



FST

Flame Spray Technologies

WIRES

THERMAL SPRAY CONSUMABLES GUIDE

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Wires

CROSS REFERENCE LIST (chemistry only)				
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WIRES				
Wire Type	Composition	FST p/n	Diameter (mm)	Typical Properties and Applications
Pure Aluminum	Al > 99.0%	W-200.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Coatings are resistant to atmospheric, chemical and heat corrosion • Electrical and heat conductive.
	AW1350	W-200.3	3.2 mm (1/8")	
	AW1100	W-201.1	1.6 mm (1/16")	
		W-201.3	3.2mm (1/8")	
Alloy C-276	Ni Bal. Cr 15.0% Fe 5.0% Mo 16.0% W 4.0%	W-322.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Excellent high temperature oxidation and corrosion properties • Good for repair and build-up of similar chemistry super alloy components.
NiCrTi	Cr 45.0% Ti 1.0% Ni Bal.	W-345.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Specially designed for Boiler applications • Titanium pre-alloyed, resulting in superior bondstrengths • W-345.1 produces coatings which are extremely resistant to corrosive vanadium and sulfur gases in boiler atmospheres.
Alloy 625	Ni Bal. Cr 22.0% Fe 2.0% Mo 9.0% Nb/Ta 3.5%	W-365.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Excellent high temperature oxidation and corrosion properties • Good for repair and build-up of similar chemistry super alloy components • Useful up to 980°C (1800°F)
NiCrAl	Cr 20.0% Al 7.0% Ni Bal. Cored Wire	W-373.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Resistant to oxidation and corrosion at high temperature • Undercoat for ceramics topcoat • Recommended for salvage and build-up of mis-machined or worn machine parts.

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Wires

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Wire Type	Composition	FST p/n	Diameter (mm)	Typical Properties and Applications
NiAlMo	Mo 5.0% Al 5.5% Ni Bal. Cored Wire	W-374.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Recommended for salvage and build-up of both machinable and grindable carbon steels Good resistance against wear and particles Used for high strength and low shrink coatings.
NiAl 95/5	Al 5.0% Ni 95.0%	W-375.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Excellent bonding Oxidation and abrasion resistant at elevated temperatures Self bonding material. Suitable for dimensional restoration.
NiAl 80/20	Al 20.0% Ni 80.0% Cored Wire	W-377.3	3.2 mm (1/8")	<ul style="list-style-type: none"> Self bonding material. Coatings are dense, resistant to oxidation and high temperature and temperatures changes Mainly used for Flame Wire Spraying.
NiCr 80/20	Ni 80.0% Cr 20.0% Cored Wire	W-385.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Produces coatings which resist corrosive gasses and oxidation temperatures up to 980°C (1800°F) Used as bond coat for ceramic materials Coatings are machinable.
NiCrAlY	Ni Bal. Cr 19.5% Al 10,5% Y 0,8%	W-372.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Resistant to oxidation and corrosion at high temperature Undercoat for ceramics topcoat Recommended for salvage and build-up of mis-machined or worn machine parts.
Molybdenum	Mo 99.9%	W-400.3	3.2 mm (1/8")	<ul style="list-style-type: none"> Galling and Scuffing resistance Typical applications include synchroniser rings, selector forks and piston rings.

WIRES					
Wire Type	Composition		FST p/n	Diameter (mm)	Typical Properties and Applications
Stainless Steel 420	13% Cr-Steel		W-504.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • The best all purpose material for general engineering applications • Excellent wear properties and fair corrosion resistance • Typically used for reclamation • Low shrinkage, allows for thick build-up.
			W-504.3	3.2 mm (1/8")	
Stainless Steel 316L	Cr 17.5% Ni 12.0% Mo 2.2% C <0,08%		W-510.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Type 316L Austenitic Stainless Steel • Good corrosion resistance • Dimensional restoration.
			W-510.3	3.2 mm (1/8")	
Stainless Steel 307	Cr 18.5% Ni 8.5% Mn 6.5% C <0,12%		W-515.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Type 307 Austenitic Stainless Steel • Good corrosion resistance • Dimensional restoration.
			W-515.3	3.2 mm (1/8")	
High C-Steel	Si 0.20% C 0,80% Mn 0,65% Fe Bal.		W-550.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Can be used wherever hard, low shrink steel is required • Poor corrosion resistance • Dimensional restoration.
			W-550.3	3.2 mm (1/8")	
Low C-Steel	Si 0.12% C <0,15% Mn 1,10% Fe Bal.		W-555.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Can be used wherever low shrink steel is required • Poor corrosion resistance • Dimensional restoration.
			W-555.3	3.2 mm (1/8")	
Ni-WC Ni-Hardcore™	Ni Bal Si 5.0% B 2.0% C 0,7% WC >50%		W-610.1	1.6mm (1/16")	<ul style="list-style-type: none"> • Nickel Silicon Boron based Wire with >50% Fused Tungsten Carbide (FTC). The coating results in a hard nickel backed matrix (540 HV0,1) with hard FTC particles (2400 HV0.1). Wire is typically for application where a high abrasion resistance is required up to a temperature of 500°C.

Wires

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Wire Type	Composition		FST p/n	Diameter (mm)	Typical Properties and Applications
NiCrSiBW Ni-Hardcore™	Ni	Bal.	W-612.1	1.6mm (1/16")	<ul style="list-style-type: none"> • Wire equivalent to Colmonoy® 88. • W-612 is a hard surfacing alloy. This alloy consists of NiCrSiBFe and WC. The combination of complex borides and carbide with the Ni-Cr-B matrix offers excellent hardness (500-600 HV0.3)) and extends the service life of parts exposed to high temperature abrasion, erosion, corrosion, galling and fretting.
	Si	3.0%			
	B	2.8%			
	Cr	16.0%			
	W	15.0%			
NiCrW Ni-Hardcore™	Ni	Bal.	W-614.1	1.6mm (1/16")	<ul style="list-style-type: none"> • Very similar material to W-612, but due to it higher content of WC has a higher hardness (800-900 HV0.3) and is typically used for the toughest abrasion applications.
	Si	2.5%			
	B	2.7%			
	Cr	24.0%			
	W	22.0%			
Ni-Ceramic	Ni	Bal.	W-615.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • W-615 is a unique ceramic filled cored wire. A customized oxide blend had been developed for optimum wear resistance. Good oxidation and corrosion resistance and withstand hot erosion. It is recommend to use W-372 a NiCrAlY cored wire a bond coat. A typical Application: Cooling panels of fume extraction units of electric arc furnaces
	ZrO ₂ Al ₂ O ₃ Cr ₂ O ₃	30%			
NiCrSiBW Ni-Hardcore™	Ni	Bal.	W-618.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • A NiCrBSi cored wire used for wear resistant and corrosion resistant protective coatings. Coatings can be fused after application (self-fluxing). They reach hardness of 500 - 800 HV0,1 and show porosity of below 2%. The coatings can be machined by grinding and polishing. Made exclusively for arc spraying, W-618 is used for high loaded components of chemical plants or food industry, plunger.
	Si	4.5%			
	B	1.6%			
	Cr	20.0%			
	W	2.0%			

WIRES				
Wire Type	Composition	FST p/n	Diameter (mm)	Typical Properties and Applications
FeCrMnSiB Fe-Hardcore™	Cr 26.0% Si 1.5% Mn 1.6% B 3.3% C 0.25 % Fe Bal. Cored Wire	W-662.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Hardness approx 55 HRC Equivalent to 95MXC(*) Produces a hard, abrasive and corrosion resistant coating Material has unique feature to increase hardness while in service Conventional machining provide hard chrome like finish Low coefficient of friction.
FeCrMnSiB Fe-Hardcore™	Ni 9.0% Cr 23.0% Mo 4.0% Si 1.0% Mn 1.3% Cu 2.0% B 2.3% Fe Bal.	W-663.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Hardness approx 45 HRC Equivalent to 90MXC(*) Produces a hard, abrasive and corrosion resistant coating Material has unique feature to increase hardness while in service Conventional machining provide hard chrome like finish Low coefficient of friction.
FeCrMnSiB Fe-Hardcore™	Ni 8.0% Cr 21.0% Mo 3.2% Si 1.1% Mn 1.2% Cu 2.0% B 2.3% Fe Bal. Cored Wire	W-664.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Hardness approx 50 HRC Equivalent to 96MXC(*) Good abrasive and corrosion resistant coating at high temperature Material has unique feature to increase hardness while in service Low coefficient of friction.
Fe-Base CrC Fe-Hardcore™	Ni 3.0% Cr 26.0% Mo 0.8% Si 1.6% Mn 1.6% C 1.7% Fe Bal. Cored Wire	W-665.1		<ul style="list-style-type: none"> Hardness approx 40 HRC Equivalent to 98MXC(*) Produces a hard, abrasive and corrosion resistant coating Material has unique feature to increase hardness while in service Conventional machining provide hard chrome like finish Low coefficient of friction.

Fe-Hardcore™ is a Trade name of Praxair

Wires

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Wire Type	Composition	FST p/n	Diameter (mm)	Typical Properties and Applications
Fe-Base WC Fe-Hardcore™	Ni 4.5% Cr 14.0% Si 1.3% Mn 0.6% B 1.9% TiC 6.0% WC 26.0% Fe Bal. Cored Wire	W-667.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Hardness approx 65 HRC • Equivalent to 97MXC(*) • Excellent abrasion resistance • Typical applications include: mining equipment, pump equipment etc.
Pure Copper	Cu 99.9%	W-700.1 W-700.3	1.6 mm (1/16") 3.2 mm (1/8")	<ul style="list-style-type: none"> • Used for electrical conductivity applications, copper reclamation and decorative coatings.
CuAl	Al 10.0% Cu Bal.	W-710.1 W-710.3	1.6 mm (1/16") 3.2 mm (1/8")	<ul style="list-style-type: none"> • Produces dense, wear resistant coatings which are very machinable.
CuAlFe	Al 9.0% Fe 1.0% Cu Bal.	W-712.1 W-712.3	1.6 mm (1/16") 3.2 mm (1/8")	<ul style="list-style-type: none"> • Produces dense, wear resistant coatings which are very machinable.
Monel	Cu 30.0% Ni Bal.	W-717.1 W-717.3	1.6 mm (1/16") 3.2 mm (1/8")	<ul style="list-style-type: none"> • Used for corrosion protection against brine or lye solutions;. however should not be used in acidic environments. • Marine corrosion protection • Excellent finishing.
Alloy 6 Co-Hardcore™	C 0,95% Si 1.4% Mn 0.8% Cr 30% Fe 3.0% W 4.20% Co Bal.	W-856.1	1.6 mm (1/16")	<ul style="list-style-type: none"> • Equivalent to Alloy 6 • To be used when excellent resistance to metal to metal wear, oxidation,. High temperatures and corrosive environments • Valves in power industry • Forging and mixing tools • Risers

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Wire Type	Composition		FST p/n	Diameter (mm)	Typical Properties and Applications
Alloy 12 Co-Hardcore™	C	1.15%	W-866.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Equivalent to Alloy 12 To be used when excellent resistance to metal to metal wear, oxidation,. High temperatures and corrosive environments Valves in power industry Forging and mixing tools Risers
	Si	1.8%			
	Mn	0.9%			
	Cr	29%			
	Fe	3.0%			
	W	6.50%			
	Co	Bal.			
Alloy T-400 Co-Hardcore™	Mo	28.0%	W-850.1	1.6 mm (1/16")	<ul style="list-style-type: none"> Excellent sliding wear properties up to 800 C Good hardness, oxidation and corrosion properties Low coefficient of friction Suitable for applications with low lubrication Similar to Triballoy 400
	Cr	8.0%			
	Si	2.0%			
	Fe	3.0%			
	Co	Bal.			
Babbitt	Sb	7.5%	W-970.2	2.0 mm	<ul style="list-style-type: none"> Produces dense coatings which are suitable for high speed and heavy duty bearings Bearing reclamation.
	Cu	3.5%	W-970.3	3.2 mm (1/8")	
	Sn	Bal.			

NOTE: in this Consumable Guide the most generally industrial used wire products are listed. If products other than listed in this catalogue are required, please contact our customer support team.

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MASKING TAPES			
FST p/n	Size Range	Applications	Description
DW 500-10.0	10.0 mm x 33 m	Plasma Tape	<ul style="list-style-type: none"> DW 500 is a one step plasma masking tape constructed of a silicone rubber/glass cloth backing coated with an aggressive high-temperature silicone adhesive. It will withstand grit blast and plasma spray process yet will remove cleanly. DW 500 has a higher tack than most other plasma masking tapes which allows it to easily conform to the most complex shapes of the Aircraft Industry. DW 500 & DW 500R (red color for identification) plasma masking tape have a CCS13 (Rolls-Royce) approval.
DW 500-12.5	12.5 mm x 33 m		
DW 500-25.0	25.0 mm x 33 m		
DW 500-38.0	38.0 mm x 33 m		
DW-500-50.0	50.0 mm x 33 m		
DW 501-10.0	10.0 mm x 16.5 m	HVOF Tape	<ul style="list-style-type: none"> DW 501 is a laminate of blue silicone rubber, glass fabric, 4 mil aluminum and glass fabric designed for severe duty including HVOF applications. The Silicone adhesive will release cleanly. This tape is used as a masking tape for HVOF spraying. The double-ply construction provides superior protection in this demanding high velocity spray environment.
DW 501-12.5	12.5 mm x 16.5 m		
DW 501-25.0	25.0 mm x 16.5 m		
DW 501-38.0	38.0 mm x 16.5 m		
DW-501-50.0	50.0 mm x 16.5 m		
DW 411-10.0	10.0 mm x 33 m	Plasma/HVOF Tape	<ul style="list-style-type: none"> DW 411 is a heavy (4 mil) aluminum foil/glass laminate with a high temperature silicone adhesive. The aluminum foil provides excellent and conductive characteristics in high temperature applications. The silicone adhesive provides excellent adhesion at high temperatures yet will remove cleanly.
DW 411-12.5	12.5 mm x 33 m		
DW 411-25.0	25.0 mm x 33 m		
DW 411-38.0	38.0 mm x 33 m		
DW-411-50.0	50.0 mm x 33 m		