

Welding Wire

Carbon Steel Solid Wires for MIG/MAG ER70S-3

A deoxidized wire used for mild and low alloy steel general purpose fabrication. Good for out-of-position welding using short circuiting transfer with 75% Ar +25% CO₂ or CO₂ shielding gases. Good performance over mill scale and rust.

ER70S-6

The high silicon content increases the fluidity of the weld pool, creating a smoother bead appearance and resulting in minimal post-weld grinding.

AWS Classification	Chemical Composition (as percentages)					Typical Mechanical Properties			
	C	Mn	Si	P	S	TS (PSI)	YS (PSI)	ELONG %	ft. lbs.@-20°F
ER70S-3	0.06 – 0.15	0.90 – 1.40	0.45 – 0.70	0.025	0.035	78,000	63,000	25	32
ER70S-6	0.07 – 0.15	1.40 – 1.85	0.80 – 1.15	0.025	0.035	84,000	71,000	26	43

Note: Single values shown are maximum. Ni, Cr, Mo and V may be present but are not intentionally added. The maximum weight of copper due to any coating plus the residual copper content in the steel shall be .50.

AWS Classification	Size (inch)	Part No.
		2 lb. Spool
ER70S-3	.030	S3-030-2
	.035	S3-035-2
	.045	S3-045-2
ER70S-6	.023	S6-023-2
	.030	S6-030-2
	.035	S6-035-2



Aluminum Solid Wires ER4043

5% Si bare Aluminum welding wire, flows freely at 1155°F. Recommended for welding 3003, 3004, 5052, 6061, 6063, casting alloys 43, 355, 356, 214.

ER5356

5356, 5% Mg bare Aluminum welding wire, flows freely at 1180°F. Recommended for joining 5050, 5052, 5083, 5454, and 5456.

AWS Classification	Chemical Composition (as percentages)									
	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	Al
ER4043	4.5 – 6.0	0.80	0.30	0.05	0.05		0.10	0.20	0.15	Rem
ER5356	0.25	0.50	0.10	0.05 – 0.20	4.5 – 5.5	0.05 – 0.20	0.10	0.06 – 0.20	0.15	Rem

Note: Single values shown are maximum percentages, unless otherwise specified.

Spools

AWS Classification	Size (inch)	Part No.		
		1 lb. Spool	12 lb. Spool	15 lb. Spool
ER4043	.030	4043-030-1	4043-030-12	
	.035	4043-035-1		4043-035-15
	3/64	4043-364-1		4043-364-15
	1/16			4043-116-15
ER5356	.030	5356-030-1		
	.035	5356-035-1		5356-035-15
	3/64	5356-364-1		1556-364-15

Cut Lengths

AWS Classification	Size (inch)	Part No.
		5 lb. Tube
ER4043	1/16	4043-116-36
	3/32	4043-332-36
	1/8	4043-18-36
ER5356	1/16	5356-116-36
	3/32	5356-332-36
	1/8	5356-18-36

Helpful Hint

An increase in wire feed speed will increase your amperage.

TIG Wire and Rod ER70S2

This is a premium TIG wire for welding on all grades of mild and carbon steels, producing quality welds with minimal porosity. It contains 5 deoxidizers (Manganese, Silicon, Zirconium, Titanium and Aluminum) which make it an excellent choice for welding over rust and mill scale. No flux required. This product is embossed on both ends for easy identification.

ER70S6

This is a mild steel welding wire that contains higher levels of manganese and silicon than other standard grades of MIG wire to produce high quality welds when used on dirty, oily or rusty steel. A higher silicon content increases the fluidity of the weld pool, creating a smoother bead resulting in minimal post-weld grinding. This wire is engineered to provide porosity-free, x-ray quality welds at the highest tensile strength (as welded) of all the plain carbon steel wires.

Note: This product requires the use of CO₂ as a shielding gas.

AWS Classification	Size (inch)	Part No.
		10 lb. Tube/30 lb. Box
ER70S-2	1/16	S2-116-36
	3/32	S2-332-36
	1/8	S2-18-36
ER70S-6	1/16	S6-116-36
	3/32	S6-332-36
	1/8	S6-18-36

Gas Welding Rods RG45

This is a copper coated, iron based low alloy steel rod, predominately used for torch welding mild steel alloys. This alloy offers very good machinability and ductility for ordinary purposes, where a minimum tensile strength is often used for gas fusion welding of plate, sheet, structural shapes, pipe and castings.

RG60

This is a steel rod used for torch welding of various carbon steels. These rods consistently produce medium to high quality welds.

Silicon Bronze

A copper alloy, suitable for welding copper and other copper alloys, and for many sheet metal applications employing plain and galvanized steel. Melting point 1866°F.

Low Fuming Bronze

A low-fuming oxy-acetylene brazing rod extensively used for joining of steels and overlaying of cast iron. The fuming qualities and good mechanical properties make this a widely used general purpose rod. Melting point 1620°F.

AWS Classification/ Description	Chemical Composition (as percentages)									
	C	Cu	Zn	Sn	Mn	Fe	Si	P	Al	Pb
RG45	0.08	0.30		0.04	0.50	Rem	0.10	0.035	0.02	
RG60	0.16	0.30		0.35	0.90 - 1.40	Rem	0.10 - 0.35	0.035		
Silicon Bronze Bare		94.0 min.	1.50	1.50	1.50	0.05	2.8 - 4.0		0.01	0.02
Low Fuming Bronze Bare		56.60	Bal	0.80 - 1.10	0.01 - 0.50	0.25 - 1.20	0.04 - 0.15		0.01	0.05
Low Fuming Bronze Flux Coated		56.60	Bal	0.80 - 1.10	0.01 - 0.50	0.25 - 1.20	0.04 - 0.15		0.01	0.05

AWS Classification	Size (inch)	Part No.	
		50 lb. Box	5 lb. Tube
R45 (RG45)	1/16	45-116-36	
	3/32	45-332-36	45-332-36-5
	1/8	45-18-36	45-18-36-5
	5/32	45-532-36	
	3/16	45-316-36	
R60 (RG60)	1/16	60-116-36	
	3/32	60-332-36	
	1/8	60-18-36	
	5/32	60-532-36	
	3/16	60-316-36	

Description	Size (inch)	Part No.
		10 lb. Tube 40 lb. Box
Silicon Bronze	1/16	656-116-36
	3/32	656-332-36
	1/8	656-18-36
		10 lb. Box
Low Fuming Bronze Bare	1/16	681-116-36
	3/32	681-332-36
	1/8	681-18-36
	5/32	681-532-36
	3/16	681-316-36
		10 lb. Tube 50 lb. Box
Low Fuming Bronze (Flux Coated)	1/16	
	1/8	681C-18-36
	3/32	681C-332-36

Stainless Steel Wire / Flux Cored Wire

Stainless Steel Solid Wires

308L

308L contains an average .03% carbon, producing a weld deposit with good resistance against intergranular corrosion caused by carbide precipitation. 308L is commonly used for welding AISI types 304L, 308L, 321, and 347.

308LSi

308LSi has a higher silicon content along with a low carbon content. The increased silicon level provides better arc stability and a smoother bead appearance while an average .03% carbon level reduces carbide precipitation. 308LSi produces excellent quality fillet and butt welds. Typical applications would include those of 308 and 308L welding wires.

309L

309L contains an average .03% carbon to provide a weld deposit that will offer good resistance against intergranular corrosion caused by carbide precipitation. 309L is excellent for buttering passes and overlay work. Typical applications include those of 309 welding wire.

316L

316L is used for welding AISI 316L stainless that may be exposed to organic and inorganic acids. The addition of .03% carbon produces a weld deposit with excellent resistance against intergranular corrosion caused by carbide precipitation.

316LSi

316LSi has a higher silicon content along with a low carbon content, producing better arc stability, smoother bead appearance and excellent resistance to carbide precipitation. 316LSi is used for welding austenitic acid-resistant steels such as those containing 18% Cr, 8% Ni, 2-3% Mo.

AWS Classification	Chemical Composition (as percentages)									
	C	Cr	Ni	Mo	Mn	Si	P	S	Fe	Cu
ER308L	0.03	19.5 - 22.0	9.0 - 11.0	0.75	1.0 - 2.5	0.30 - 0.65	0.03	0.03	Rem	0.75
ER308LSi	0.03	19.5 - 22.0	9.0 - 11.0	0.75	1.0 - 2.5	0.65 - 1.00	0.03	0.03	Rem	0.75
ER309L	0.03	23.0 - 25.0	12.0 - 14.0	0.75	1.0 - 2.5	0.30 - 0.65	0.03	0.03	Rem	0.75
ER316L	0.03	18.0 - 20.0	11.0 - 14.0	2.0 - 3.0	1.0 - 2.5	0.30 - 0.65	0.03	0.03	Rem	0.75
ER316LSi	0.03	18.0 - 20.0	11.0 - 14.0	2.0 - 3.0	1.0 - 2.5	0.65 - 1.00	0.03	0.03	Rem	0.75

Single values shown are maximum percentages, unless otherwise specified.

Spools

AWS Classification	Size (inch)	Part No.		
		2 lb. Spool	10 lb. Spool	30 lb. Spool
ER308L	.023		308L-023-10	
	.030	308L-030-2	308L-030-10	308L-030-30
	.035	308L-035-2	308L-035-10	308L-035-30
	.045			308L-045-30
ER308LSi	.030			308LHS-030-30
	.035			
ER309L	.023		309L-023-10	
	.030		309L-030-10	
	.035			309L-035-30
	.045			309L-045-30
ER316L	.023		316L-023-10	
	.030		316L-030-10	
	.035		316L-035-10	316L-035-30
	.045			316L-045-30

Cut Lengths

AWS Classification	Size (inch)	Part No.	
		10 lb. TB/40 lb. Box	1 lb. TB
ER308L	1/16	308L-116-36	308L-116-36-1
	3/32	308L-332-36	308L-332-36-1
	1/8	308L-18-36	
ER309L	1/16	309L-116-36	
	3/32	309L-332-36	
	1/8	309L-18-36	
ER316L	1/16	316L-116-36	
	3/32	316L-332-36	
	1/8	316L-18-36	

Stainless Steel Rods are 36" cut lengths/10 lbs. per box; 30 lbs. per master.

Self-Shielded Flux Cored Wires

This flux cored wire is for single pass welding of mild and low alloy steels in all positions. Travel speed is rapid and weld edges are smooth.



AWS Classification	Size (inch)	Part No.		
		2 lb. Spool	10 lb. Spool	25 lb. Spool
E71T-GS	.030	71-030-2	71-030-10	
	.035	71-035-2	71-035-10	71-035-25
	.045	71-045-2	71-045-10	71-045-25

Packaged Stick Electrodes

E6011

Steel electrode offering excellent mechanical properties in the welding of mild steels, galvanized, and some low alloy steels. The coating produces a forceful, spray-type arc, resulting in deeply penetrating welds in all positions. The slag is thin and readily removable. Operates on AC or DCEP.

E6013

Establishes a smooth, quiet, medium penetrating arc that is readily maintained with minimal spatter loss. The slag lifts easily, revealing a finely rippled bead contour. This quick freezing slag gives optimum performance in vertical-down welding. E6013 is ideally suited for general purpose welding, even with small AC and power sources having low open-circuit voltage. Works well on AC and DC.

E7014

Has an iron powder covering. The iron powder content yields a high deposition rate in all positions. The welds reflect smooth beads with fine ripples. E7014 is particularly advantageous when poor fit-up exists. The slag is easily removed, often self lifting. E7014 operates on AC, DCEN or DCEP.

E7018

Is an efficient, all position, iron powder, low hydrogen type electrode which exhibits excellent mechanical properties, crack resistance, and X-ray quality welds. This electrode offers a quiet, stable, low penetration, spatter-free arc. The moderately heavy slag is remarkably easy to remove, revealing a bead with distinct ripples. Operator appeal is a plus factor. Operates on AC or DCEP.

E7018AC

This low-hydrogen type welding electrode is a version of E7018 specifically designed to have optimum characteristics when used with an AC power source. It is very easy to strike and has an extremely stable arc giving it excellent operator appeal. It welds exceptionally well on small, utility-type welders.

E7024

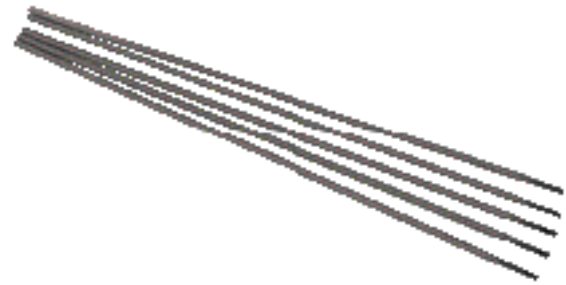
Is a high speed, iron powder, heavy coated electrode for high deposition rates on horizontal and down hand welding. Excellent bead appearance and self-cleaning slag give it operator appeal. This electrode has good weldability and superior mechanical properties and is particularly useful in obtaining increased penetration with little or no root porosity in horizontal or positioned fillets.

NI-55

Nickel iron electrode for repairing large defects in cast iron, joining sections over 1/4" thick. For welding modular, malleable and alloy cast irons; high-phosphorus castings.

NI-99

Nickel electrode for repairing small defects in cast iron, welding thin cast iron sections together or to steel. Machinability and color match excellent.



AWS Classification	Size (inch)	Part No.	
		1 lb. Box	5 lb. Box
E6011	3/32		6011-332-5
	1/8		6011-18-5
	5/32		6011-532-5
E6013	3/32		6013-332-5
	1/8		6013-18-5
	5/32		6013-532-5
E7014	3/32		7014-332-5
	1/8		7014-18-5
	5/32		7014-532-5
E7018	3/32		7018-332-5
	1/8		7018-18-5
	5/32		7018-532-5
E7018AC	3/32		7018AC-332-5
	1/8		7018AC-18-5
	5/32		7018AC-532-5
E7024	3/32		7024-332-5
	1/8		7024-18-5
	5/32		7024-532-5
NI-55	3/32	NI55-332-1	
ENiFeCl	1/8	NI55-18-1	
NI-99	3/32	NI99-332-1	
ENiCl	1/8	NI99-18-1	

Single values shown are maximum percentages, unless otherwise specified.

AWS Classification	Chemical Composition (as percentages)				
	C	Mn	Si	P	S
E6011	0.08	0.45	0.18	0.014	0.015
E6013	0.08	0.45	0.18	0.014	0.012
E7014	0.12	0.68	0.33	0.021	0.012
E7018	0.08	1.0	0.6	0.012	0.011
E7024	0.06	.81	0.43	0.018	0.019
E316L-16	0.04	0.5 - 2.5	0.90	0.04	0.03

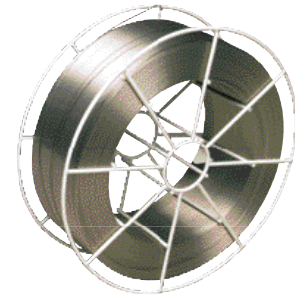
Alloys / Covered Electrodes

Alloys

Avesta Welding LLC offers you the broadest range of stainless steel welding consumables in the industry. They are the ideal choice for products used in extremely corrosive, high stress, and high temperature environments. The following is a list of available alloys.

Stainless Steel Alloys

- ER 308L Si
- ER 307 Si
- ER 316
- ER 308
- ER 308H
- ER 309L Mo
- 310L
- ER 309
- ER 308L
- ER 309L
- ER 309L Si
- ER317L
- ER 318
- ER 312
- ER 316
- ER 316H
- ER 316L Si
- ER 409
- ER 409 Cb
- ER 310
- ER 347
- ER 347 Si
- ER 385 (904L)
- ER 410
- ER 410 Ni Mo
- ER 420
- ER 318 Si



High Alloys - Corrosion Resistant

- ER NiCrMo-3
- ER NiCu-7
- ER Ni-1
- P 16
- P 100
- 253 MA
- 353 MA

Covered Electrodes

Avesta Welding manufactures a wide range of specialized alloys to meet stringent operating conditions. Avesta Welding LLC supplies covered electrodes for welding all of the more common ferritic, martensitic, duplex and austenitic stainless steels as well as nickel-based alloys. The product range also encompasses electrodes for dissimilar welds between, for example, stainless steel and mild steel, or stainless steel and nickel-based alloys. All electrodes are available manufactured to the requirements set forth by the nuclear power industry in ASME code section III and KTA 1408.

Alloy	Size				Applications
	3/32"	1/8"	5/32"	3/16"	
P 100*	59735	59736	59738		For welding SAF 2507® and similar type alloys.
P 16	59776	59777	59778		A nickel base electrode for welding Avesta Sheffield 654 SMO® also suitable for nickel-based C-type alloys.
253 MA	59664	59666	59667	59668	For welding Avesta Sheffield 253 MA, a high temperature alloy typically used for furnaces, combustion chambers, etc.
353 MA	60410	59669	59670		For welding Avesta Sheffield 353 MA, a high temperature alloy typically used in carburizing and nitriding atmospheres.

*Call or request special ordered items.

Stainless Steel, Duplex & Nickel Alloys

Avesta covered electrodes are manufactured in strict accordance to the relevant specification and in full compliance with ISO 9001:2000 Quality System requirements. On-going research and development insures that the product line evolves to meet the needs of today's changing technical requirements, while continuing to provide to the welder uncompromising ease of use.

Special Purpose

Special purpose electrodes allow you to choose the easy to use, versatile electrode best suited to your application, resulting in improvements in productivity, weld appearance, and overall costs.

VDX-AC/DC

Developed for vertical-down applications, these electrodes are well suited for welding thin gauge material and duct work, plus offer substantial cost savings over TIG welding. The high speed of welding they provide gives time and cost savings when welding root beads in vertical positions. They also allow carefully controlled penetration, thereby minimizing root grinding costs.

HX-AC/DC

A high recovery - high deposition rate electrode that reduces the risk of heat distortion, reduces changeover time and the number of passes required. Fewer starts and stops means fewer defects, lower re-work costs and greater production output.

3D

Avesta 3D electrodes have been specially developed for flexible welding in all common welding positions. 3D electrodes have extremely good weldability and give a stable arc. The slag and weld pool are both easy to control.



Alloy	Diameter (in.)					
	1/16	5/64	3/32	1/8	5/32	3/16
E 2209-15 Basic			59758	59760	59762	
E 2209-17 3D			64032	64033	64034	64035
E 308H-17 AC/DC	59639	59640	59642	59644	59646	59648
E 308L-15 Basic			59603	59604	59605	
E 308L-16			60745	60746	60747	64001
E 308L-17	60211	64007	64008	64009	64010	64011
E 308L-17 AC/DC	59621	59623	59784	59786	59788	59790
E 308L-17 2D					59609	59610
E 309-17 AC/DC			59635	59637	60245	59638
E 309L-15 Basic			59631	59632	59633	
E 309L-16			60751	60752	60753	64002
E 309L-17 3D	60218	64019	61909	61910	64017	64018
E 309MoL-17 3D		64028	64027	64029	64030	64031
E 309MoL-17 PW		59698	59700	59702	59703	
E 309MoL-17 VDX			59684	59718		
E 316L-16			60748	60749	60750	
E 316L-17 AC/DC		59675	59792	59794	59796	59798
E 316L-17 PW	59705	59707	59709	59711	59713	
E 316L-17 SKR 3D		64012	64013	64014	64015	64016
E 316L-17 VDX		59676	59694	59696		
E 347-MVNB 3D			64965	64966	64967	64968
E NiCrMo-12 (P12R)			59773	59774	59775	
APR MAINTENANCE			59769	59770		

Flux Cored Wire

Flux Cored Wire

Avesta flux cored wire is available in a wide selection of alloys. For use in flat and horizontal as well as all-position applications. Designed for use with 100% CO₂ or a 75% Argon 25% CO₂ shielding gas, they offer excellent economy in all applications. All alloys and sizes are formulated for flat and vertical up use with some out-of-position capability. Some alloys and sizes are also available in all position and high deposition (HD) formats which provide for even greater economies of use.



Part No.	Alloy	Description (Welding Position)	Diameter (in.)	Spool Weight (lbs.)	Applications
E308					
59526	E308TO-1	Flat & horizontal	.045	25	For welding austenitic stainless steel type 19 Cr10Ni and titanium and niobium stabilized steels like ASTM 321 and ASTM 347.
59498	E308LTO-1	Flat & horizontal	.035	10	
59501	E308LTO-1	Flat & horizontal	.035	25	
59527	E308LTO-1	Flat & horizontal	.045	25	
59486	E308LTO-1	Flat & horizontal	.063	25	
59528	E308LT1-1	All position	.045	25	
E309					
59502	E309LTO-1	Flat & horizontal	.035	25	High alloyed 23 Cr13Ni wire primarily intended for surfacing low alloyed steels and for dissimilar welding between mild steel and stainless steels.
59542	E309LTO-1	Flat & horizontal	.045	25	
59487	E309LTO-1	Flat & horizontal	.063	25	
59530	E309LT1-1	All position	.045	25	
59537	E309LMoTO-1	Flat & horizontal	.045	25	Molybdenum-alloyed wire for dissimilar joints between stainless steels and low-alloyed steels.
59491	E309LMoTO-1	Flat & horizontal	.063	25	
E316					
59532	E316TO-1	Flat & horizontal	.045	25	For welding austenitic stainless steel type 17 Cr12Ni 2.5 Mo and welding titanium and niobium stabilized steels such as ASTM 316Ti.
59503	E316LTO-1	Flat & horizontal	.035	25	
59533	E316LTO-1	Flat & horizontal	.045	25	
59488	E316LTO-1	Flat & horizontal	.063	25	
59534	E316LT1-1	All position	.045	25	
E317					
59504	E317LTO-1	Flat & horizontal	.035	25	For welding austenitic stainless steel type 18 Cr14Ni3Mo and similar.
59535	E317LTO-1	Flat & horizontal	.045	25	
59489	E317LTO-1	Flat & horizontal	.063	25	
E347					
59505	E347TO-4	Flat & horizontal	.035	25	Columbium stabilized alloy is generally used to weld AISI 321 and 347 materials.
59536	E347TO-4	Flat & horizontal	.045	25	
59490	E347TO-4	Flat & horizontal	.063	25	
E2209					
59524	E2209TO-1	Flat & horizontal	.045	25	For welding of ferritic-austenitic (duplex) stainless steels such as Outokumpu 2205 (ASTM S32205/S31803) and similar.
59525	E2209TO-1 PW	All position	.045	25	

GMAW MIG Wire, 10 lb.

Alloy	10 lb. Spool			
	.023"	.030"	.035"	.045"
308L	59184	59207	59224	59285
308LSI	59181	59196	59221	59283
309L			59225	59286
309LSI	59182	59197	59222	
310				
316L	59185	59201	59226	
316LSI	59183	59198	59223	59284

GMAW MIG Wire, 33 lb.

Alloy	33 lb. Spool			
	.023"	.030"	.035"	.045"
2209			59243	59300
308L		59207	59244	59302
308LSI	59186	59204	59240	59297
309L		59208	59245	59303
309LSI	59187	59205	59241	59298
310			59246	59304
316L		59209	59247	59305
316LSA	59188	59206	59242	59299

GTAW Wire - Cut Lengths

Alloy	36" x 10 lb.					
	.035"	.045"	1/16"	3/32"	1/8"	5/32"
2209			59403	59426	59446	59457
308L	59471	59478	59405	59428	59448	59458
309L		59479	59406	59429	59449	59459
316L	59472	59480	59409	59431	59451	59461
316LSI	59470	59477	59402	59425	59445	61163
347	59474	59481	59411	59433	59453	59463
385			59412	59434	59454	

Alloy	Silver %	Copper %	Zinc %	Nickel %	Tin %	Melting Range °F/°C		Specifications
						Solidus	Liquidus	
Safety-Silv® 30	30	38	32			1250 / 677	1410 / 766	BAg-20
Safety-Silv® 35	35	32	33			1250 / 677	1350 / 732	BAg-35
Safety-Silv® 45	45	30	25			1225 / 663	1370 / 743	BAg-5
Safety-Silv® 45T	45	27	25		3	1195 / 646	1265 / 685	BAg-36
Safety-Silv® 50	50	34	16			1270 / 688	1425 / 774	BAg-6
Safety-Silv® 50N	50	20	28	2		1220 / 660	1305 / 707	BAg-24
Safety-Silv® 56	56	22	17		5	1145 / 618	1205 / 652	BAg-7

Safety-Silv® 30

A moderate temperature filler metal with flow characteristics useful for wider gaps.



Safety-Silv® 35

A good selection for replacing the cadmium alloys. Safety Silv® 35 joints are strong, ductile and the brazing temperature is only slightly higher than cadmium-bearing 30% and 35% silver alloys.

Safety-Silv® 45

Excellent general-purpose brazing alloy. Often specified in government use. Good ductility and capillary flow. Color is silver to light yellow.

Safety-Silv® 50

Useful in brazing electrical connections and as a cadmium-free replacement for 50% silver alloys. It has a wide melting range suitable for bridging gaps where poor fit-ups are encountered.

Safety-Silv® 50N

This 50% silver alloy is a good replacement for the 3% nickel, cadmium alloy (AWS BAg3). It is especially helpful where low brazing temperature must be maintained. It can be used to braze tungsten carbide, stainless steel, as well as other steel, copper, and nickel alloys.

Safety-Silv® 56

High silver content alloy; makes premium-quality brazes. Free-flowing with unsurpassed capillary attraction and deep penetration. Ductility is high, and corrosion-resistance is suitable for all but strong chemical applications. Offers highest elongation of silver brazing alloys. Suitable for use in the food-processing industry. Silver color is excellent match for stainless steel and silverware applications. NSF Certified to NSF C2.

Alloy	Part No.	Mfg. No.	Packaging (Troy oz.)
Safety-Silv® 30	30350	30350	1/16 x 50
Safety-Silv® 35	74310	3531	1/16 x 1
	3533	3533	1/16 x 5
	74315	3535	1/16 x 5
	74317	35350	1/16 x 50
Safety-Silv® 45	76310	4531	1/16 x 1
	76313	4533	1/16 x 3
	76315	4535	1/16 x 5
	76316	45325H	1/16 x 25
	76317	45350H	1/16 x 50
	76217	45550H	3/32 x 50
Safety-Silv® 50	70310	5031	1/16 x 1
	70315	5035	1/16 x 5
Safety-Silv® 50N	80310	50N31	1/16 x 1
	80315	50N35	1/16 x 5
	80317	50N350	1/16 x 50
Safety-Silv® 56	75310	5631	1/16 x 1
	75313	5633	1/16 x 3
	75315	5635	1/16 x 5
	56350	56350	1/16 x 50
	75217	56550	3/32 x 50

Common Solders / Lead Free Solders



Part No. 10001

Alloy	Melting Range °F/°C		Specifications / Certifications
	Solidus	Liquidus	
40/60	360 / 182	460 / 238	ASTM B32 Sn40A
50/50	360 / 182	420 / 216	ASTM B32 Sn50, J-STD 006, Sn50Pb50A
60/40	360 / 182	375 / 191	ASTM B32 Sn60
95/5	452 / 233	464 / 240	ASTM B32 Sb5, J-STD 006, Sn95Sb05A
Stay-Brite®	430 / 221	430 / 221	ASTM B32, Sn96, J-STD 006, Sn96Ag04A
Stay-Brite® 8	430 / 221	535 / 279	NSF certified to NSF 51
Alsolder® 500	391 / 199	482 / 250	RoHS compliant
Bridgit®	460 / 238	630 / 332	ASTM B32, HB; NSF certified to ANSI / NSF 61
Al-Braze® 1070	1070 / 577	1080 / 582	ANSI/AWS A5,10 Class R4047, QQB-655, BAISI4

40/60, 50/50, 60/40

These tin/lead solders can be used, with some exceptions, to join copper and most copper alloys, lead, nickel alloys and steel. Tin/lead solders are not recommended for joints subject to high stress or vibration in the cooling industry due to lack of sufficient elongation properties. These solders may be available with rosin or acid core.

Note: It is illegal to use lead solders in both public and private potable water systems.

95/5

Tin/antimony solder well suited for applications where moderately elevated temperature is a factor. With higher electrical conductivity and high fluidity, 95/5 is recommended for lead free installations of small diameter, tight fitting connections. Not recommended for use on brass or HVAC connections.

Stay-Brite® and Stay-Brite® 8

Silver-bearing solders often used throughout the refrigeration/air conditioning industry instead of brazing alloys. Both Stay-Brite® and Stay-Brite® 8 produce an overall component with greater strength than a brazed component whose base metals are weakened by annealment from high brazing heat. Stay-Brite® solders bond with all of the ferrous and nonferrous alloys. Joints soldered with Stay-Brite® solders exhibit considerably higher than necessary elongation for sound, dissimilar metal joints and vibration applications. Stay-Brite® 8 is especially effective in filling loosely fitted couplings.

Alsolder® 500

Forms excellent, corrosion resistant joints on the tough to solder aluminum alloys. Joins all solderable aluminum alloys to each other and to dissimilar metals, both ferrous and nonferrous. Also beneficial as a high temperature solder on most other metals.

Bridgit®

Lead-free solder widely used in plumbing applications where lead-bearing solders are prohibited. Contains nickel, making joints tremendously strong. Wide plastic range makes Bridgit® an excellent alloy for large diameter fittings and ill-fitted or non-concentric pipes. Fills gaps and caps off easily and effectively.

Al-Braze® 1070

Superior brazing alloy for joining aluminum to aluminum. Not recommended for brazing aluminum directly to non-aluminum alloys, as the joint may be brittle. Al-Braze® is free flowing with excellent capillary attraction, ductility and penetration. Corrosion resistant.

Solder	Part No.	Mfg. No.	Description	Diameter	Spool
40/60	10035	406061	Solid wire	1/8	1 lb.
	10037	40A61	Acid core	1/8	1 lb.
	12100	40A65	Acid core	1/8	5 lbs.
	12237	40R61	Rosin core	1/8	1 lb.
50/50	10028	505061	Solid wire	1/8	1 lb.
	12001	505065	Solid wire	1/8	5 lbs.
	10051	50501B	1 lb. bar	N/A	Bar
	10038	50A61	Acid core	1/8	1 lb.
	12213	50R31	Rosin core	1/16	1 lb.
	12238	50R61	Rosin core	1/8	1 lb.
60/40	12023	604031	Solid wire	1/16	1 lb.
	10036	604061	Solid wire	1/8	1 lb.
	12221	60R31	Rosin core	1/16	1 lb.
	12239	60R61	Rosin core	1/8	1 lb.
	12218	60R51	Rosin core	3/32	1 lb.
95/5	12013	95531	Solid wire	1/16	1 lb.
	10030	95561	Solid wire	1/8	1 lb.
	95565	95565	Solid wire	1/8	5 lbs.
	12011	95551	Solid wire	3/32	1 lb.
Stay-Brite®	10001	SB61	Stay-Brite®	1/8	1 lb.
	10004	SB31	Stay-Brite®	1/16	1 lb.
	10009	SB861	Stay-Brite® 8	1/8	1 lb.
	10010	SB831	Stay-Brite® 8	1/16	1 lb.
	–	SBSKPOP	Stay-Brite®	3/64	KIT
Al-Braze®	10023	1070K	Aluminum brazing	1/16	KIT
Alsolder®	–	500K	Alsolder® 500	1/8	1 lb.
Bridgit®	16000	BRGT61	Stay-Safe Bridgit®	1/8	1 lb.

= National Sanitation Federation



Phosphorus Copper Brazing Alloys / Fluxes

These brazing filler metals are primarily used to braze copper to copper and copper to brass. The phosphorus content in these alloys makes them self-fluxing on copper. When brazing brass or copper to brass, use Stay-Silv® white brazing flux. These alloys are not recommended for brazing steel or other ferrous metals.

Alloy	Silver %	Phos %	Melting Range °F/°C		Fluidity Rating*	Specifications	Recommended Joint Clearance
			Solidus	Liquidus		AWS A5.8	
Harris O	0	7.1	1310 / 710	1475 / 802	5	BCuP-2	.002 / .007"
Blockade™	0	6.0	1178 / 637	1247 / 674	9	BCuP-9	.002 / .005"
Stay-Silv® 2	2	7.0	1190 / 643	1450 / 788	4	BCuP-6	.003 / .005"
Stay-Silv® 5	5	6.0	1190 / 643	1500 / 816	3	BCuP-3	.003 / .006"
Stay-Silv® 6	6	6.5	1190 / 643	1425 / 774	5		.002 / .005"
Dynaflow®	6	6.1	1190 / 643	1465 / 796	3		.003 / .006"
Stay-Silv® 15	15	5.0	1190 / 643	1480 / 804	3	BCuP-5	.002 / .006"

*The higher the fluidity rating, the faster the alloy flows within the melting range.

Harris O

Low-cost alloy for many copper-to-copper applications where good fit-up can be maintained and brazing temperature is not critical.

Blockade™

Phosphorus/copper brazing alloy available with silicon. Faster brazing—228°F lower than phos/copper 0. Highly visible fillet which provides instant, visual confirmation of a leak-free seal. Improved ductility over BCuP-2 (phos/copper 0) brazing alloys. Flux-coated—can join copper to brass and brass to brass in one easy step.

Stay-Silv® 5 and Stay-Silv® 6

Medium-range alloys; Stay-Silv® 5 is useful primarily where fit-up cannot be tightly controlled. Stay-Silv® 6 is slightly more fluid and can be used where closer tolerances are available. Both alloys are somewhat more ductile than Harris O.

Stay-Silv® 15

For many years, Stay-Silv® 15 has been the industry standard for air conditioning/refrigeration applications. Still widely used but now often replaced by Dynaflow® in many AC/R applications.

Dynaflow®

Premium, medium-range silver alloy, formulated to even tighter specifications than the Stay-Silv® alloys to mirror the performance characteristics of the 15% silver brazing filler metals. Excellent for brazing both tight and poorly-fitted connections, Dynaflow®'s proven reliability and acceptance by field service engineers has made it the leading choice of brazing operators.

Alloy	Part No.	Mfg. No.	Silver	Package
Harris O	20235	0620R1	0%	Round 1/8 - 14 stick tube
	21035	0620F1	0%	.050 x 1/8 - 28 stick tube
	22235	0520R1	0%	Round 3/32 - 24 stick tube
	23235	0320R1	0%	Round 1/16 - 51 stick tube
Blockade™	BK220R1			2 mm 20 stick tube
	BKFC2500R1			2 mm 20 stick tube (flux coated)
Stay-Silv®	40235	5620R1	5%	Round 1/8 - 14 stick tube
	41035	5620F1	5%	.050 x 1/8 - 28 stick tube
	51035	6620F1	6%	.050 x 1/8 - 28 stick tube
	60135	15620S1	15%	Square 1/8 - 11 stick tube
	60235	15620R1	15%	Round 1/8 - 14 stick tube
	61035	15620F1	15%	.050 x 1/8 - 28 stick tube
	61038	15620F	15%	.050 x 1/8 - bulk 25lb pkg.
	62135	15520S	15%	Square 3/32 - 20 - bulk only
Dynaflow®	66000	D620F1	6%	.050 x 1/8 - 28 stick tube

Stay-Clean®

Paste Soldering Flux: Excellent flux for joining copper to copper and copper to brass. Not recommended for electrical or electronic applications.

- Meets Commercial Spec. A-A-51145C

Liquid Soldering Flux: Liquid soldering flux for almost all metals other than aluminum, magnesium or titanium. Use with Stay-Brite® solders or practically any other solder with a liquidus temperature below 700°F. Not recommended for electrical or electronic applications.

- Meets Commercial Spec. A-A-51145C

Aluminum Flux: Use with Stay-Brite® solders or Alsold® 500 to join aluminum to aluminum and to most other metals, including stainless.

Stay-Silv®

White Brazing Flux: For use with silver brazing alloys on all metals other than aluminum, magnesium or titanium. Effective to 1600°F.

- Meets Fed. Spec. 0F499, Type B; AWS A5.31, Class FB3A; AMS 3410.

Black Brazing Flux: For use with silver or other brazing alloys with liquidus temperature below 1800°F. Recommended for stainless steel, heavy parts, and whenever heating cycle is prolonged. For all metals other than aluminum, magnesium or titanium.

- Meets AWS A5.31, Class FB3C; AMS 3411.

Fluxes	Part No.	Mfg. No.	Description
Stay-Clean®	40002	SCLF4	Liquid 4 oz. squeeze bottle
	40003	SCLF16	Liquid 16 oz.
	40004	SCLF32	Liquid 32 oz.
	40005	SCLF1G	Liquid 1 gal.
	40006	SCAF4	Alum Flux 4 oz. brush cap
	40027	SCPF4	Paste 4 oz. brush cap
	40028	SCPF1	Paste 1 lb. jar
Stay-Silv® White	40016	SSWF5	5 lb. jar
	40017	SSWF25	25 lb. pail
	40018	SSWF60	60 lb. pail
	40020	SSWF1/4	1/4 lb. jar
	40021	SSWF1/2	1/2 lb. jar
	40022	SSWF7	7 oz. brush cap
Stay-Silv® Black	40023	SSWF1	1 lb. jar
	40050	SSBF1/2	High Temp 1/2 lb. jar
	40051	SSBF1	High Temp 1 lb. jar
	40052	SSBF5	High Temp 5 lb. jar
	40053	SSBF30	High Temp 30 lb. pail

Coated Electrodes

Group 1: Build-up and Joining Alloys

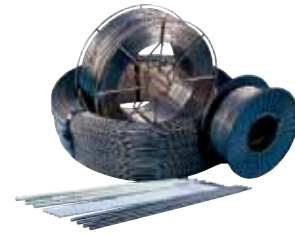
A. Build-up of Carbon Steels

Stoody® Build-up® LH Coated

A solid core electrode with a special low hydrogen coating to provide a high strength fusion bond on carbon and low alloy steels. As a base alloy for hard surfacing overlays, or for restoring parts to original dimensions, it provides a weld deposit with excellent compressive strength and ductility capable of absorbing heavy impact and/or compressive loads. Can be applied in multiple layers without cracking, spalling or mushrooming. It is machinable in the "as welded" condition with reasonable procedural care and can be forged at red heat. It is not recommended for manganese steel or cast iron and will work harden under high impact loads.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred) in stringer or weave beads. Preheat and slow cool prior to machining; carbide tools are recommended. Strongly magnetic on carbon and low alloy steel. The 5/32" electrode is an all-position electrode and the 3/16" is for flat position only. **NOTE:** Should not be used for joining.

Applications: Tractor Rollers, Steel Shovel Pads, Tractor and Shovel Idlers, Gear Teeth, Sprockets and Shafts.



Typical Chemical Composition:

- **Alloy Content - 4.5%** (Chromium, Molybdenum, Manganese, Silicon, Carbon)
- **Iron Base**

Typical Mechanical Properties:

Hardness:

1 Layer (weave beads) - Med. Carbon Steel	27 HRC
2 Layers (weave beads) - Med. Carbon Steel	29 HRC
3 Layers (weave beads) - Med. Carbon Steel	31 HRC

Tensile Strength.....118 KSI
Yield Strength.....113 KSI
Elongation.....6%

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11412900	5/32" (4.0 mm) x 14"	140-250	10
11413000	3/16" (4.8 mm) x 14"	180-310	10

B. Build-up and Joining of Manganese Steel

NICRO-MANG® Coated

NICRO-MANG® is an extruded electrode with excellent impact strength. It work hardens under impact. Deposits can be flame cut. NICRO-MANG® has a high deposition rate. Designed for build-up, and joining of manganese steels. No limit to deposit thickness. The 1/8" and 5/32" are for flat / horizontal position. The 3/16" size is only for flat position.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred). Use straight polarity for fastest deposition. Minimum spatter loss. Produces a thin, non-popping slag that is easily removed. Weave beads 2 - 3x electrode diameter are preferred. Deposits are non-magnetic and machinability is poor. Interpass temperature should not exceed 500° F maximum. Not recommended for build-up of carbon steel.

Applications: Dipper and Tooth Build-up, Crusher Rolls, Dredge Pump Parts, Rolling Mill Couplers, Rolling Mill Spindles, Crusher Jaws, Impact Breaker Bars, Hammer Mill, Shovel Pads, Railroad Frogs (Manganese).

Typical Chemical Composition:

- **Alloy Content - 23%** (Manganese, Chromium, Nickel, Carbon, Silicon)
- **Iron Base**

Typical Mechanical Properties:

Hardness:

2 Layers	200 BHN
Workhardened	500 BHN

Tensile Strength.....120 KSI
Yield Strength.....70 KSI
Elongation.....42%

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
45150810	1/8" (3.2 mm) x 14"	100-160	10
45151010	5/32" (4.0 mm) x 14"	140-200	10
45151210	3/16" (4.8 mm) x 14"	170-225	10

DYNAMANG® Coated

DYNAMANG® is a carbon steel core electrode with alloys in an extruded coating designed for build-up of austenitic manganese steel parts subject to high impact loading. This out of position electrode workhardens under impact without limitations to deposits thickness. Excellent weldability due to easy slag removal and minimum spatter loss.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred). Use straight polarity for fastest deposition. AC stability is excellent. Weave beads 2-3x electrode diameter are preferred. Deposits are non-magnetic and machinability is poor. Interpass temperature should not exceed 500° F maximum. Not recommended for build-up of carbon steel.

Applications: Earth Working Equipment, Bucket Lips, Crusher Jaws, Crusher Rolls, Gyratory Crushers.

Nominal Composition:

- **Alloy Content - 21%** (Manganese, Nickel, Chromium, Carbon, Silicon)
- **Iron Base**

Mechanical Properties:

Hardness:

1 Layer (weave bead) - Mang Steel	180 BHN
workhardens to	500 BHN
2 Layers (weave bead) - Mang Steel	200 BHN
workhardens to	500 BHN

Tensile strength.....120KSI
Yield strength.....70KSI
Elongation.....42%

Part No.	Dimensions - Diameter x Length	Amperage - AC/DC	Spool Size (lbs.)
11247300	5/32" (4.0 mm) x 14"	140-185	60 (bulk)
11247200	3/16" (4.8 mm) x 14"	175-230	10
11439600	1/8" (3.2 mm) x 14"	100-160	10

C. Build-up and Joining of both Manganese Steel and Carbon Steels

Stoody® 2110 Coated

Stoody® 2110 is a solid core extruded electrode with alloys in the coating designed for build-up of austenitic manganese steel parts subject to high impact loading without limitations to deposit thickness. It is a modified high chromium-high manganese steel that combines toughness and wear resistance.

Welding Procedures/Characteristics: Can be applied AC or DC, reverse polarity. Weldability is excellent with low spatter. Build-up is superior to other electrodes of this type. Use stringer or weave beads. Deposits are dense, porosity-free, extremely tough and workhardens rapidly. Cannot be flame cut; machinable with carbide tools, non-magnetic. Not recommended for cast iron.

Applications: Shovel Pads, Roll Crushers, Hammers, Shovel Teeth, Grate Bars, Carbon, Steel Frogs, Switch Points, Manganese Rail, Components.

VERSALLOY™ PLUS Coated

VERSALLOY™ PLUS is a modified austenitic stainless steel recommended for joining, rebuilding or cushion-overlaying on applications involving high strength, heat and corrosion resistance. It is frequently used to join metals in dissimilar applications involving stainless steels and low carbon steels.

Welding Procedures/Characteristics: Can be applied AC or DC, reverse polarity using a short to medium arc length. Apply in stringer or slight weave beads. Easy slag removal.

Applications: General purpose electrode used for joining stainless steels to other alloys; also a good cushioning layer for hardfacing.

Typical Chemical Composition:

- **Alloy Content - 31%** (Manganese, Chromium, Nickel, Carbon, Silicon)
Iron Base

Typical Mechanical Properties:

Hardness:

2 Layers - 1020 Steel.....	200 BHN
Workhardened.....	48-53 HRC
2 Layers - Mang. Steel.....	210 BHN
Workhardened.....	50-55 HRC
5 Layers - Mang. Steel.....	220 BHN
Workhardened.....	50-55 HRC
Tensile Strength.....	119 KSI
Yield Strength.....	76.4 KSI
Elongation.....	40%

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
11431300	1/8" (3.2 mm) x 14"	100-130	10
10202800	5/32" (4.0 mm) x 14"	125-190	10
10202900	3/16" (4.8 mm) x 14"	150-260	10
10203000	1/4" (6.4 mm) x 18"	240-325	10

Typical Chemical Composition:

- **Alloy Content - 40%** (Chromium, Nickel, Silicon, Manganese, Carbon)
- **Iron Base**

Typical Mechanical Properties:

Hardness:

As welded.....	230 BHN
Workhardened.....	340 BHN
Tensile Strength.....	116 KSI

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
11816900	1/8" (3.2mm) x 14"	70-125	10
11820700	5/32" (4.0 mm) x 14"	90-150	10

D. Build-up and Joining of Cast Irons

CASTWELD™ 55* (55% Nickel Type) Coated

CASTWELD™ 55 is for worn cast iron parts requiring build-up or joining. CASTWELD™ 55 has good strength and tolerance to the high phosphorus often found in cast irons. It is used as a general purpose rod especially when welding thick sections. CASTWELD™ 55 is also recommended for joining cast iron to dissimilar metals.

Welding Procedures/Characteristics: Must be applied with DC reverse polarity. When welding cast iron always clean the part, preheat and slow cool. Use stringer bead technique (limit weave width to 3 - 4x electrode diameter). It's preferable to run short (approx. 2") weld beads and to use a skip welding technique. Peen immediately after each weld. Short arc is recommended. Remove slag before restriking electrode on previous weld bead.

Applications: Joining or build-up on cast iron parts, i.e. Pump Housings, Engine Blocks, Assorted Castings.

*Nickel content percentage can vary slightly.

Typical Chemical Composition:

- **Nickel**
- **Iron**

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
11375000	3/32" (2.4mm) x 9"	40-80	5
11369500	1/8" (3.2 mm) x 14"	70-110	10

Build-up and Hardfacing Electrodes

CASTWELD™ 99* (99% Nickel Type) Coated

CASTWELD™ 99 makes a softer deposit than CASTWELD™ 55 and is preferred if machining of the deposit is required following welding of cast iron parts.

Welding Procedures/Characteristics: Must be applied with DC reverse polarity. When welding cast iron always clean the part, preheat and slow cool. Use stringer bead technique (limit weave width to 3 - 4x electrode diameter). It's preferable to run short (approx. 2") weld beads and to use a skip welding technique. Peen immediately after each weld. Short arc is recommended. Remove slag before restriking electrode on previous weld bead.

Applications: Repair of cast iron, particularly hairline cracks and casting defects.

Typical Chemical Composition:

- Nickel
- Iron

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
11375100	3/32" (2.4 mm) x 14"	40-80	5
11375200	1/8" (3.2 mm) x 14"	70-110	10

Group 2: Metal to Metal Wear

Low Alloy-Iron Based

Stoody® 1105 Coated

Stoody® 1105 is a solid core electrode with an extruded coating containing the alloying elements. It provides good weldability and a high deposition rate. It bonds readily to carbon and low alloy steels. Deposit properties are the same as those of Stoody® 105 wire.

Welding Procedures/Characteristics: Can be applied in stringer or weave beads. Runs well on DC, either polarity; highest deposition rate with DC straight polarity. Limit layers to four. Forgeable at red heat. Machinable with carbide tools. Not recommended for manganese steels or cast iron. Deposit is magnetic on carbon and low alloy steels.

Applications: Tractor Rollers, Tractor Idlers, Arch Wheels, Shovel Rollers and Idlers Sprockets, Drive Tumblers, Churn Drills, Charging Car Wheels, Wobblers, Coupling Boxes.

Typical Chemical Composition:

- Alloy Content - 5% (Chromium, Manganese, Silicon, Molybdenum, Vanadium, Carbon)
- Iron Base

Typical Mechanical Properties:

Hardness:
(1/2" weave beads - air cooled)
2 Layers - 1045 steel..... 38-42 HRC
For hot wear applications up to 600° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11345100	1/8" (3.2 mm) x 14"	80-150	10
11173800	5/32" (4.0 mm) x 14"	140-210	10
11173900	3/16" (4.8 mm) x 14"	165-250	10

Group 3: Metal to Earth for Moderate to Severe Impact and Moderate to Severe Abrasion

Stoody® Self-Hardening Coated

Stoody® Self-Hardening is a solid core electrode with an extruded coating containing the alloying elements. It is magnetic on carbon or low alloy steels.

Welding Procedures/Characteristics: Can be applied AC or DC, reverse polarity. Out of position characteristics are limited. Limit weave beads to 3/4" or use stringers. Maximum of three layers if a crack free deposit is desired. Can be applied to plain or alloy steels; magnetic on carbon or low alloy steels. Can be forged at red heat; not readily machinable.

Applications: Churn Drills, Trailer Hitch, Machine Components, Bearings, Sliding Metal Parts.

Typical Chemical Composition:

- Alloy Content - 12% (Chromium, Manganese, Silicon, Carbon)
- Iron Base

Typical Mechanical Properties:

Hardness:
All Weld Metal..... 52-58 HRC
2 Layers (weave beads) - Mild Steel..... 52-56 HRC
 Water-quenched from 1700° F..... 56-59 HRC
 Furnace-cooled from 1700° F..... 19-22 HRC
2 Layers (weave beads) - 1045 Steel..... 54-58 HRC
 Water-quenched from 1700° F..... 56-60 HRC
 Furnace-cooled from 1700° F..... 19-23 HRC

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
11172400	1/8" (3.2 mm) x 14"	110-150	10
11172500	5/32" (4.0 mm) x 14"	150-200	10

Stoody® 19 Coated

Stoody® 19 is a solid core electrode with an extruded coating containing the alloying elements. This electrode has excellent welder appeal. It bonds well with carbon or alloy steel including manganese.

Welding Procedures/Characteristics: Apply in weave beads using AC or DC, either polarity (reverse preferred). Limit to two layers. A severe water quench should be avoided. Easy slag removal with excellent 1/8" for flat or horizontal position, all other sizes for flat position only. Deposits are slightly magnetic on carbon and low alloy steels. Not machinable or forgeable. Deposits will develop cross checks.

Applications: Crusher Rolls, Dredge Pump Shells Impellers, Impact Breaker Bars, Scrapers.

Typical Chemical Composition:

- **Alloy Content - 26%** (Chromium, Carbon, Molybdenum, Manganese, Silicon)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
2 Layers - Mang. Steel..... 45-49 HRC
2 Layers - Med. Carbon..... 51-55 HRC

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11360000	1/8" (3.2 mm) x 14"	90-130	10
11356700	5/32" (4.0 mm) x 14"	120-160	10
11356800	3/16" (4.8 mm) x 14"	140-220	10
11356900	1/4" (6.4mm) x 18"	175-300	10

Stoody® 21 Coated

Stoody® 21 is a tubular electrode with a graphitic coating. It bonds well with cast iron, carbon or low alloy steel. It is slightly magnetic on carbon and low alloy steels, non magnetic on manganese. It has good impact and abrasion characteristics.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred). Limit to two layers. A severe water quench should be avoided. No slag interference. Limited to downward welding only. Deposits will cross check. Stringer beads recommended. Deposits are not machinable or forgeable.

Applications: Compactor, Buckets, Mill Hammers, Bucket Teeth, Dredge Pump.

Typical Chemical Composition:

- **Alloy Content - 23%** (Chromium, Carbon, Silicon, Manganese, Molybdenum)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
2 Layers - Mang. Steel..... 46-50 HRC
2 Layers - Med. Carbon..... 52-56 HRC

For hot wear applications up to 800° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11172700	1/8" (3.2 mm) x 14"	90-130	10
11172900	5/32" (4.0 mm) x 14"	120-160	10
11173000	3/16" (4.8 mm) x 14"	140-220	10
11173100	1/4" (6.4 mm) x 14"	175-300	50

Stoody® 31 Coated

Stoody® 31 is a tubular electrode containing the alloying elements and has an extruded coating. Welding characteristics are excellent. Deposits have a low coefficient of friction and provide good resistance to corrosion and heat. Can be applied to carbon alloy and manganese steels. It offers an outstanding balance of abrasion resistance and impact strength.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred) using either stringer beads or weave beads. 1/8" electrode is designed for flat / horizontal positions; all other sizes are flat position only. Complete slag coverage that is virtually self-removing. Deposits are not machinable or forgeable.

Applications: Bucket Arms, Chain Links, Rolling Mill Guides, Pulleys, Scrapers, Buckets, Blades.

Typical Chemical Composition:

- **Alloy Content - 34%** (Chromium, Molybdenum, Carbon, Silicon, Manganese)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
2 Layers - Mang. Steel..... 7-49 HRC
2 Layers - Carbon Steel..... 45-48 HRC

For hot wear applications up to 950° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
10206300	1/8" (3.2 mm) x 14"	100-120	10
10206400	5/32" (4.0 mm) x 14"	120-180	10
10206500	3/16" (4.8 mm) x 14"	170-240	10
10206600	1/4" (6.4 mm) x 18"	250-325	10

Stoody® 35 Coated

Stoody® 35 is a solid core electrode with a heavy extruded coating containing the alloy elements. Weldability is excellent with good out of position characteristics. Can be applied to carbon alloy and manganese steels.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred). Use straight polarity to increase deposition rate. Can be applied in stringer or weave beads. A two layer deposit should be made to assure proper chemistry for best wear results. Deposits are not machinable or forgeable.

Applications: Teeth, Screws, Tile Mixer Paddles, Crushing Equipment.

Typical Chemical Composition:

- **Alloy Content - 38%** (Chromium, Carbon, Silicon, Manganese)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
2 Layers - 1045 plate as welded..... 53-57 HRC
2 Layers (weave beads) - Mang. Steel..... 50-53 HRC
Deposits may workharden to..... 58-60 HRC

For hot wear applications up to 950° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11322900	1/8" (3.2 mm) x 14"	125-175	10
11318200	5/32" (4.0 mm) x 14"	175-250	10
11318300	3/16" (4.8 mm) x 14"	225-300	10
11318400	1/4" (6.4 mm) x 18"	275-350	10

Coated Electrodes

CTS

CTS is a tubular electrode containing granular alloying elements. It has a dipped graphitic coating. Because of its high manganese content, deposits offer good resistance to impact as well as abrasion resistance. It is an excellent choice for hardfacing on cast iron.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred) using either stringer beads or weave beads (wide beads preferred). Limit deposits to two layers. Recommended for downhand welding only. Can be applied to carbon, low alloy and austenitic manganese steels. Deposits are not machinable or forgeable.

Applications: Crushing Applications, Pug Mill Paddles, Sintering Mill Breakers/Bars, Cement Mill Die Rings, Railroad Tie Tamper Tips.

Typical Chemical Composition:

- **Alloy Content - 38%** (Chromium, Manganese, Carbon, Silicon, Molybdenum)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
2 Layers (weave beads) - Med. Carbon.....57-61 HRC
2 Layers (weave beads) - Mang. Steel.....47-51 HRC

For hot wear applications up to 900° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box Quantity
10207300	1/4" (6.4 mm) x 18"	275-350	60/box

Stoody® 2134 Coated

Stoody® 2134 is a tubular electrode containing granular alloying elements. The coating is graphitic. Exhibits excellent abrasion resistance in fine, sandy soils. Also, it is the best choice for high abrasion accompanied by high impact. It is a good choice for hardfacing on cast iron parts.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred). For AC applications welding machines with minimum of 70 volts OCV recommended. Limit deposits to two layers. Welds extremely well at low amperages. Recommended for downhand welding only. Weldability is very good when proper procedures are followed. Easy slag removal. For use on carbon, low alloy, and manganese steels. Deposits are not machinable or forgeable.

Applications: Crusher Rolls, Pit Scraper, Mill Hammers, Bucket Teeth, Impactor Bars (final pass).

Typical Chemical Composition:

- **Alloy Content - 36%** (Chromium, Carbon, Molybdenum, Manganese, Silicon)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
2 Layers (weave beads) - 1045 Plate
as welded.....56-60 HRC
Line-cooled from 117507.....48-51 HRC
Water-quenched from 1750° F.....63-65 HRC
2 Layers (weave beads) - Mang. Steel.....45-50 HRC
Deposits may workharden 5 to 6 points

For hot wear applications up to 950° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11276800	5/32" (4.0 mm) x 14"	100-155	10
11276700	3/16" (4.8 mm) x 14"	150-210	10
10208500	1/4" (6.4 mm) x 18"	180-300	60

Stoody® XHC Coated

XHC is a solid core electrode with an extruded graphitic coating containing the alloying elements. Deposits are highly resistant to both sliding and grinding abrasion. A very good choice for hardfacing on cast iron.

Welding Procedures/Characteristics: Can be AC or DC, either polarity (reverse preferred) using either stringer or weave beads (11" wide beads preferred). Limit deposits to two layers. Considerable cross checking is normal. Bonds well to manganese, carbon and alloy steels. In addition to its excellent weldability it has a very high deposition rate and good out of position characteristics. Deposits are not machinable or forgeable.

Applications: Grader Blades, Harrow Plows, Slurry Pipe.

Typical Chemical Composition:

- **Alloy Content - 35%** (Chromium, Carbon, Manganese, Silicon, Molybdenum)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
1 Layer (weave beads)
Med. Carbon Steel.....60-66 HRC
1 Layers (weave beads) - Mang. Steel.....50-55 HRC

For hot wear applications up to 1000° F

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC±)	Box (lbs.)
11383000	1/8" (3.2 mm) x 14"	100-150	10
11382700	5/32" (4.0 mm) x 14"	125-250	10
11382500	3/16" (4.8 mm) x 14"	150-300	10

Super 20 Coated

Super 20 is a solid core electrode with a heavy extruded coating containing the alloying elements. Its extremely good wear resistance is attributed to the addition of molybdenum, tungsten and chromium.

Welding Procedures/Characteristics: Can be applied DC reverse polarity. Weld with a short arc. Can be applied either as stringer or weave beads. Limit to one layer. Deposits will exhibit cross checking patterns normal for high alloys. At amperages above 150 (5/32" electrodes) Super 20 is designed for flat position only. Deposits are not machinable or forgeable.

Applications: Crusher Parts, Coke Pusher Shoes, Ash Fan Blade, Hot Slag Dipper Teeth, Spiral Conveyors, Pug Mill Paddles, Feed Mill Hammers, Sintering Plant Parts, Anhydrous Ammonia Plows.

Typical Chemical Composition:

- **Alloy Content - 39%** (Chromium, Molybdenum, Carbon, Tungsten, Silicon, Manganese)
- **Iron Base**

Typical Mechanical Properties:

Hardness:
1 Layer - Mang. Steel..... 58-63 HRC
1 Layer - Carbon Steel..... 60-65 HRC

For hot wear applications up to 1100° F.

Part No.	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
46520810	1/8" (3.2 mm) x 14"	70-160	10
46521010	5/32" (4.0 mm) x 14"	130-250	10
46521210	3/16" (4.8mm) x 14"	200-300	10

Group 4: Metal to Earth for Extreme Abrasion and Low Impact

AC-DC BOROD® Coated

BOROD® is similar to Tube Borium in all respects except particle mesh size, which is finer (40 down) to provide deposits resembling a fine grit sandpaper. Its deposit is heterogeneous consisting of tungsten carbide particles suspended in a tungsten steel matrix. BOROD® deposits generally provide slightly increased abrasion protection.

Welding Procedures/Characteristics: For AC-DC BOROD®, use minimum amperage to minimize dilution. Use AC or reverse polarity with DC current. Avoid multiple layers; use stringer beads. For hot wear application up to 900° F.

Applications: Log Grapplers, Concrete Pug Mill Paddles, Ash Plows, Ore Chutes, Sand Slinger Buckets.

Typical Chemical Composition:

- **Alloy Content - 60%** - Tungsten Carbide
- **Iron Base**

Part No.	Mesh	Dimensions (Diameter x Length)	AMP (AC, DC+)	Box (lbs.)
10234400	40-down	1/8" (3.2 mm) x 14"	80-100	10
10234600		5/32" (4.0 mm) x 14"	100-120	10
10234800		3/16" (4.8 mm) x 14"	120-150	10

Acetylene Tube Borium Bare

Bare Acetylene Tube Borium is manufactured by metering crushed tungsten carbide particles of controlled mesh size into steel tubes. Borium is available in a variety of particle sizes; fine mesh sizes increase wear resistance, coarse sizes improve cuffing efficiency. Borium deposits absorb more impact than the finer BOROD® overlays because more matrix is exposed.

Welding Procedures/Characteristics: For ATB, adjust excess acetylene flame 3x length of inner core. Use torch tip size larger than normally used to weld same diameter mild steel rod. Sweat deposits to parent metal with minimum dilution. Limit to one layer. Maximum working temperature is 900° F.

Applications: Plow Shares, Cane Knives, Teeth, Tool Drill Bits.

Typical Chemical Composition:

- **Alloy Content - 60%** - Tungsten Carbide
- **Iron Base**

Part No.	Mesh	Dimensions (Diameter x Length)	Box (lbs.)
10227100	30-40	1/8" (3.2 mm) x 14"	10
11429000	30-40	5/32" (4.0 mm) x 28"	10
10228100	30-40	3/16" (4.8 mm) x 14"	10

Tube Borium H Rod

Tube Borium S & H were developed for special applications. Percentage of tungsten carbide has been reduced in these products, making them more impact resistant allowing the material to be used in multiple layer applications.

Welding Procedures/Characteristics: Designed for multiple layers. Adjust excess acetylene flame 3x length of inner core. Use torch tip size larger than normally used to weld same diameter mild steel rod. Sweat deposits to parent metal with minimum dilution. For hot wear applications up to 900° F.

Applications: Churn Drills, Cable Tools, Rotary Drill Bits.

Typical Chemical Composition:

- **Alloy Content:** Tungsten Carbide H (40%)
- **Iron Base**

Part No.	Mesh	Dimensions (Diameter x Length)	Box (lbs.)
10240000	Special	5/32" (4.0 mm) x 18"	10
10240100	Mesh sizes	3/16" (4.8 mm) x 18"	10

Coated Electrodes and Bare Rods

VANCAR E Coated

VANCAR E deposits contain specially formulated vanadium tungsten carbide particles approximately equal to tungsten carbide in hardness but only half as heavy. VANCAR's advantage over tungsten carbide is that it can be applied in multiple layers and still retain its original hardness due to uniform distribution of the carbide particles. This provides wear rates that remain very uniform throughout the life of the deposit. VANCAR E is a fabricated electrode with a dipped coating.

Welding Procedures/Characteristics: For DC straight polarity application. Use lowest practical amperage that will assure a good bond to minimize dilution with the base metal. Use mid-range amperage for best possible coverage and best surface appearance. Can be applied up to three layers. For hot wear applications up to 900° F.

Applications: Farm Drill Points, Dry Cement Pump Screw, Drill Pipe Stabilizer Wings, Ammonia Injector Wings, Pug Mill Knives, Chisels.

Typical Chemical Composition:

- **Alloy Content - 37%** (Vanadium, Tungsten, Carbon, Silicon, Molybdenum, Manganese, Nickel)
- **Iron Base**

Part No.	Dimensions (Diameter x Length)	AMP (DC±)	Box (lbs.)
11327600	5/32" (4.0 mm) x 14"	80-130	10
11296500	3/16" (4.8 mm) x 14"	130-165	10

Group 5: Abrasion Accompanied by Corrosion and/or High Temperatures

STOODITE 6 Bare And Coated

The most generally used cobalt alloy, having excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range. Particular attributes are its outstanding self-mated anti-galling properties, high temperature hardness, and a high resistance to cavitation erosion, which result in its wide use as a valve seat material. The alloy is ideally suited to a variety of hardfacing processes. Machinable with carbide tools. Bonds well with weldable alloy steels, including stainless.

Welding Procedures/Characteristics: Weld DC reverse polarity. Use minimum amperage; apply weave bead 3/4" to 1-1/2" wide. For check-free deposits, preheat and slow cool. In applying bare rod, use a larger torch tip than is generally used for same diameter mild steel. Use excess acetylene feather 3x length of inner cone. With the gas tungsten arc process, use 100% Argon. Generally a 2 layer deposit.

Applications: Sintering Machine Seat, Covers, Flapper Gates, Valves and Seats, Coke Pusher Shoes, Cooling Bed Rolls, Hot Trimming Dies, Forging Die Blocks, Chain Saw Guide Bars, Blow Valves, Pulp Digester, Plastic Extrusion Screws. Can be certified to AWS specifications.

Typical Chemical Composition:

- **Alloy Content:** C 1.1, Cr 28, W 4
- **Cobalt Base**

Average Hardness, Rockwell C:

Tungsten Arc, Two Layer Deposit:.....40
Oxy Acetylene, One Layer Deposit:.....42
Shielded Metal Arc, Two Layer Deposit:.....39

Part No.	Coated Cast Rod	AMP (DC±)	lbs./box
10243100	5/32" (4.0 mm)	135-160	10
10242700	1/8" (3.2mm)	90-120	10
10243500	3/16" (4.8mm)	160-180	10

Stoodite 21 Bare and Coated

A low carbon, molybdenum strengthened cobalt-chromium alloy. Its excellent high temperature strength and stability are responsible for its use as a hot die material, while its inherent resistance to galling (under self-mated conditions), cavitation erosion, and corrosion have made it a popular fluid valve seat facing alloy. Certification to A5.21 ERCrCr-E (Bare) and A5.13 ECoCr-E (Coated).

Welding Procedures/Characteristics: Weld DC reverse polarity. Use minimum amperage; apply weave bead 3/4" to 1-1/2" wide. For check-free deposits, preheat and slow cool. In applying bare rod, use gas tungsten arc process with 100% Argon as the shielding gas. Can be machining. Bonds well with weldable alloy steels, including stainless.

Applications: Hot Forming Dies, Valves And Seats, Turbine Runners.

Typical Chemical Composition:

- **Alloy Content:** C 0.25, Cr 27, Mo 5, Ni 2.8
- **Cobalt Base**

Average Hardness, Rockwell C:

Tungsten Arc, Two Layer Deposit:.....24 (45 Workhardened)
Shielded Metal Arc, Two Layer Deposit:.....26 (45 Workhardened)

Part No.	Coated Cast Rod	AMP (DC±)	lbs./vac. pak.
812101205135	1/8" (3.2 mm)	90-120	10
812101205156	5/32" (4.0 mm)	135-160	10
812101205187	3/16" (4.8mm)	160-180	10
812101205250	1/4" (6.4 mm)	220-270	10

Group 1: Build-up and Joining Alloys

A. Build-up of Carbon Steels

Stoody® Build-Up

A low alloy fabricated wire that has excellent compressive strength and resistance to plastic deformation. This is an excellent alloy for use as an underbase for subsequent hardfacing. Several diameters are available for use both with and without shielding gases. This material has good machinability in the "as welded" condition using carbide tools. It is not recommended for manganese steel or cast iron and will workharden under impact.

Welding Procedures/Characteristics: Can be applied AC or DC, either polarity (reverse preferred) in either stringer or weave beads 1/2" to 3/4" wide. Slag removal is very good. This wire is not recommended for joining applications. Vertical welding can be done by welding a horizontal shelf approximately 2" wide and then going up.

Applications: Hammers, Wheels Burns, Repairing Battered Rail, Steel Mill Wobblers And Pods, Carbon Steel Shovel Pads, Shafting, Rolls, Pump Parts.

Nominal Composition:

- **Alloy Content - 4%** (Manganese, Chromium, Silicon, Molybdenum, Carbon)
- **Iron Base**

Mechanical Properties Typical Rockwell Hardness:

Base Metal	Layers	HRC
0.10% C	2	24-28
0.40% C	2	30-35
0.80% C	2	38-42

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11258300	1/16" (1.6 mm)	Open-arc or CO ₂	1/2"-3/4"	250-300	23-26	50 (polypak)
11183600	3/32" (2.4 mm)	Open-arc	1"-1-1/2"	150-500	26-29	60 (coil)
11000100	7/64" (2.8mm)	None	3/4" -1-1/4"	350-450	26-28	60 (coil)
11423800	0.045" (1.2mm)	98% Ar / 2% O ₂	1/2" - 3/4"	175-225	18-24	33 (Basket)

B. Build-up and Joining of Both Carbon and Manganese Steels

Stoody® 110

Stoody® 110 is a modified high chromium high manganese steel widely used in the rebuilding of manganese steel parts subject to severe impact loading. This material offers excellent cavitation resistance, good toughness and wear resistance, and it is sometimes used as the final hardfacing layer in extreme impact situations.

Welding Procedures/Characteristics: DC reverse polarity recommended, using either stringer or weave beads 1/2" to 3/4" wide. Deposits cannot be flame cut, are machinable with carbide tools, are non-magnetic and are not recommended for cast iron. The addition of CO₂ shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves the weldability.

Applications: Drive Tumblers, Shovel Pads, Shovel Teeth, Turbine Cone, Wobbler Feeder, Manganese Frogs, Crusher Rolls.

Nominal Composition:

- **Alloy Content - 35%** (Chromium, Manganese, Nickel, Silicon, Carbon)
- **Iron Base**

Mechanical Properties Typical Rockwell Hardness:

Tensile Strength.....	119 KSI
Yield Strength	76.4 KSI
Elongation in 2".....	40%
Hardness:	
All Weld Metal	17 BHN
Workhardened to	55 BHN

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11452600	.045" (1.2 mm)	98% Ar/2% O ₂ or 75% Ar/25% CO ₂	1/2"-3/4"	135-185	18-24	33
11345000	1/16" (1.6 mm)	Open-arc or CO ₂	1/2"-1"	150-210	22-26	50
110003000	7/64" (2.8mm)	None	1" - 1-1/2"	225-375	23-27	60 (coil)

Semi-Automatic Wires

CASTWELD Ni-55 O/G

Stoody® Castweld Ni 55-O wire is used on worn cast iron parts requiring joining or build-up. It has good tolerance for the high phosphorus often found in cast irons. It works well when welding thick sections, and is also recommended for joining cast iron to dissimilar metals.

Welding Procedures/Characteristics: Must be applied using DC reverse polarity (DCEP). When welding cast iron always grind clean the part, preheat and slow cool. Use string bead technique and make short, convex weld beads. Use of the 'skip welding' technique is preferred. Peen deposits immediately after welding. Remove slag before re-striking on the previous bead. Addition of CO₂ gas will reduce spatter and improves weldability. Can be applied in multiple layers. Composition of this one meets AWS A5.15 NiFeT3-CZ.

Applications: Joining, Build-Up and Repair of Cast Iron Parts, Engine Blocks and Heads, Cast Iron Universal Joints Welding to Steel Drive Shafts, Pump Housings, Assorted Castings.

Nominal Composition:

- Alloy Content - 59% (Carbon, Manganese, Nickel, Silicon)
- Iron Base

Typical Mechanical Properties:

Tensile Strength.....75 KSI
Yield Strength.....46 KSI

Deposit Characteristics:

Machinability.....Poor
Number of Deposit Layers.....Unlimited

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11895600	.45	None	1/2" - 5/8"	140-170	23-26	33 WB, LLW
11858700	1/16	Open-arc or CO ₂	5/8" - 3/4"	200-250	24-27	33 WB, LLW
11863300	3/32	Open-arc or CO ₂	3/4" - 1"	250-350	25-28	33 WB, LLW

*Nickel content percentage can vary slightly.

Group 2: Metal to Metal Wear (Low-Alloy Iron-Based)

Stoody® Super Build-Up

Stoody® Super Build-Up is used both as a build-up and hardfacing material because it has good compressive strength, hardness, and wear resistance. It is not intended to be used as an underbase for subsequent hardfacing. When a shielding gas is used, machinability is very good with carbide tools.

Welding Procedures/Characteristics: DC reverse polarity recommended, using either stringer or weave beads. Weldability is very good and can be applied out of position. The addition of CO₂ shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves the weldability. Multiple layers can be applied without difficulty when proper preheat and interpass temperatures are maintained.

Applications: Gear Teeth, Sprockets, Steel Shovel Pads, Overlaying Carbon Steel Shafts.

Nominal Composition:

- Alloy Content - 5% (Chromium, Manganese, Molybdenum, Silicon, Carbon)
- Iron Base

Mechanical Properties Typical Rockwell Hardness:

Base Metals.....0.20% C
Layers.....2
HRC.....35-40

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11426400	1/16" (1.6 mm)	Open-arc or CO ₂	1/2"-1"	140-260	23-26	50
11423600	0.045" (1.2mm)	98% Ar / 2% O ₂	1/2" - 3/4"	120-220	18-24	33 (basket)

Stoody® 105-G

Stoody® 105-G (GMAW) is a low alloy wire developed for the rebuilding of carbon and low alloy parts used in applications involving metal-to-metal wear. Requires carbide tools for machining. Good for hot wear application up to 600° F.

Welding Procedures/Characteristics: DC reverse polarity recommended, using either stringer or weave beads. Weldability is very good and can be applied out of position. The addition of CO₂ shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves the weldability. Multiple layers can be applied without difficulty when proper preheat and interpass temperatures are maintained.

Applications: Tractor Rollers, Undercarriage parts, Shovel Idlers and Rollers, Shovel House Rolls (Hook Rolls), Top Carrier Rolls, Crane Wheels, Mine Car Wheels.

Nominal Composition:

- Alloy Content - 7% (Chromium, Molybdenum, Silicon, Manganese, Carbon)
- Iron Base

Mechanical Properties Typical Rockwell Hardness:

Base Metals.....0.20% C
Layers.....2
HRC.....41-46

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11441100	1/16" (1.6 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	3/4" - 1"	250-300	25-26	50

Stoody® 102-G

Stoody® 102 has an all weld metal composition and physical properties that are very similar to those of H-12 tool steel. Good for hot wear application up to 1000° F. Has very good compressive strength and abrasion resistance. Requires carbide tools for machining.

Welding Procedures/Characteristics: DC reverse polarity recommended, using either stringer or weave beads. Weldability is very good and can be applied out of position. The addition of CO₂ shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves the weldability. Multiple layers can be applied without difficulty when proper preheat and interpass temperatures are maintained.

Applications: Cable Sheaves, Hot and Cold Shear Blades, Forging Dies, Drillpipe Hardbanding, Crane Wheels, Hot Work Extrusion Rolls.

Nominal Composition:

- **Alloy Content - 14%** (Chromium, Manganese, Molybdenum, Tungsten, Carbon, Vanadium)
- **Iron Base**

Mechanical Properties Typical Rockwell Hardness:

Base Metals.....0.20% C
Layers.....2
HRC.....48-53

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11422300	.045" (1.2 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	1/2" - 3/4"	135-185	18-24	33
11422000	1/16" (1.6mm)	98% Ar / 2% O ₂	1/2" - 1"	225-275	25-27	50 Poly Pak

Group 3: Metal to Earth for Moderate to Severe Impact and Moderate to Severe Abrasion

Stoody® 965-G (Gas Shielded) and 965-O (Open Arc)

Stoody® 965-G can be categorized as a general purpose hardfacing alloy that offers a good balance of impact and abrasion resistance. Analysis and properties are very similar to Stoody® self-hardening. Applications would include both metal-to-metal and metal-to-earth. Deposits are martensitic, forgeable, and are not readily machinable. Can be applied to carbon, low alloy and manganese steel.

Welding Procedures/Characteristics: DC reverse polarity recommended using either stringer or weave beads. Weldability is very good in flat and horizontal applications. The addition of CO₂ shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves the weldability.

Applications: Tillage Tools, Drag Line Bucket Lips, Tamper Feet, Chisel Plows, Dredge Parts, Extruded Screws, Muller Tires.

Nominal Composition:

- **Alloy Content - 10%** (Carbon, Manganese, Molybdenum, Silicon)
- **Iron Base**

Mechanical Properties Typical Rockwell Hardness:

Base Metals.....0.20% C
Layers.....2
HRC.....56-60

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11423000	.045" (1.2 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	1/2"-3/4"	150-200	25-29	10
11423100	.045" (1.2 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	1/2"-3/4"	150-200	25-29	33
11427000	1/16" (1.6 mm)	Open-arc or CO ₂	3/4" -1"	200-250	27-31	50
11427100	1/16" (1.6 mm)	Open-arc or CO ₂	3/4" -1"	200-250	27-31	33

Stoody® 965 AP-G

Stoody® 965 AP-G is a gas-shielded, flux cored, all position, general purpose hardfacing alloy which offers a good balance of impact and abrasion resistance. It can be used in both metal-to-metal and metal-to-earth applications. Deposits are forgeable but not readily machinable. Stoody 965 AP-G has a smooth semi-spray transfer and can be applied to carbon, low alloy, and manganese steels. It is magnetic on carbon and low alloy steels but not on manganese steels. Analysis and properties are similar to Stoody Self Hardening covered electrodes.

Welding Procedures/Characteristics: DC reverse polarity recommended using 75 Argon/25 CO₂ shielding gas, this wire has excellent out of position characteristics in the vertical, overhead and horizontal positions. It has a smooth semi-spray transfer and can be applied to carbon and low alloy steels.

Applications: Tillage Tools, Dredge Parts, Sliding Metal Parts, Tire Shredder Knives, Drag Line Bucket Lips, Extruder Screws, Tamper Feet, Churn Drills, Muller Tires.

Nominal Composition:

- **Alloy Content - 11%** (Carbon, Chromium, Manganese, Molybdenum, Silicon)
- **Iron Base**

Deposit Characteristics:

Abrasion Resistance..... Good
Impact Resistance..... Good
2 Layer Hardness.....57-62 HRC
Deposit Layers.....2 Normal, 3 Max.

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11807800	.045" (1.2 mm)	75% Ar/25% CO ₂	1/2"-3/4"	200-250	27-31	33
11808600	1/16" (1.6mm)	75% Ar / 25% CO ₂	1/2" - 3/4"	170-275	24-30	33

Semi-Automatic Wires

Stoody® 964-G (Patent Pending)

Stoody 964-G deposit is a specially formulated wear resistant alloy which produces a uniform distribution of small primary carbides in a martensitic matrix. The small carbides provide greatly improved wear resistance over martensitic steel, many tool steels, and some conventional chromium carbide alloys. 964-G possesses excellent resistance to impact and plastic deformation. Deposits are crack free on carbon 300 stainless and manganese steels. Other base metals should be preheated and post heated appropriately. The material is characterized by a high hardness and excellent wear resistance. 964-G is recommended for parts where cross checking is undesirable. 964-G offers improved weldability over chromium carbide and many other tool steel welding wires.

Applications: Slitter Blades, Auger Flights, Rendering Screws, Tamper Tools, Extruder Screws, Tamper Feet, Tillage Tools, Dredge parts, Drag Line Bucket Lips.

Alloy Type:

Small Primary Carbides in a Martensitic Matrix

Deposit Characteristics:

Abrasion Resistance.....Excellent
Hardness.....60-65 HRC
Impact Resistance.....Good
Deposit Layers.....2 Max
Surface Cross Checks.....None

Magnetic

on Stainless Steel.....Slightly
on Carbon Steel.....Yes
on Manganese Steel.....Yes

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11965300	.045" (1.2mm)	75/25Ar-CO ₂	1/2"-3/4"	125-230	18-22	33
11965800	1/16" (1.6mm)	75/25Ar-CO ₂	1/2"-3/4"	275-500	18-22	33

Stoody® 964 AP-G

Stoody 964 AP-G is a gas shielded, flux cored, all position, general purpose, hardfacing wire. The deposit is a specially formulated wear resistant alloy which produces a uniform distribution of small primary carbides in a martensitic matrix. The small carbides provide greatly improved wear resistance over martensitic steel, many tool steels, and some conventional chromium carbide alloys. 964 AP-G possesses excellent resistance to impact and plastic deformation. Deposits are crack free on carbon 300 stainless and manganese steels. Other base metals should be preheated and post heated appropriately. The material is characterized by a high hardness and excellent wear resistance. 964 AP-G is recommended for parts where cross checking is undesirable. 964 AP-G offers improved weldability over chromium carbide and many other tool steel welding wires.

Applications: Slitter Blades, Auger Flights, Rendering Screws, Tamper Tools, Extruder Screws, Tamper Feet, Tillage Tools, Dredge Parts, Drag Line Bucket Lips.

Nominal Composition:

Small Primary Carbides in a Martensitic Matrix

Deposit Characteristics:

Abrasion Resistance.....Excellent
Hardness HRC.....58-64
Impact Resistance.....Good
Deposit Layers.....2 Max
Surface Cross Checks.....None

Magnetic

on Stainless Steel.....Slightly
on Carbon Steel.....Yes
on Manganese Steel.....Yes

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11970600	.045" (1.2mm)	75Ar/25CO ₂	1/2"-3/4"	140-225	25-29	33
11983700	1/16" (1.6mm)	75Ar/25CO ₂	1/2"-3/4"	180-250	25-29	33

Stoody® 121-O (Open Arc) / Stoody 121-G (Gas Shielded)

Stoody® 121 gives a semi-austenitic matrix with uniformly dispersed chromium carbides and is recommended for applications where abrasion is severe and impact is only moderate. Provides excellent service on a wide variety of heavy equipment and earth engaging tools. Typically cross-checks when applied and is not machinable. Can be applied to carbon, low alloy and manganese steels.

Welding Procedures/Characteristics: DC reverse polarity recommends using either stringer or weave beads. The addition of CO₂, shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves the weldability. Limit deposits to 2 layers maximum in the downhand position only.

Applications: Scraper Sides, Scraper Cutters, Vibrator Ditcher Shank, Post Hole Augers, Pug Mill Paddles, Tamper Tools.

Nominal Composition:

- Alloy Content - 21% (Chromium, Carbon, Manganese, Silicon)
- Iron Base

Mechanical Properties Typical Rockwell Hardness:

Base Metal	Layers	HRC
.20%	1	40-43
.20%	2	48-50
Mang. Steel	1	40-44
Mang. Steel	2	47-51

On Carbon Steel or Low Alloy Steel: Slightly Magnetic

On Mang. Steel: Non-Magnetic Not Forgeable or Machinable

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11408300	1/16" (1.6 mm)	Open-arc or CO ₂	1/2" -1"	205-255	24-28	33
Stoody 121-G						
11423200	.045" (1.2 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	1/2"-3/4"	/175-200	22-26	33

Stoody® 101HC

Stoody® 101HC is a high chromium-iron alloy recommended for applications subject to severe abrasion and moderate impact and heat. Develops very tight cross checking pattern and is frequently used for applications involving severe metal-to-earth abrasion. Generally limited to 2 layers. Deposits are not machinable or forgeable and can be used in hot wear applications up to 900° F.

Welding Procedures/Characteristics: DC reverse polarity recommended using either stringer or weave beads. Can be applied to carbon, low alloy, and manganese steels. The small diameter (.045" and 1/16") wires can be run out of position using relatively fast travel speeds and no oscillation. The addition of CO₂ shielding gas with the 1/16" diameter wire reduces the amount of spatter and improves its weldability for out of position work.

Applications: Scraper Sides, Cutters, Blades, Ripper Shanks and Teeth, Shovel Bucket Tooth Adapters, Clam Shell Bucket, Bucket Sides and Lips, Tillage Tools, Augers and Auger Flights, Conveyor Screws.

Nominal Composition:

- **Alloy Content - 26%** (Chromium, Carbon, Manganese, Silicon)
- **Iron Bass**

Mechanical Properties Typical Rockwell Hardness:

Base Metal	Layers	HFIC
.20% C	1	55-58
.20% C	2	62-64

Hardness:

1 Pass on mild steel.....	55-64 HRC
2 Passes on mild steel.....	59-64 HRC

On Mild Steel:..... Slightly Magnetic

On Mang. Steel:..... Magnetic

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11874600	.045" (1.2 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	1/2"-3/4"	150-200	22-26	50
11304700	1/16 (1.6 mm)	Open-arc or CO ₂	1/2" -1"	200-260	24-28	33
11436300	.045" (1.2 mm)	98% Ar/2% O ₂ , or 75% Ar/25% CO ₂	1/2"-3/4"	150-200	22-26	33
11304800	1/16" (1.6 mm)	Open-arc or CO ₂	1/2" -1"	200-260	24-28	50
11891500	.045" (1.2mm)	98% Ar / 2% CO ₂	1/2"-3/4"	150-200	22-26	300 NTD drum

Stoody® 101HD

Stoody 101HD open arc wire is a higher carbon version of our 100HD. This alloy is ideal for hardface plate applications requiring higher alloy content in 1 or 2 layer deposits. 101HD is normally deposited on low carbon steel plate and used in severe abrasion applications. Deposits are not machinable or forgeable and can be used in hot wear applications up to 900°F.

Welding Procedures/Characteristics: DC reverse polarity (electrode positive) recommended using stringer or weave beads. Limit to 2 layers maximum. For stringer beads us 25-50% step over, for weave beads use 25-30% step over.

Applications: Wear Plate Manufacturing

Nominal Composition:

- **Alloy Content – 36.9%** (Chromium, Carbon, Manganese, Silicon)
- **Iron Base**

Mechanical Properties Typical Rockwell Hardness:

Hardness.....55-62 HRC

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11943400	1/16" (1.6 mm)	Open-arc	1/2"-1"	225-275	24-28	33 WB
11860100	7/64" (2.8 mm)	Open-arc	1"-1-1/2"	400-600	28-32	500 POP
11937000	1/8" (3.2 mm)	Open-arc	1"-1-1/2"	450-650	30-34	500 POP

Stoody® CP-2000

Stoody CP2000 is a specially formulated chromium carbide alloy designed to produce a high concentration of uniformly distributed small primary chromium carbides in an austenitic matrix. The formulation has been optimized to result in superior weldability for a broad range of single and multiple layer applications. The high concentration of small primary carbides greatly improves wear resistance and toughness over conventional chromium carbide alloys. It can be applied to carbon, low alloy and manganese steels. In special applications such as coal pulverizer rebuilding, it can be applied to cast irons. The deposits can not be machined or forged and can be used in hot wear applications up to 900°F.

Applications: ID pipe & elbow cladding, Hardface plate cladding, Gyratory mantles, Multiple layer hardface build up application on coal & cement pulverizer rools & grinding rings.

Nominal Composition:

Primary Chromium Carbides in an Austenitic Matrix

Deposit Characteristic:

Hardness..... 58-64 HRC

Impact Resistance..... Moderate

Surface Cross Check..... Yes

Machinability..... No

Magnetic

on Carbon Steel..... Slightly

on Manganese Steel..... No

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11907600	.045" (1.2 mm)	None	1/2"-3/4"	175-225	22-26	33 WB
11886500	1/16" (1.6 mm)	None	3/4"-1"	200-250	24-28	33 WB
11876600	5/64" (2.0 mm)	None	1-1/4"-1-1/2"	250-300	25-28	50 PP
11890000	7/64" (2.8 mm)	None	1-1/4"-1-1/2"	400-650	28-32	60 coil
11870400	7/64" (2.8 mm)	None	1-1/4"-1-1/2"	400-650	28-32	200 HP
11879800	7/64" (2.8 mm)	None	1-1/4"-1-1/2"	400-650	28-32	500 POP
11870500	1/8" (3.2 mm)	None	1-1/4"-1-1/2"	450-650	29-33	500 POP

Semi-Automatic Wires

Stoody® 600

Stoody 600 is an open arc wire which produces a titanium carbide bearing deposit. It has excellent abrasion resistance, yet maintains toughness for good impact resistance. Stoody 600 exhibits good operational characteristics and excellent slag removal when compared to other titanium carbide wires. It is particularly suited to high stress application such as cement clinker crusher rolls.

Welding Procedures/Characteristics: An open arc wire designed for DC reverse polarity. It can be applied in multiple layers to carbon and low alloy steel as well as manganese.

Applications: High Pressure Cement Rolls, Bucket Lips, Muller Tires, Hammer Crushers, Tillage Tools, Chisel Plows, Tamper Feet, Hard Banding

Nominal Composition:

- **Alloy Content – 19%** (Carbon, Manganese, Silicon, Chromium, Molybdenum, Titanium)

• **Iron Base**

Deposit Characteristic:

Abrasion Resistance.....Very Good
Impact Resistance.....High
Deposit Layers.....Up to 3
Hardness (3 layer)*.....50 HRC

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
19303000	.045" (1.2 mm)	None	1/2"-3/4"	150-225	22-26	33 WB
11934300	.045" (1.2 mm)	None	1/2"-3/4"	150-225	22-26	200 HP
11886600	1/16" (1.6 mm)	None	3/4"-1"	200-300	22-26	33 WB
11928000	1/16" (1.6 mm)	None	3/4"-1"	200-300	22-26	200 HP
11846000	3/32" (2.4 mm)	None	1-1/4"-1-1/2"	300-400	25-27	60 coil
11916600	3/32" (2.4 mm)	None	1-1/4"-1-1/2"	300-400	25-27	500 POP
11814400	7/64" (2.8 mm)	None	1-1/4"-1-1/2"	400-500	26-28	60 coil
11929400	7/64" (2.8 mm)	None	1-1/4"-1-1/2"	400-500	26-28	500 POP

Stoody® SA/SUPER 20

SA/SUPER 20 is a very highly alloyed chromium-tungsten-moly-iron wire used for service involving very severe abrasive conditions and hot wear up to 1100°F. The abrasion resistance of this alloy approaches that of a tungsten carbide deposits are not machinable or forgeable and develop a tight cross check pattern.

Welding Procedures/Characteristics: DC reverse polarity recommended using either stringer or weave beads. Can be applied to carbon, low alloy, and manganese steels. Recommended as a single layer wire and for flat welding only.

Applications: Shredder Wear parts, Ash Fans, Feed Mill Hammers, Pulverizers

Nominal Composition:

- **Alloy Content – 38%** (Chromium, Molybdenum, Carbon, Tungsten, Manganese, Silicon)

• **Iron Base**

Mechanical Properties Typical Rockwell Hardness:

Hardness:

1 Layer on mild steel.....60-65 HRC
1 Layer on Mang. steel.....58-63 HRC

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11456000	1/6" (1.6 mm)	None or CO ₂	1"-1-1/4"	200-250	24-28	33 WB
11896900	1/6" (1.6 mm)	None or CO ₂	1"-1-1/4"	200-250	24-28	50 PP
64750755	7/64" (2.8 mm)	None	1"-1-1/2"	350-500	26-30	60 coil

Stoody® 970-G (Patent Pending) Hardfacing Wire

Stoody 970-G is a non-chromium bearing hardfacing welding wire that provides a deposit with wear resistance and hardness equal to or better than that of a conventional chromium carbide deposit. With no chromium in the welding wire, the emission of hexavalent chromium during welding is reduced or completely eliminated, depending on the chromium content of the base metal or the pre-existing weld deposit. Stoody 970-G provides an overlay for applications where hexavalent chromium in welding fumes cannot be reduced effectively by work practice controls. Welding fume monitoring should be done to verify that the type and level of fume constituents are compliant with applicable federal, state and local requirements.

Welding Procedures/Characteristics: Apply using DCEP (reverse polarity). Limit to two layers.

Applications: Agriculture, quarrying, mining.

Typical Deposit Characteristics

Abrasion Resistance.....Excellent
Impact Resistance.....Low – Moderate
Deposit Layers.....2 Max.
Hardness.....HRC 67 – 71
Surface Cross Checks.....Yes
Machinability².....No, Grinding Only
Magnetic.....
 on Stainless Steel.....Slightly
 on Carbon Steel.....Yes
 on Manganese Steel.....Yes

Alloy Type

Small primary carbides in an iron base matrix.

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11994800	.045" (1.2 mm)	98/2 Ar-O ₂	1/2"-5/8"	150-250	19-22	33 WB
11994700	1/16" (1.6 mm)	98/2 Ar-O ₂	5/8"-3/4"	225-300	19-24	50 PP
11996200	1/16" (2.8 mm)					33 WB

Group 4: Metal to Earth for Extreme Abrasion and Low Impact

Stoody® 130

Stoody® 130 wire provides the ultimate wear resistance and the ability to cut earth formations because of the tungsten carbide particles contained in the wire.

Welding Procedures/Characteristics: To maximize the benefits of this open arc wire, the welding current should be kept to an absolute minimum. DC reverse (18-24 volts) polarity is recommended using stringer beads in a single layer; relief checks. Bonds readily to carbon and low alloy steels.

Applications: Scoop Lips and Teeth, Ripper, Muller Plows Augers, Pug Mill Knives, Chisel Plow, Ammonia Injectors, Auger Flights, Cultivator Chisels, Ditcher Teeth, Swing Hammers, Ensilage Knife, Raymond Mill Plows, Tillage Tools of All Types.

Nominal Composition:

- Alloy Content - 60% (Tungsten Carbide)
- Iron Base

Mechanical Properties Typical Rockwell Hardness:

Hardness of Borium
Particles9.9 on Moh's Scale

On carbon or low alloy steel: magnetic
Not recommended for Mang. steel.
Not forgeable or machinable.

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11413200	1/16" (1.6 mm)	Open-arc	1/2"	90-120	18-24	33

VANCAR

VANCAR deposits contain vanadium carbides. Vanadium carbide is close to the wear resistance of tungsten carbide, with superior impact resistance. A unique feature of this product is that the vanadium carbides dissolve and reform in the deposit.

Welding Procedures/Characteristics: An open arc wire for DC reverse polarity welding that can be applied in multiple layers.

Applications: Ripper Shanks and Teeth, Dozer End Bits, Auger Bits, Tiller Tines Dry Cement Pump Screw, Ammonia Injector, Pug Mill Knife, Cultivator Chisel

Nominal Composition:

Alloy Content – 29% (Vanadium, Tungsten, Carbon, Silicon, Manganese, Molybdenum, Nickel)

Iron Base

Mechanical Properties Typical Rockwell Hardness:

2400 (Carbide Hardness)
(KHN 100g)
Deposits are magnetic.
Deposits cannot be flame cut
Various Carbides .8.9-9.5 Moh's Scale

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11420300	1/16" (1.6 mm)	None or CO ₂	1/2"-3/4"	150-200	22-26	10 PS
11904300	1/16" (1.6 mm)	None or CO ₂	1/2"-3/4"	150-200	22-26	25 PS
11420200	1/16" (1.6 mm)	None or CO ₂	1/2"-3/4"	150-200	22-26	33 WB
11420100	1/16" (1.6 mm)	None or CO ₂	1/2"-3/4"	150-200	22-26	50 PP
11333700	3/32" (2.4 mm)	None	1"-1-1/4"	200-300	25-27	60 coil
11418500	1/8" (3.2 mm)	None	1-1/4"-1-1/2"	500-600	28-30	200 HP

Stoody® 160 DM

Stoody 160DM wire consists of a mixture of cast and macrocrystalline tungsten carbide particles in a nickel silicon boron matrix. This microstructure gives Stoody 160DM superior toughness, corrosion and excellent fine particle erosion resistance in slurry type applications. Micro constituents add to increased wear resistance.

Applications: Dredge rotary cutter heads, pipe ID & filtering screens, Drill bits & stabilizers

Deposit Characteristic:

Abrasion Resistance.....Excellent
Matrix Hardness Single Layer.....50-60 HRC
Matrix Hardness Two Layer.....50-60 HRC
Deposit Layers.....2 Maximum
Surface Cross Check.....Depends on application
Machinability.....No

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11966700	7/64" (2.8 mm)	None	5/8"-1"	275-325	17-20	50 PP

Semi-Automatic Wires

Group 5: Abrasion Accompanied by Corrosion and/or High Temperatures (Cobalt and Nickel)

Stoodite 6-M

Stoodite 6-M is the most widely used cobalt alloy having excellent resistance to many forms of mechanical and chemical degradation over a wide temperature range. Particular attributes are its outstanding self mated anti-galling properties, high temperature hardness and high resistance to cavitation erosion. Certification to AWS A5.21, Type ErCoCr-A.

Welding Procedures/Characteristics: A gas metal arc wire (DC reverse polarity) requiring proper preheat, controlled interpass temperatures and cooling rates. Special power supplies (i.e. pulsed arc, etc.) are used to reduce penetration and base metal dilution. Crack free deposits up to 2 layers.

Applications: Flights of Extrusion Screws, Sinkers Roll Bushings in Steel Mill, Soaking Pit Tong Bit, Shafts.

Nominal Composition:

- **Alloy Content - 96%** (Chromium, Tungsten, Iron, Carbon, Manganese, Silicon, Nickel, Molybdenum)
- **Cobalt Base**

Mechanical Properties Typical Rockwell Hardness:

1 Layer27-33 HIFIC
2 Layers36-39 HRC

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
810722182045	.045" (1.2 mm)	Argon	1/2"-5/8"	180-200	25-27	25
810722182062	1/16" (1.6mm)	Argon	5/8" - 3/4"	280-300	26-28	25

STOODITE 21-M

STOODITE 21 is a continuous alloy cored wire for GMAW applications with excellent high temperature strength making it suitable for use on hot die parts. The deposits are inherently resistant to galling, cavitation erosion, and corrosion. Abrasion resistance is lower than the other wires but its impact strength at high temperatures, anti-galling properties and corrosion resistance are outstanding.

Welding Procedures/Characteristics: A gas metal arc wire (DC reverse polarity) requiring proper preheat, interpass temperatures and controlled cooling to minimize or produce a crack free deposit.

Applications: Fluid Valve Seats, Tube Mill Piercing Plugs, Hot Shears, Erosion Shields, Forging Dies. Certification to AWS A5.21, Type ERCCoCr-E. Can be certified to AWS A5.21-2001 ErCoCr-E.

Nominal Composition:

- **Alloy Content - 96%** (Chromium, Molybdenum, Iron, Nickel, Manganese, Silicon, Carbon, Tungsten)
- **Cobalt Base**

Mechanical Properties Typical Rockwell Hardness:

1 Layer16-19 HRC
2 Layers22-26 HRC
Workhardened40-45 HRC

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
812122182045	.045" (1.2 mm)	Argon	1/2" - 5/8"	180-200	25-27	25
812122182062	1/16" (1.6 mm)	Argon	5/8" - 3/4"	280-300	26-28	25

Stoody® THERMACLAD 420

STOODY THERMACLAD 420 is a stainless steel submerged arc wire with very good abrasion resistance and good impact resistance. Deposits polish in service to reduce friction and minimize wear of a mating part. It is readily machinable. Check-free deposits can be made up to 3/4" thick.

Applications: Brake Drums, Coiler Rolls, Rams, Pinch Rolls, Packing Glands

Nominal Composition:

- **Alloy Content 14%** (Carbon, Chromium, Manganese, Silicon)
- **Iron Base**

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11827100	3/32" (2.4 mm)	Stoody R-20	1"-1-1/4"	300-400	26-28	100 Coil
11810400	3/32" (2.4 mm)	Stoody R-20	1"-1-1/4"	300-400	26-28	500 POP
11827200	1/8" (3.2 mm)	Stoody R-20	1-1/4"-1-1/2"	400-500	27-30	100 Coil
11832200	1/8" (3.2 mm)	Stoody R-20	1-1/4"-1-1/2"	400-500	27-30	500 POP
11873300	1/8" (3.2 mm)	Stoody R-20	1-1/4"-1-1/2"	400-500	27-30	750 POP
11832300	5/32" (4.0 mm)	Stoody R-20	1-1/4"-1-1/2"	450-600	29-32	500 POP

Stoody® BRILLIANT 2209 T-1 AP

Stoody AP stainless steel wires are designed for welding in all positions with either 100% CO₂ (X=1) or Argon/CO₂ (X=4) gas mixtures. These wires exhibit a spray like arc transfer, easy slag removal and can be welded within a wide range of parameters.

Stoody 2209T-1 AP wires can be used to weld duplex stainless steels which contain approximately 22% chromium. The composition is balanced to achieve a microstructure of approximately 50% ferrite and 50% austenite in the weld deposit. A5.22: 2010 E2209T1-X UNS W39239.

Typical Deposit Chemistry:

Carbon, Manganese, Silicon, Chromium, Nickel, Molybdenum, Nitrogen

Typical Deposit Characteristics:

Tensile Strength, Ksi (MPa).....122 (842)
Yield Strength, Ksi (Mpa).....101 (670)
Elongation (%).....27.5
Charpy Impact Toughness @ -40°F (-40°C).....33ft-lbs (20 Joules)

Part No.	Wire Diameter	Spool Size (lbs.)
11892000	.045" (1.2 mm)	33 WB, LLW
11892100	1/16" (1.6 mm)	33 WB, LLW

Wire Diameter .045" (1.2 mm)				
AMPS	130 ¹	165 ¹	190 ¹	220 ²
Volts	24	26	26	27
WFS in/min	227	315	445	565
m/min	(5.8)	(8.7)	(11.3)	(14.4)

Wire Diameter .045" (1.2 mm)				
AMPS	170 ¹	210 ¹	250 ¹	300 ²
Volts	25	26	27	28
WFS in/min	115	195	245	320
m/min	(3.9)	(4.9)	(6.2)	(8.2)

Notes:

Electrical stick-out 1/2"

¹ Flat and vertical welding

² Flat welding only

Stoody® 625-T1

Stoody 625-T1 is a gas shielded All Position Flux Cored Wire that meet the requirements of AWS A5.34: 2007 ISO: TNi 6625-11/-14 and AWS ENiCrMo3T1-1/-4.

Applications: Joining nickel-chromium-molybdenum alloys, Clad side of joints in steels clad with nickel-chromium-molybdenum weld metal, Surfacing steel with nickel-chromium-molybdenum weld metal, Joining steels to nickel based alloys, Joining 9% nickel steel for cryogenic applications.

Typical Deposit Chemistry:

Carbon, Manganese, Silicon, Chromium, Molybdenum, Iron*, Niobium, Sulfur, Phosphorus, Nickel

*For Iron <1%, please request Stoody 625LI-T1 (PDS SP-029)

Typical Deposit Characteristics:

Tensile Strength.....112 ksi (773 Mpa)
Yield Strength.....72 ksi (497 Mpa)
Elongation.....38 %

Part No.	Wire Diameter	Shielding Gas	Wire Ext.	AMPS	Volts	Spool Size (lbs.)
11872500	.045" (1.2 mm)	75% AR-25% CO ₂	1/2"	150-200	25-26	33 WB, LLW
11872400	1/16" (1.6 mm)	75% AR-25% CO ₂	1/2"	200-250	26-27	33 WB, LLW