOCITY OXY-FUEL (HVOF) THERMAL SPRAYING PROCESS. Tough high hardness martensitic stainless steel alloy for dimensional restoration and corrosion protection. Applications for shafts, rods, pistons, sleeves and rollers etc.	46 HRC
H C276	Nickel	A NICKEL-MOLYBDENUM-CHROMIUM-TUNGSTEN ALLOY WITH EXCELLENT CORROSION RESISTANCE TO CHEMICAL AND ACIDIC ENVIRONMENT. Coating exhibit less than 1% porosity and has resistance to both general and localized corrosion, including pitting, crevice corrosion and stress corrosion cracking. Applications: chemical & petrochemical processing equipment and desulfurization of flue gas equipment.	25 HRC
H 625	Nickel	NICKEL CHROMIUM HVOF POWDER ALLOY THAT PRODUCES COATINGS WITH EXCELLENT RESISTANCE TO A WIDE RANGE OF CHEMICAL CORROSIVE ENVIRONMENT. Porosity level on coatings are less than 1%. Finish by machining. Applications: chemical processing/pump parts, heat treat fixtures, mixing blades and inconel repairs.	28 HRC
H 718	Nickel	A SPECIAL NICKEL BASED HVOF POWDER SUPERALLOY FOR WEAR PROTECTION against wear and corrosion with excellent combination of oxidation, erosive wear and hot gas corrosive at elevated temperature. Superior temperature service capabilities. Applications: blades, ship engine parts, valve components, chemical processing equipment, pump parts and oil & gas exploration components etc.	26 HRC
H 8416	Nickel	A NICKEL 80 CHROMIUM 20 HVOF POWDER ALLOY FOR WEAR PROTECTION AGAINST FRICTIONAL WEAR, OXIDATION AND CORROSION. Excellent bond strength. Applications: steam or gas turbine blades, boiler tubes or as bond coat for plasma spray ceramic coatings etc.	24 HRC
H 8440	Nickel	A MEDIUM HARDNESS HVOF SELF-FLUXING NICKEL ALLOY FOR WEAR PROTECTION AGAINST FRICTIONAL WEAR, EROSION AND CORROSION. May be fused to create a metallurgical bond of tough nickel alloy matrix. Applications: capstan, shafts, piston rods, cylinder liners and cams etc.	40 HRC

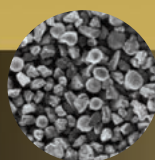
HIGH VELOCITY OXY-FUEL (HVOF)



Agglomerated & Sintered



Gas Atomized



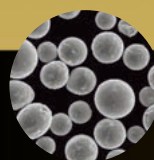
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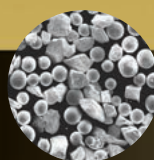
Durajet HV3000

PRODUCT	BASE MATERIAL	PRODUCT DESCRIPTION	HARDNESS
H 8450	Nickel	A HARD HVOF SELF-FLUXING NICKEL ALLOY FOR WEAR PROTECTION AGAINST FRICTIONAL WEAR, EROSION AND CORROSION. May be fused to create a metallurgical bond of hard nickel alloy matrix. Applications: capstans, shafts, piston rods, cylinder liners and cams etc.	50 HRC
H 8455	Nickel	A HIGH HARDNESS HVOF NICKEL ALLOY FOR WEAR PROTECTION AGAINST ABRASION, FRICTIONAL WEAR, EROSION, GALLING, OXIDATION AND CORROSION may be fused to create a metallurgical bond of hard alloy matrix. A good combination of abrasion and corrosion wear resistance properties. Applications: wire drawing capstan, shafts, pistons, heat treating rolls, fan blades, pump sleeves, cylinder liners and cams etc.	58 HRC
H 8460	Nickel	A NICKEL BASED HVOF POWDER WHICH PRODUCE A HARD NICKEL ALLOY MATRIX. Very good flowing properties, hot hardness and resistance to oxidation at high temperature. Resistance to metal-to-metal friction wear (low coefficient of friction) and to mineral abrasion. Applications: worm screws, cams, pump shafts, push rods, steam or gas turbine blades.	60 HRC
H 5535	Nickel + WC Blend	A SPECIALLY FORMULATED HARD NICKEL TUNGSTEN CARBIDE BLEND POWDER ALLOY FOR HVOF PROCESS. May be fused to create a metallurgical bond of hard nickel + tungsten carbide alloy matrix. Excellence resistance against abrasion, erosion, oxidation, heat and corrosion. Applications: glass mould plungers and shafts etc.	Tungsten carbide 1200 HV
H ST 1	Cobalt	A HARD COBALT BASE HVOF POWDER ALLOY FOR WEAR PROTECTION AGAINST ABRASION, OXIDATION AND CORROSION AT ELEVATED TEMPERATURE. This alloy provides better hot hardness retention value than equivalent nickel based alloy. Excellent resistance to many forms of mechanical and chemical degradation. Applications: valve stem, high temperature pressure valve and turbines blades.	56 HRC
H ST 6	Cobalt	A COBALT BASE HVOF POWDER ALLOY FOR WEAR PROTECTION AGAINST HEAT, CORROSION, OXIDATION AND FRETTING & PARTICLE EROSION. It has better hot hardness retention value than nickel base alloy. Excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range. Applications: valve stem, high temperature pressure valve, shafts and turbine blades.	42 HRC
H ST 21	Cobalt	A MEDIUM HARDNESS COBALT BASE HVOF POWDER ALLOY FOR PROTECTION AGAINST WEAR, OXIDATION AND CORROSION AT ELEVATED TEMPERATURE. This alloy provides better hot hardness retention value than equivalent nickel base alloy. Excellent resistance to many forms of mechanical and chemical degradation. Applications: capstan rollers and high temperature pressure valve.	35 HRC
H 1353	Tungsten carbide	AN AGGLOMERATED AND SINTERED HVOF POWDER WHICH CONTAINS A UNIFORM DISTRIBUTION OF TUNGSTEN CARBIDE AND COBALT 88/12. The finer grades produces hard dense and tough coatings that are resistant to abrasion, erosion and sliding wear. Applications: wire drawing blocks, cutting blades, pump seals and housing, extrusion dies, steel mill leveling rolls, fan blades and cylinder rods.	1200 HV
H 1354	Tungsten carbide	AN AGGLOMERATED AND SINTERED HVOF POWDER WHICH CONTAINS A UNIFORM DISTRIBUTION OF TUNGSTEN CARBIDE AND COBALT 83/17. For protective coatings whenever resistance to wear and fretting under impact and frictional load is required. Applications: rollers of carrier belts, paper mill rolls, mandrels, hydroelectric valves, brick molds, wire drawing blocks & capstans and drill bits.	1150 HV
H 1380	Tungsten carbide	AN AGGLOMERATED AND SINTERED HVOF POWDER WHICH CONTAINS A UNIFORM DISTRIBUTION OF TUNGSTEN CARBIDE, CHROMIUM CARBIDE AND NICKEL 73/20/7. For protective coatings whenever resistance to wear and corrosion in hydrous solution is required. Maximum operating temperature up to 750°C. Applications: rollers in paper industry, gate valves, screw blades and cylinder rods.	1250 HV
H 1382	Tungsten carbide	AN AGGLOMERATED AND SINTERED TUNGSTEN CARBIDE NICKEL 90/10 POWDER DESIGNED SPECIALLY FOR HVOF PROCESS. Very good abrasion, erosion and corrosion resistance, also under radioactive conditions and sulphur attack type operating environment. Applications: turbine engine components, exhaust fans, plungers, pump parts & piston rod for oilfield and mining industry.	1200 HV
H 1388 A	Tungsten carbide	AN AGGLOMERATED AND SINTERED HVOF POWDER WHICH CONTAINS A UNIFORM DISTRIBUTION OF TUNGSTEN CARBIDE, COBALT AND CHROMIUM 86/10/4. Wear resisting coatings for low temperature applications - usable under water based solutions and wet corrosive environments. Applications: rollers of carrier belt in mining, gate & ball valves, mud rotors, hydraulic cylinders, compressor shafts, paper rolls and transporter screws.	1250 HV
H 1392	Tungsten carbide	AN AGGLOMERATED & SINTERED TUNGSTEN CARBIDE HIGHLY CORROSION RESISTANT NICKEL ALLOY POWDER 82/18. More superior corrosion resistance than standard WC-Co-Cr coatings. Excellent resistance against abrasion, erosion, corrosion and sliding wear. For use in oilfield, petrol chemical and pulp & paper industries for protection against abrasion, erosion and chemical corrosion on mandrels, pump shafts and rollers etc.	1250 HV
H 1373	Chrome carbide	AN AGGLOMERATED AND SINTERED CHROMIUM CARBIDE-NICKEL CHROMIUM 80/20 POWDER DESIGNED SPECIALLY FOR HVOF PROCESS. Very high wear resistance against abrasion and corrosion at elevated temperature. Maximum operating temperature up to 870°C. Tough, better bonded and dense coatings. Applications: turbine components, valve stems, capstans and mandrels etc for chemical industry, power plants and oilfield industry.	1100 HV
H 1374	Chrome carbide	AN AGGLOMERATED AND SINTERED CHROMIUM CARBIDE-NICKEL CHROMIUM 75/25 POWDER DESIGNED SPECIALLY FOR HVOF PROCESS. Coatings have excellent resistance to wear, oxidation and corrosion at elevated temperature. Maximum operating temperature up to 870°C. Applications: wear pads, mixer paddles, hot forming dies, turbine engine components, fuel rod mandrels, exhaust valves & seats, forging tools and bushings.	1000 HV

PLASMA TRANSFERRED ARC (PTA) & LASER



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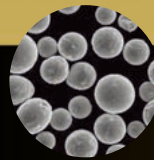
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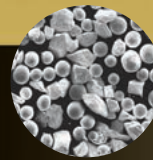
Plasweld 7000

PRODUCT	BASE MATERIAL	PRODUCT DESCRIPTION	HARDNESS
P 304 L	Iron	AN AUSTENITIC STAINLESS STEEL ALLOY CONTAINING C, Si, Mn, Cr AND Ni PROVIDING GOOD RESISTANCE TO INTERGRANULAR CORROSION FOLLOWING WELDING OR STRESS RELIEVING. For use in repair of parts and equipment's exposed to organic and fruit-acid parts fabricated by welding that cannot be annealed.	160 HV
P 309 L	Iron	AN AUSTENITIC STAINLESS STEEL ALLOY WITH EXCELLENT CORROSION RESISTANCE AND SPECIALLY HIGH RESISTANCE TO INTERGRANULAR CORROSION AFTER WELDING. Resists destructive heating scaling up to 1080°C due to the high amount of chromium and nickel. For use in heat resisting applications like marine engine components etc.	175 HV
P 316 L	Iron	AN AUSTENITIC STAINLESS STEEL ALLOY CONTAINING C, Si, Cr, Ni, Mo AND Mn THAT EXHIBIT EXCELLENT CORROSION RESISTANCE OVERLAYS. Good surface protection against fretting, cavitation and particle erosion. Use for general purpose corrosion resistance environments, machine element repair and built-up etc.	160 HV
P 410 L	Iron	A MARTENSITIC STAINLESS STEEL ALLOY CONTAINING C, Si, Cr, Ni, Mo AND Mn. Good resistance to low temperature particle erosion and fretting. This alloy gives a wear resistant coating that is machinable. Use for general purpose combination of corrosion and abrasion resistance applications like on structural parts subjected to water and steam attack etc.	44 HRC
P 420 S	Iron	A SPECIALLY FORMULATED MEDIUM HARDNESS CHROME STEEL ALLOY FOR DIMENSIONAL RESTORATION. A martensitic stainless steel grade alloy that provides good build up and weldability properties. Overlays exhibit moderate abrasion resistance and good toughness. Applications for shafts, rods, sleeves and rollers etc.	42 HRC
P 431 L	Iron	A TOUGH MARTENSITIC STAINLESS STEEL ALLOY FOR DIMENSIONAL RESTORATION. Good corrosion resistance and good toughness. Excellent weldability and build up properties - an excellent choice for dimensional restoration. Applications for shafts, rods, sleeves and rollers etc.	35 HRC
P 15 Ni	Nickel	NICKEL BASE ALLOY CONTAINING C, Si, Cr, Ni AND Mn WITH EXCELLENT MACHINABILITY. Crack and porosity free weld overlays. Suitable to clad on "non-magnetic" steels. Typically use for built-up applications on shafts, bearing journals, engine blocks and oilfield components etc.	180 HV
P 32 Ni	Nickel	PROPRIETARY NICKEL BASE ALLOY CONTAINING B, Si AND SYNERGISTIC ELEMENTS FOR USE ON CAST IRON BASE METALS. Good ductility and machinability. Excellent wear resistance at elevated temperature. Also suitable to overlay on aluminum bronze substrates. Applications: baffles, bottom plates and blow heads in glass mould manufacturing.	32 HRC
P 38 Ni	Nickel	CHROMIUM FREE NICKEL BASE ALLOY FOR RESURFACING OF STEELS AND CAST IRONS. Good machinability and low coefficient of friction alloy matrix. Very little cross checks when blend with tungsten carbide to increase abrasion resistance. Applications for shafts, liners, pump sleeve, and as a buffer layer prior hard surfacing etc.	40 HRC
P 45 Ni	Nickel	NICKEL BASE ALLOY CONTAINING C, Si, B, Fe AND Cr. Provides good abrasion resistance coatings on heat treatable base metal. Excellent corrosion, oxidation and metal-to-metal wear resistance properties at high temperatures. Typically used for valve seats, valve spindles, bearing journals, shafts, gears and cams etc.	45 HRC
P 50 Ni	Nickel	HARD NICKEL BASE ALLOY CONTAINING C, Si, B, Cr AND Fe. Provides hard, abrasion and erosion wear resisting overlays. Reasonable ductility and crack resistance. Maximum service temperature up to 550°C. Applications include paper bed knives, pump blades, dies, shafts and valve seats etc.	50 HRC
P 55 Ni	Nickel	HIGH HARDNESS NICKEL BASE ALLOY CONTAINING C, Si, B, Cr, Mo, Cu AND Fe. It provides a hard dense coatings with combination of toughness and excellent abrasion and corrosion resistance due to presence of Mo-Cu contents. Applications: crushing tools, extrusion screws, pump sleeves and heat treating rolls etc.	56 HRC
P 59 Ni	Nickel	A HARD NICKEL BASE ALLOY FOR RESURFACING OF STEELS AND COMMONLY USED AS NICKEL MATRIX BLEND WITH TUNGSTEN CARBIDE FOR MAXIMUM WEAR PROTECTION. Good abrasion resistance and low coefficient of friction alloy matrix. Applications for shafts, liners, pump sleeves, cams and mining components etc.	50 HRC
P 60 Ni	Nickel	A HIGH HARDNESS NICKEL BASE ALLOY CONTAINING C, Si, B, Fe AND Cr. Designed to provide maximum hardness. Good abrasion resistance and exhibit a low coefficient of friction. Thin overlay deposit recommended due to it's high hardness. Applications: screw flights, wear rings, brick dies, diesel engines valves and pump shafts etc.	60 HRC
P 625	Nickel	A NICKEL BASE SUPERALLOY CONTAINING C, Si, Fe, Cr, Mo AND Nb. Designed to provide resistance to acidic environment and oxidation. Typically used where resistance to corrosion in sea water, chemical, acidic environment and to oxidation is desired. Applications: ship engine parts, combustion systems and chemical processing components etc.	28 HRC
P 718	Nickel	A NICKEL BASE SUPERALLOY FOR WEAR PROTECTION AGAINST HEAT AND CORROSION. Excellent combination of oxidation, erosive and hot gas corrosive wear at elevated temperature. Applications: ship engine parts, valve components, chemical processing equipment, pump parts and oil & gas exploration components etc.	26 HRC
P C276	Nickel	A SPECIAL ALLOY FOR CORROSION PROTECTION AGAINST AGGRESSIVE MEDIAS. Good metal-to-metal wear at elevated temperature. This alloy provides the broadest range of process environment capabilities to the chemical processing industry. Excellent resistance to localized chemical attack. Applications: shafts, dies, blades and rollers etc.	24 HRC

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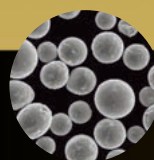


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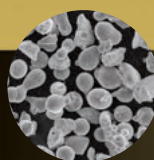
PRODUCT	BASE MATERIAL	PRODUCT DESCRIPTION	HARDNESS
P Ni30Cu	Nickel	A SPECIAL ALLOY FOR WEAR PROTECTION AGAINST OXIDATION AND SEA WATER CORROSION. Very good resistance to reduce, and mildly oxidizing corrosives. This alloy provides excellent corrosion properties especially effective against sea water corrosion. Applications for shafts, sleeves, blades, liners and rotors etc.	20 HRC
P ST 1	Cobalt	COBALT BASE TYPE 1 ALLOY CONTAINING C, Si, Cr AND W. Designed for maximum abrasion resistance and corrosion applications. Maximum service temperature up to 980°C. Applications: extruder screws, auger screws, hot fan blades, valve trim and grinding abrasion applications including dry and wet erosion etc.	52 HRC
P ST 3	Cobalt	A SPECIAL COBALT BASE TYPE 3 ALLOY FOR WEAR PROTECTION AGAINST ABRASION, IMPACT, OXIDATION AND CORROSION AT ELEVATED TEMPERATURE. This alloy provides better hot hardness retention value than equivalent nickel base alloy. Applications: valve seats, steel mill guide rolls, forming rolls, bushings and seal rings.	50 HRC
P ST 6	Cobalt	COBALT BASE TYPE 6 ALLOY CONTAINING C, Si, Cr, Fe, W AND Mn. Provides good combination of machinability, corrosion and crack resistance. Excellent anti-galling and adhesive wear resistance. Maximum service temperature up to 980°C. Applications: valves seats, valve spindles, mixer blades, forging dies and auger flights etc.	43 HRC
P ST 12	Cobalt	COBALT BASE TYPE 12 ALLOY CONTAINING C, Si, Cr, W, Ni, Mo AND Fe. Designed to provide resistance to steam erosion and hot gas corrosion. A good combination of abrasive and frictional wear resistance. Maximum service temperature up to 908°C. Applications: pump flights, guide bars, valves and steam ports etc.	50 HRC
P ST 21	Cobalt	COBALT BASE TYPE 21 ALLOY CONTAINING C, Si, Cr, Ni AND Mo. Used primarily as a buffer layer for harder cobalt-base alloys coatings where deposits are subjected to moderate impact. Exhibit good abrasion, oxidation and corrosion resistance properties at high temperature. Applications: steel rollers, valve trims and forging dies etc.	30 HRC
P 3060 CFS	WC Blend	A PREMIUM QUALITY SPHERICAL CAST TUNGSTEN CARBIDE (CFS) IN NICKEL MATRIX POWDER ALLOY. Very homogenous carbide distribution over the whole welding thickness. Excellent resistance to severe abrasion, friction wear, erosion, oxidation and corrosion. Applications: oilfield stabilizers, mud motor journals and mining components etc.	Matrix-35 HRC Carbide-3400 HV
P 4060 CFS	WC Blend	A PREMIUM QUALITY SPHERICAL CAST TUNGSTEN CARBIDE (CFS) IN NICKEL MATRIX POWDER ALLOY. For hard surfacing of steel, stainless steel, cast iron, and nickel alloy which are subjected to very severe abrasion, friction wear, erosion, oxidation and corrosion. Applications: protective overlays for oilfield and mining equipment etc.	Matrix-40 HRC Carbide-3400 HV
P 5060 CFS	WC Blend	A PREMIUM QUALITY BLEND POWDER ALLOY OF CAST FUSED AND SPHERICAL (CFS) TUNGSTEN CARBIDE IN HARD NICKEL MATRIX. Very homogenous carbide distribution over the whole welding thickness. Excellent resistance to very severe abrasion, corrosion, erosion and oxidation. Applications: earth moving equipment and oilfield equipment etc.	Matrix-50 HRC Carbide-3400 HV
P 4060	WC Blend	A SPECIALLY FORMULATED TUNGSTEN CARBIDE IN NICKEL MATRIX POWDER ALLOY. For hard surfacing of alloy steel, stainless steel and nickel alloy which are subjected to severe abrasion, corrosion, erosion, and oxidation. Applications: mixer blades, pug mill knives, earthmoving equipment, quarry equipment, oilfield equipment and mining equipment etc.	Matrix-40 HRC Carbide-2200 HV
P 4060 M	WC Blend	A SPECIALLY FORMULATED MONO-CRYSTALLINE TUNGSTEN CARBIDE IN NICKEL MATRIX POWDER ALLOY. Higher thermal stability compared to cast tungsten carbide blend. Overlays exhibit good resistance to severe abrasion and corrosion, erosion, and oxidation. Applications: earth moving equipment, quarry equipment and oilfield equipment etc.	Matrix-40 HRC Carbide-2200 HV
P 5060	WC Blend	A SPECIALLY FORMULATED TUNGSTEN CARBIDE IN NICKEL MATRIX POWDER ALLOY. Very homogenous carbide distribution over the whole welding thickness. Excellent resistance to severe abrasion, corrosion, erosion and oxidation. Applications for shafts, earth moving equipment, quarry equipment, oilfield equipment and mining equipment etc.	Matrix-50 HRC Carbide-2200 HV
P 5060 M	WC Blend	A SPECIALLY FORMULATED MONO-CRYSTALLINE TUNGSTEN CARBIDE IN HARD NICKEL MATRIX POWDER ALLOY. Higher thermal stability compared to cast tungsten carbide blend. Overlays exhibit excellent resistance to abrasion, corrosion, erosion, and oxidation. Applications: sleeves, earth moving equipment and oilfield equipment etc.	Matrix-50 HRC Carbide-2200 HV
P 58 Fe	Proprietary	A SPECIALLY FORMULATED CRACK FREE AND CORROSION RESISTANT IRON BASED ALLOY FOR DIMENSIONAL RESTORATION. Unique combination of wear and corrosion resistance weld overlays. Attain smooth hard crack free deposits and exhibit good machinability. Use mainly on cylinder rods for various industries such as mining, construction, oil & gas etc.	54 HRC
P 62 Fe	Proprietary	A SPECIALLY FORMULATED HARD POWDER ALLOY FOR WEAR RESISTING OVERLAYS. Extremely good abrasion resistance alloy matrix and good hardness retention at elevated temperature. Lower cost alternative to hard nickel alloy or tungsten carbide blend. Applications: screw conveyors, wear plate, cutting edges for circular saws and adaptor etc.	62 HRC
P 960 N	Proprietary	A SPECIALLY FORMULATED NANOSTRUCTURED POWDER ALLOY FOR WEAR PROTECTION AGAINST HIGH ABRASION AND FINE PARTICLES EROSION. Very uniform hardness throughout the welded matrix. P 960 N is an alternative to nickel alloy (40%) and tungsten carbide (60-65%) blend for use in extreme abrasion/erosion applications. Use for wear protection on liners, screws conveyors, wear plate, rollers, bucket teeth and adaptor etc.	72 HRC

* Laser cladding powders are available under our "L" series with same properties as stated above.

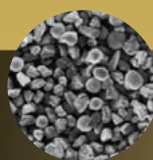
TWO STEP FUSIBLE



Gas Atomized



Water Atomized



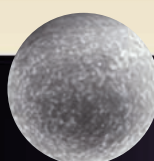
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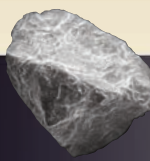
Flamejet

PRODUCT	PRODUCT DESCRIPTION	HARDNESS
SF 60 WA	A SPECIALLY FORMULATED HARD NICKEL MATRIX ALLOY POWDER FOR HARD SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY WHICH ARE SUBJECTED TO SEVERE ABRASION AND/OR CORROSION WEAR. Applications: mixer blades, knives, fan blades, wear plates, piston rods, pump shafts, guide rolls, polished rod liners, rocker arms and sucker rod couplings etc.	60 HRC
SF 8635	SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY FOR ABRASION, OXIDATION AND CORROSION WEAR PROTECTION. Excellent ductility and crack resistance. Good combination of hardness and wear resistance coupled with good machinability. Applications: turbo charger shafts, pumps press tools, shafts, sleeves and repair of machining errors etc.	36 HRC
SF 8640	SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY FOR ABRASION, HEAT AND CORROSION WEAR PROTECTION. Excellent ductility and crack resistance. Protective overlays are resistant against abrasion, hot-glass erosion and adhesive wear. Good coefficient of friction. Applications: glass mould plungers, pump sleeves, shafts, piston rods and repair of valve gates etc.	40 HRC
SF 8645	SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY FOR ABRASION, HEAT AND CORROSION WEAR PROTECTION. Good flowing properties, hot hardness and resistance to oxidation at elevated temperature. Wear resisting overlays against friction, abrasion and mild pressure. Applications: glass mould plungers, conveyor bands, cams, pump shafts, repair of valve and valve seats etc.	45 HRC
SF 8650	SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY FOR ABRASION, EROSION AND CORROSION WEAR PROTECTION. Similar alloy to SF 8645 but offering increased abrasion resistance. Deposits exhibit resistance to thermal shock and metal-to-metal friction. Applications: rocker arms, pump sleeves, mixer blades, pistons rods, seal rings, repair of moulds for brick and ceramics etc.	50 HRC
SF 8658	HARD SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY WHICH ARE SUBJECTED TO SEVERE ABRASION AND/OR CORROSION WEAR. Better corrosion resistance compared to most hard nickel based alloy. Lesser brittle sensitive despite it's high hardness. Applications: conveyor worm-screws and bands, mixer blades, chips knives, pump sleeves, fan blades, cams, rocker arms and chip knives etc.	58 HRC
SF 8660	HARD SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY WHICH ARE SUBJECTED TO SEVERE ABRASION AND/OR CORROSION WEAR. Very dense / hard coatings that produce a smooth wear scar during use that improves service life. Good build up and fusing properties. Applications: mandrels, fan blades, transport rolls, mixer blades, cams, rocker arms, piston rods, camshafts and steam valves etc.	60 HRC
SF 8662	HARD SURFACING OF STEEL, CAST IRON AND NICKEL ALLOY WHICH ARE SUBJECTED TO SEVERE ABRASION, EROSION AND CORROSION WEAR. Provide hard nickel plus carbide rich alloy matrix wear resistant overlays. Alloy precipitates complex carbide hard phases which afford excellent sliding wear. Can be finished with carbide tools and grinding. Applications: glass mould NNPB plungers, piston rods, rollers, mixer blades, sleeves, drilling tools etc.	63 HRC
SF 8666	A SPECIALLY FORMULATED TUNGSTEN CARBIDE IN HARD NICKEL MATRIX POWDER ALLOY FOR WEAR PROTECTION AGAINST SEVERE ABRASION, EROSION, OXIDATION AND CORROSION. Very uniform distribution of cast tungsten carbide in tough nickel alloy matrix. Designed for resistance to wear by particle abrasion both in dry and wet conditions. Applications: conveyor screws and mixer paddles etc where sand, cement and ceramics are the media.	Tungsten carbide 2200 HV

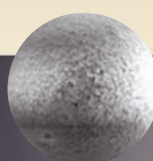
CARBIDE MATERIALS



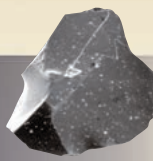
Spherical Cast
WC



Cast WC



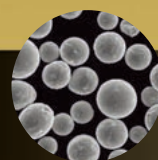
Cemented WC



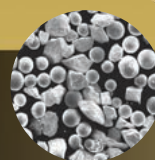
Mono WC

PRODUCT	PRODUCT DESCRIPTION	HARDNESS
DM CTC	DM CTC (CAST TUNGSTEN CARBIDE) IS A CONVENTIONAL TUNGSTEN CARBIDE THAT ARE IRREGULARLY SHAPED, TWO PHASE CARBIDES THAT ARE PRODUCED BY A SPECIAL MELTING PROCESS. The microstructure depends on the speed of cooling as well as on the carbon content. It usually has a fine and acicular structure. This material is very sensitive to phase transformation in arc welding processes.	2200 HV
DM CFS	DM CFS (CAST FUSED SPHERICAL) TUNGSTEN CARBIDE ARE PRODUCED BY A UNIQUE MELTING PROCESS WITH A FOLLOWING THERMAL POST HEAT TREATMENT. This carbide grade has a fine non acicular structure with a greater hardness value and improved thermal stability. DM CFS can be use in all hardfacing applications applied by welding such as laser cladding, as well as adding to infiltration materials etc.	3400 HV
DM MTC	DM MTC (MONO TUNGSTEN CARBIDE) ARE CONSIDERABLY MORE STABLE THERMODYNAMICALLY THAN CAST TUNGSTEN CARBIDE AS A RESULT OF THEIR SPECIFIC COMPOSITION AND MICROSTRUCTURE. No phase transformation occurs in molten metals during the fusing process; and thus no embrittlement of the matrix metal occurs. Good compatibility with nickel, cobalt, iron and copper based alloys.	2200 HV
DM Sinterpellets	DM SINTERPELLETS IS A SPHERICAL DENSE SINTERED CEMENTED CARBIDE BASED ON TUNGSTEN CARBIDE WITH COBALT BINDER. Due to the unique manufacturing process - macro-porosity don't appear and the pellets are mainly free of micro-porosity. DM Sinterpellets exhibit very high toughness combined with hardness and thermal stability. Suitable for use in hardfacing applications apply by welding as well as adding to infiltration materials.	1600 HV
DM Tungchip	AN IRREGULAR CRUSHED DENSE CEMENTED TUNGSTEN CARBIDE COBALT PARTICLES FREE FROM OXIDES AND DELETERIOUS MATERIALS. These particles are produced from a special sorted process. The shape is strictly controlled and the screening is very sharp. DM Tungchip are very tough and have very good wetability characteristics. It is mainly used in drilling and cutting applications in the oil & gas and mining industries.	1800 HV

POWDER WELDING



Gas Atomized



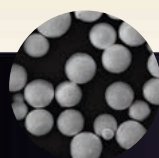
Blend



Fusejet PLUS

PRODUCT	PRODUCT DESCRIPTION	HARDNESS
S 8815	SURFACING OF STEEL, STAINLESS STEEL AND CAST IRON FOR BUILD-UP AND CORROSION WEAR PROTECTION. Good flowing and build up properties. Excellent resistance to heat and corrosion. Applications: glass moulds, engine blocks and "non-magnetic" steels - e.g oilfield stabilizers manufacturing and repair.	20 HRC
S 8820	SURFACING OF ALLOYED AND UNALLOYED STEEL, STAINLESS STEEL AND CAST IRON. FRICTION RESISTING DEPOSIT, EXCELLENT BUILD UP ON STEEL. High ductility and good impact resistance. Excellent machinability. Applications: cast iron repairs, keyways, gears, glass moulds and oilfield components.	22 HRC
S 8821	SURFACING OF STEEL AND CAST IRON FOR EASY BUILD-UP AND CORROSION WEAR PROTECTION. Low fusing temperature. Specially formulated for both cast iron and bronze alloys. Produces high quality deposits. Designed for a variety of glass mould components manufacturing and repair of machining errors etc.	23 HRC
S 8825	IDEAL FOR SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY. Good puddle control and build up properties. Good combination of abrasion, heat and corrosion wear resistance. Applications: engine blocks, glass moulds, press tools and drilling tools - like hardfacing of oilfield stabilizers.	25 HRC
S 8831	A SPECIALLY FORMULATED HIGH QUALITY ALLOY FOR SURFACING OF STEEL AND CAST IRON. Low fusing temperature and ideal for thick build up overlays. Specially formulated for both cast irons and bronze alloys. Designed for glass mould manufacturing components and repair including guide rings, neck rings and baffles etc.	30 HRC
S 8838	A CHROMIUM FREE MEDIUM HARDNESS ALLOY THAT OFFERS THE BEST COMBINATION OF HARDNESS AND WEAR RESISTANCE COUPLED WITH GOOD MACHINING PROPERTIES. Very good fluidity and unlimited build up capability. High ductility and corrosion resistance. Wear resistance can be improve when blend with tungsten carbide. Applications: journals, feedrolls, glass moulds, shafts and oilfield components etc.	38 HRC
S 8858	HARD SURFACING OF STEEL, STAINLESS STEEL, CAST IRON AND NICKEL ALLOY WHICH ARE SUBJECTED TO SEVERE ABRASION AND/OR CORROSION WEAR. Good build up properties and lesser brittle sensitive despite it's high hardness. Applications: conveyor worm-screws, mixer blades, chip knives, rocker arms and steam valves etc.	58 HRC
S 8860	A HIGH HARDNESS ALLOY OFFERING EXCELLENT RESISTANCE TO WEAR CAUSE BY METAL-TO-METAL FRICTION AND MINERAL ABRASION. Good flowing properties and resistance to oxidation at elevated temperature. Low coefficient of friction. Applications: cams, piston rods, transporter screws, wire guide, rollers and mixer blades etc.	60 HRC
S 8882	A HIGH QUALITY ALLOY CONTAINING FINE EVENLY DISTRIBUTED CARBIDES IN TOUGH WEAR RESISTANT MATRIX FOR FINE MINERAL PARTICLE ABRASION AND CORROSION RESISTANCE. Applications: decanter screws, cyclone blades, ceramic press moulds, scrapers and augers etc.	65 HRC
S 8884	AN ALLOY CONTAINING HIGH PERCENTAGE OF CARBIDES FOR OVERLAYING STEEL COMPONENTS SUBJECTED TO SLIDING ABRASIVE WEAR FROM LARGE TO MEDIUM SIZED MINERAL PARTICLES. Applications: grip rolls, fly ash chutes, auger points, drill bits and mixing paddles etc.	Tungsten carbide 2200 HV
S 3835	A SPECIALLY FORMULATED POWDER ALLOY CONTAINING MEDIUM CONCENTRATION OF CARBIDES WITH GOOD BUILD UP PROPERTIES FOR OVERLAYING STEEL COMPONENTS SUBJECTED TO MINERAL WEAR AND CORROSION. Applications: oilfield stabilizers, scraper segments and pug mill augers etc.	Tungsten carbide 2200 HV
S ST 6	A SPECIAL ALLOY FOR WEAR PROTECTION AGAINST ABRASION, IMPACT, OXIDATION AND CORROSION AT ELEVATED TEMPERATURE. This alloy provides better hot hardness retention value than equivalent nickel base alloy. Applications: valve seat, valve spindle, valve stem, valve trim, auger flights, punch die, extruder screw and mixer blades etc.	42 HRC

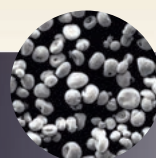
PLASMA SPRAY (APS)



Agglomerated & Sintered



Fused & Crushed



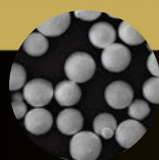
Spray Dried



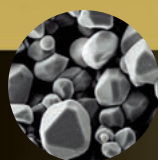
AT 3000

PRODUCT	PRODUCT DESCRIPTION	HARDNESS
PS Al ₂ O ₃ 99	ALUMINUM OXIDE POWDER PRODUCES HARD, DENSE, WEAR RESISTANT COATINGS SUITABLE FOR USE AT ELEVATED TEMPERATURE. Coatings exhibit high hardness and good toughness. Excellent resistance to abrasion, erosion and chemical attack. Operating temperature up to 1300°C. Finish by grinding. Applications: pump seals, impellers, bearing fits and thermocouples etc.	1300 HV
PS Al ₂ O ₃ /TiO ₂ 87/13	ALUMINA-TITANIA POWDER THAT PRODUCES COATINGS WHICH ARE RESISTANT TO ABRASION COUPLED WITH EXCELLENT FINISH CAPABILITY. Excellent resistance to a wide range of chemical media. Exhibit tough, dense and smooth coatings. Finish by grinding. Applications: pump sleeves, thread guides, cam followers, piston rods, rocker arms and pump seals in corrosive or abrasive liquids etc.	1000 HV
PS TiO ₂ 99	TITANIA COATINGS OFFER THE BEST GRIND FINISH CAPABILITY WITH SOME SACRIFICE IN WEAR RESISTANT TO MILD CAVITATION. High bond strength and excellent protection against high temperature oxidation. Exhibit semi-conductive properties. Soluble in alkalis and sulfuric acid. Finish by grinding and lapping. Applications: pump sleeves, impellers, propeller shaft bearings and thread guides etc.	600 HV

PLASMA SPRAY (APS)



Agglomerated & Sintered



Fused & Crushed



Spray Dried



DM 3000 PS

PRODUCT	PRODUCT DESCRIPTION	HARDNESS
PS Cr ₂ O ₃ 99.7	CHROMIUM OXIDE COATINGS OFFER THE BEST RESISTANCE TO HARD PARTICLE ABRASION AND ARE RESISTANT TO MOST ACIDS, ALKALIS AND ALCOHOL WHEN PROPERLY SEALED. Laser engravable and good ink receptivity. Excellent chemical resistance and good anti-galling properties. Finish by grinding and lapping. Applications: printing rolls, buffing fixtures, water rings, pump seals, plungers, capstans, cylinder liners etc.	1300 HV
PS Al ₂ O ₃ /TiO ₂ 60/40	ALUMINA-TITANIA COATINGS OFFER A GOOD COMBINATION OF RESISTANCE TO HARD PARTICLE ABRASION AND THE CAPABILITY OF BEING GROUND AND LAPPED TO A VARIETY OF FINISHES. Good bond strength, high hardness and toughness. Excellent wear and erosion resistance. Operating temperature up to 1300°C. Applications: pump sleeves, gear journals, thread guides, textile rolls, chip breakers and impellers etc.	1000 HV
PS Al ₂ O ₃ /ZrO ₂ 60/40	PROPRIETARY ALUMINA-ZIRCONIA COMPOSITE POWDER THAT YIELDS COATINGS THAT RESIST HARD PARTICLE ABRASION, EROSION WITH EXCELLENT THERMAL BARRIER PROPERTIES. Coatings are resistant to wetting by most molten metals. Excellent chemical resistance with operating temperature up to 1200°C. Applications: heat treat fixtures, pouring troughs, missile nose cones, ingot moulds and galvanizing dip tanks etc.	600 HV
PS Mo 99.5	A HIGH PURITY MOLYBDENUM AGGLOMERATED AND SINTERED PLASMA SPRAY POWDER. Self bonding with most metals and alloys. Coatings exhibit good bond strength and toughness with acceptable hardness. Excellent sliding, lubricating and low friction metal contact material. Maximum operating temperature up to 320°C (in oxidizing atmosphere). Applications: valves, gears, pump parts, synchronizing disc and piston rings etc.	600 HV
PS ZrO ₂ /Y ₂ O ₃ 92/8	ZIRCONIA-YTTRIA SPRAY DRIED POWDER THAT YIELD EXCELLENT COATINGS THAT RESIST HARD PARTICLES ABRASION & GAS CORROSION AT ELEVATED TEMPERATURE, THERMAL SHOCK RESISTANCE AND ACT AS A THERMAL BARRIER LAYER. Tough, dense and good insulation coating properties. Operating temperature up to 1300°C. Key applications: use as thermal barrier coatings in gas turbine components like combustion liners and airfoils etc.	1400 HV
PS Y2O3 99.99	AN EXTREMELY HIGH PURITY YTTRIUM OXIDE AGGLOMERATED & SINTERED POWDER FOR WEAR PROTECTIVE COATINGS TO ENHANCE THE ANODIZED ALUMINUM METAL PRIMARY USED IN MACHINERY IC CHAMBER COMPONENTS. Corrosion and erosion resistance are critical and important properties for parts used in vacuum chamber and semiconductor (IC) manufacturing - this alloy was designed to meet stringent semiconductor industry requirements. Operating temperature up to 2200°C.	790 HV
PS YF3 99.99	AN EXTREMELY HIGH PURITY YTTRIUM FLUORIDE AGGLOMERATED & SINTERED POWDER FOR USE IN OXYGEN SENSITIVE APPLICATIONS SUCH AS METAL PRODUCTION AND SEMICONDUCTOR CHAMBER COMPONENTS. YF3 coating has better mechanical and dielectric properties than the Y2O3 coating. Exhibit good corrosion resistant and can withstand high operating temperature. Typical application: critical semiconductor components.	270 HV

* Aluminum Oxide, Chrome Oxide and Titanium Oxide based powder can also be apply via combustion flame spray process.

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