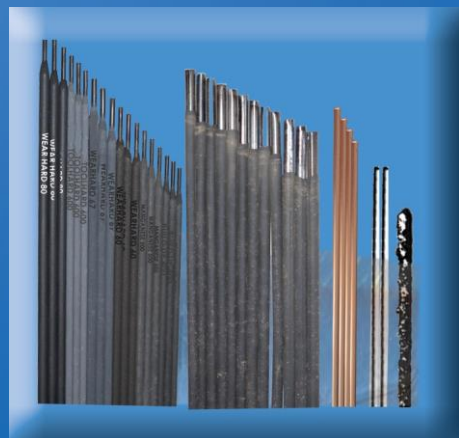
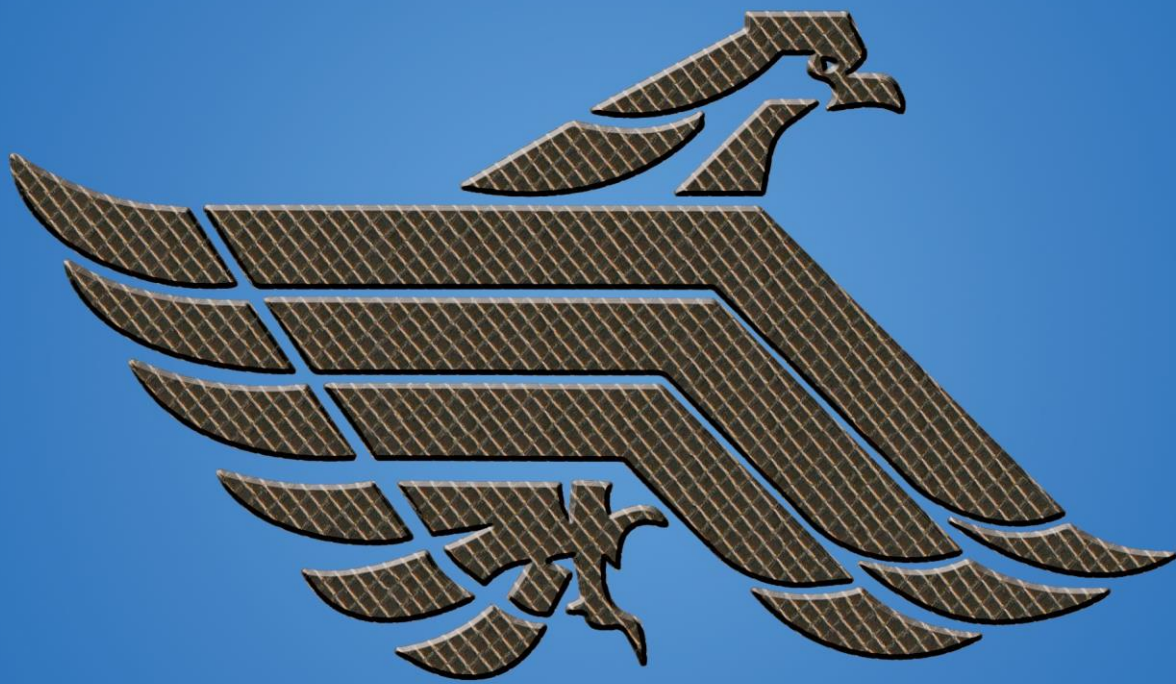


HARDFACING

RODS AND WIRES



Build-up and Hardsurfacing, Heavy Impact and Mild Abrasion

USA CRMN-O is our “general purpose” build-up and hardsurfacing wire. The weld deposit of USA 300 HT is a low alloy deposit with a martensitic structure. It is machinable and forgeable. A good balance of impact resistance and abrasion resistance as well as hardness make USA 300 HT an excellent choice where only one wire is desired for build-up and hardsurfacing. (Not to be used as an underlayment prior to subsequent hardfacing). Excellent for overlaying carbon steel shafts, gear teeth and sprockets.

Applications:

Overlaying carbon steel shafts, gear teeth, sprockets, steel shovel pads

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Molybdenum, Iron Base

Hardness (HRc)

As welded 58-62

Amperage settings

.045" (1.2mm) 150-250 Amps
1/16" (1.6mm) 250-350 Amps
DCEP (electrode positive)

Packaging:



Hardsurfacing Metal to Metal Abrasion and Mild Impact

USA 450 HT is designed for metal to metal abrasion involving impact such as rolling or sliding part in earth moving equipment where lubrication is not possible. The weld deposits of USA 450 HT are martensitic in structure. Common uses would include printing and paper mills rolls, power shovel tumblers, mine car wheels, brake drums, tractor rollers, etc.

Applications:

Mine car wheels, tractor rollers, undercarriage parts, shovel idlers, rollers and hook rolls

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Molybdenum, Iron Base

Hardness (HRc)

As welded 43-48

Amperage settings

.045" (1.2mm) 150-250 Amps
1/16" (1.6mm) 250-350 Amps
DCEP (electrode positive)

Packaging:



Hardsurfacing - Heavy Abrasion, Heavy Impact and Corrosion Resistant

USA 600 HT offers high abrasion and heavy impact resistance on carbon, low alloy and manganese steel. Weld deposits are martensitic and corrosion resistant. USA 600 HT is designed for metal to metal and metal to earth abrasion. Weld deposits will work hardened when put to service. Typical applications would include tillage tools, bucket lips, extruder screws, tamper feet, dredge cutter teeth and wherever high abrasion and heavy pounding is encountered.

Applications:

Extruder screws, bucket lips, tamper feet, tillage tools, dredge parts, ore drag lines, muller tires

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Molybdenum, Iron Base

Hardness (HRc)

As welded 53-56

Amperage settings

1/16" (1.6mm) 175-260

7/64" (3mm) 400-550

DCEP (electrode positive)

Packaging:



Hardsurfacing - Heavy Abrasion and Heavy Impact

USA 450 HT offers a harder weld deposit than USA 600 HT but lacks the corrosion resistance. Primarily used for high metal to metal abrasion. Weld deposits are martensitic in structure and will work harden put into service. Typical applications would include the hardsurfacing of rollers, conveyor screws, crusher rolls and mill hammers.

Applications:

Rollers, conveyor screws, crusher rolls, mill hammers

Carbon, Silicon, Manganese, Chromium, Iron Base

Hardness (HRc)

As welded 58-61

Amperage settings

1/16" (1.6mm) 175-260 Amps

7/64" (2.8mm) 400-550 Amps

DCEP (electrode positive)

Packaging:



USA MN-O

Severe Impact, Moderate Abrasion, Self-shielded
Rockwell C 20, Work Hardened 40-50

USA MN-O is a self-shielded wire which requires no external shielding gas. It has a microstructure composed of austenitic manganese designed for severe impact with moderate abrasion. MN-O work hardens under impact to form a very tough weld overlay. Deposit depth is generally unlimited with respect to multiple layers and does not crack. MN-O is primarily designed for build-up and repair of manganese steel components.

Applications:

Gyratory crusher mantles, impactor bars, rock crushing hammers, dredge components, etc.

Chemistry (all-weld metal analysis)

Carbon, Manganese, Silicon, Chromium, Iron

Hardness (HRc)

As welded 18-22
Work hardened 40-50

Amperage settings

1/16" (1.6mm) 00 Amps
7/64" (0.0mm) 00 Amps
DCEP (electrode positive)

Packaging:



USA CRMN-O

Good impact, improved abrasion, self-shielded
Rockwell C 24 (Work hardened 42-52)

USA CRMN-O is a premium grade austenitic manganese alloy with a modified high chromium level. CRMN-O is self-shielded requiring no external shielding gas. Weld deposit exhibits very good impact resistance with improved abrasive wear resistance over MN-O. Deposit work hardens under impact. Build-up is generally unlimited with no cracking.

Applications:

Manganese rock crushing hammers and rolls, impactor bars, Gyratory mantles, dredge components, etc.

Chemistry (all-weld metal analysis)

Carbon, manganese, Silicon, Chromium, Iron

Hardness (HRc)

As welded 18-24
Work Hardens 45-52

Amperage settings

1/16" (1.6mm) 175-260
7/64" (3mm) 400-550
DCEP (electrode positive)

Packaging:

22 lb spool, 60 lb coil, 250 & 500 lb drums



USA 55-G

Excellent Abrasion, modified H-12 tool steel
Rockwell C 55-60

USA 55-G is a gas shielded wire designed for use with mixed gas 75%Ar/25%CO₂. USA 55-G yields a martensitic deposit. It is a general purpose hardfacing wire with excellent abrasion resistance and high hardness without stress cracking in weld deposit. Typically used on components that are required to maintain a sharp edge.

Applications:

Debarking knives, agricultural tillage tools, chisel plows, earthmoving bucket lips and general hardfacing applications.

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Iron

Hardness (HRc)

As welded 55-60

Amperage settings

.045" (1.2mm) 80-240 Amps
1/16" (1.6mm) 175-260 Amps
DCEP (electrode positive)

Packaging:



USA CRCARB-O

High Abrasion, Moderate Impact
Rockwell C 58-62

USA CRCARB-O is designed to deposit an alloy composed of a high density of primary chromium carbides in a semi-austenitic iron matrix. It is considered the most economical of hardfacing alloys in high wear applications. Deposit has high abrasion resistance with moderate impact resistance. Can be applied in multiple layers depending on application. Weld deposit will stress relieve itself by crack checking. Can be used in applications up to 1,100 F. Wire is designed for self-shielded welding but additional 100% CO₂ gas shield may be used.

Applications:

Grinding rolls, overlaid wear plate, clad pipe, dredge pump components, rock crushing hammers

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Iron

Hardness (HRc)

As welded 58-62

Amperage settings

.045" (1.2mm) 80-240 Amps 7/64" (2.8mm) 400-550 Amps
1/16" (1.6mm) 175-260 Amps 1/8" (3.2mm) 260-400 Amps
DCEP (electrode positive)

Packaging:



USA COMCARB-O

High Abrasion, moderate Impact, self-shielded
Rockwell C 60-63

USA COMCARB-O is a self-shielded wire designed to yield a deposit of primary chromium carbides and secondary columbium carbides in semi-austenitic matrix. Weld deposit has high abrasion resistance with moderate impact. Typically, wear life increases of 30% can be seen over standard chrome-carbide alloys. Deposits stress relieve crack checks and is designed for single and double pass overlays. Maintains hardness and wear resistance up to 1,200- 1,400 F.

Applications:

Clad wear plate, grinding rolls and table segments, clad slurry line pipe, aggregate screens, fan blades, etc.

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Columbium, Iron

Hardness (HRc)

As welded 60-43

Amperage settings

1/16" (1.6mm) 175-260 Amps
7/64" (2.8mm) 400-550 Amps
DCEP (electrode positive)

Packaging:



USA Alloy No. 6-G

High Temp, High abrasion, Metal to Metal
Rockwell C 40-42

USA 6-G is a Cobalt-based alloy designed for use with gas shielding (100%Ar, 98%Ar/2%O or Tri-mix gases) and maintains its hardness/wear resistance at elevated temperatures. Excellent resistance to erosion and corrosion resistance in acidic environments. Very good metal to metal wear resistance. Machine-ability is good with proper tooling. Alloy can be deposited crack-free with proper heat treatment procedures.

Applications:

Valve seats, valve gates, shear blades, forging dies, galvanizing tank cladding.

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium, Tungsten, Cobalt

Hardness (HRc)

As welded 40-42

Amperage settings

.045" (1.2mm) 80-240 Amps
1/16" (1.6mm) 175-260 Amps
DCEP (electrode positive)

Packaging:



USA Alloy No. 21-G

High Temp, High abrasion, Metal to Metal
Rockwell C 28-32 (work hardens to 40-45)

USA 21-G is a Cobalt-based alloy designed for use with gas shielding (100%Ar, 98%Ar/2%O or Tri- mix gases). The alloy work-hardens in service, and maintains good hardness and wear resistance at elevated temperatures. This alloy is also very good in erosion and corrosion environments.

Deposit is
machinable.

Applications:

Hot forging dies, extrusion dies, valves and valve seats, shears, etc.

Chemistry (all-weld metal analysis)

Carbon, Silicon, Manganese, Chromium,
Molybdenum, Nickel, Cobalt

Hardness (HRc)

As Welded 28-32
Work Hardend 40-45

Amperage settings

.045" (1.2mm) 80-240 Amps
1/16" (1.6mm) 175-260 Amps
DCEP (electrode
positive)

Packaging:

33 lb spool, 60 lb coil

WASHINGTON ALLOYS HARDFACING WIRE COMPARISON CHART

Washington Alloys	Hobart/Mckay	Stoody	Lincoln	Welding Alloys
MN-O	218-O	Dynamang	Lincore M	NM-O
	BU-O	104	30-O	T-O
	258-O	102	102	WLC-O
55-G	960	965	55	L-G
	240	121	-	MC-O
CRCARB-O	255	100HC/101HC	60-O	HC-O
COMCARB-O	43-O	143	-	CN-O
	45-O	145	-	CNV-O
Cobalt Alloy No. 6	Tuballoy 6-G	Stoodite 6M	-	Stelloy 6-G
Cobalt Alloy No. 21	Tuballoy 21-G	Stoodite 21M	-	Stelloy 21-G