

Hardfacing Wires

Tube-Alloy® Build Up-O

Tube-Alloy® Build Up-O deposit is a low alloy steel. It is designed for build-up on mild and low alloy steels only. The weld metals have good compressive strength and impact resistance, making it an excellent base for more abrasion-resistant alloys. The deposit has excellent resistance to cracking, even in multiple layers, and is within the machinable range.

Typical Applications

- bucket teeth & lips
- crane wheels
- dragline buckets
- dragline chain
- dredge ladder rolls
- gear teeth
- kiln trunnion
- mine car wheels
- spindles
- steel shafts
- wobbler ends

Typical Deposit Analysis %

Carbon0.12
 Manganese2.80
 Silicon0.80
 Chromium1.20
 IronBalance

Typical Properties

Abrasion Resistance	Fair	
Impact Resistance	Very Good	
Machinability	Excellent	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel*	4130 Steel
1	30	36
2	28	30
3	25	26

Can be flame cut
 Magnetic
 Heat Treatable

Diameter and Polarity

.045"
 1/16"
 7/64"
 DCEP

Tube-Alloy® 218-O

Tube-Alloy® 218-O is a work hardening austenitic manganese steel alloy. It can be used for build-up or overlay on austenitic manganese steel only. It can also be used for joining austenitic manganese steel to manganese steel. Deposits are extremely tough and work harden rapidly under high impact.

Typical Applications

- bucket teeth
- crusher jaws & cones
- dredge pump casings
- gyratory crusher mantles & cones
- hammer mill hammers
- impactor crusher bars
- manganese steel railroad crossovers & frogs

Typical Deposit Analysis %

Carbon1.00
 Manganese15.00
 Silicon0.40
 Chromium3.10
 Nickel0.40
 IronBalance

Typical Properties

Abrasion Resistance	Fair
Impact Resistance	Excellent
Tensile Strength (psi)	120,000 (XX MPa)
Yield Strength (psi)	80,000 (XX MPa)
Elongation in 2"	32%
Machinability	Difficult
Hardness:	
As Deposited	15-22 Rc
Work Hardened	50-55 Rc
Flame Cutting	Difficult
Nonmagnetic	

Diameter and Polarity

.045"
 1/16"
 7/64"

Tube-Alloy® AP-O

Tube-Alloy® AP-O deposit is a premium work hardening austenitic manganese steel alloy. It can be used for build-up or overlay on austenitic manganese steel, carbon steel and low alloy steel. It can also be used for joining austenitic manganese steel to manganese steel, carbon steel and low alloy steel. The weld metal has higher toughness than conventional manganese steel weld metal.

Typical Applications

- bucket teeth & lips
- crusher jaws & cones
- dragline buckets
- dredge cutter heads & teeth
- grizzly bars & fingers
- gyratory crusher mantles & cones
- hammer mill hammers
- hydroelectric turbines
- impactor crusher bars
- muller tires
- pulverizer hammers
- similar to those for Tube-Alloy® 218-O, especially where the base metal verification is questionable or where contamination may be an issue
- sizing screens

Typical Deposit Analysis %

Carbon0.42
 Manganese16.50
 Silicon0.30
 Chromium13.00
 IronBalance

Typical Properties

Abrasion Resistance	Fair
Impact Resistance	Excellent
Tensile Strength (psi)	124,000 (XX MPa)
Yield Strength (psi)	83,000 (XX MPa)
Elongation in 2"	40%
Machinability	Difficult
Hardness:	
As Deposited	18-24 Rc
Work Hardened	50-55 Rc
Cannot be flame cut	
Nonmagnetic	

Diameter and Polarity

1/16"
 7/64"
 DCEP

Hardfacing Wires

Tube-Alloy® 258-0

Tube-Alloy® 258-0 deposit is a premium martensitic alloy steel of the hard, tough H-12 tool steel composition. It has excellent resistance to adhesive (metal-to-metal) wear. It is designed to surface mild and low alloy steel components subject to moderate abrasive wear and/or high temperature (up to 1000°F). Proper preheat is required for crackfree deposits.

Typical Applications

- coupling boxes
- dragline chain
- kiln trunnions
- mill guides
- spindles
- wobbler ends

Typical Deposit Analysis %

Carbon	0.45
Manganese	1.40
Silicon	0.80
Chromium	6.00
Molybdenum	1.50
Tungsten	1.50
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Good
Machinability	Grind only

Hardness, as deposited, Rc		
No. of Layers	1020 Steel*	4130 Steel
1	49	51
2	53	54
3	57	57

Flame cutting is difficult
Magnetic
Heat Treatable and Forgeable
Maintains Hot Hardness to 1000°F

Diameter and Polarity

.045"
1/16"
7/64"
DCEP

Tube-Alloy® 240-0

Tube-Alloy® 240-0 deposit is a chromium carbide surfacing alloy. It can be used on components subject to severe abrasive wear and heavy impact. The weld metal has higher toughness than conventional chromium carbide due to fewer stress relief-check cracks.

Typical Applications

- ammonia knives
- augers
- bucket teeth & lips
- bulldozer end bits & blades
- conveyer screws
- crusher jaws & cones
- crusher rolls
- cultivator chisels & sweeps
- dragline buckets
- dredge pump impellers & side plates
- hammer mill hammers
- impactor crusher bars
- manganese pump shells
- mill guides
- muller tires
- pipeline ball joints
- pulverizer hammers
- scraper blades
- screw conveyors
- sheepsfoot tampers
- sizing screens

Typical Deposit Analysis %

Carbon	3.20
Manganese	0.80
Silicon	1.90
Chromium	15.50
Iron	Balance

Typical Properties

Abrasion Resistance	Very Good
Impact Resistance	Fair
Machinability	Grinding only
Thickness	3-5 Layers Maximum

Hardness, as deposited, Rc		
No. of Layers	1020 Steel*	12-14% Manganese
1	40	35
2	48	42
3	52	50

Can be flame cut
Deposit will relief-check crack

Diameter and Polarity

.045"
1/16"
7/64"
DCEP

Tube-Alloy® 255-0

Tube-Alloy® 255-0 deposit is a premium high chromium carbide surfacing alloy. It can be used on components subject to extremely severe abrasive wear and moderate impact. It can also be used where high temperature (up to 1250°F) wear resistance is required. The weld metals will stress relief-check crack. Can be run as submerged arc by using MK-N neutral flux.

Typical Applications

- ammonia knives
- augers
- bucket teeth & lips
- bulldozer blades
- bulldozer end bits & blades
- cement chutes
- coal feeder screws
- coal pulverizer hammers, rolls & table
- coke chutes
- coke pusher shoes
- conveyor screws
- dredge pump inlet nozzle & side plates
- fan blades
- grizzlybars & fingers
- gyratory crusher
- mantles & cones
- manganese pump shells
- muller tires
- ore & coal chutes
- pipeline ball joints
- pug mill paddles
- ripper shanks
- road rippers
- scraper blades
- screw conveyors
- sheepsfoot tampers
- similar to those for Tube-Alloy® 240-0 where additional abrasion resistance is required
- sizing screens
- subsoiler teeth

Typical Deposit Analysis %

Carbon	4.50
Manganese	0.90
Silicon	0.50
Chromium	26.50
Iron	Balance

Typical Properties

Abrasion Resistance	Excellent
Impact Resistance	Poor
Machinability	Grinding only
Thickness	3 Layers Maximum

Hardness, as deposited, Rc		
No. of Layers	1020 Steel*	12-14% Manganese
1	54	48
2	56	50
3	58	53

Cannot be flame cut
Deposit will relief-check crack readily
Maintains Hot Hardness to 1250°F

Diameter and Polarity

1/16"
7/64"
DCEP

Hardfacing Wires

Tube-Alloy® 242-O

Tube-Alloy® 242-O is a self-shielded, fluxcored wire that deposits a premium martensitic alloy steel. It has excellent resistance to adhesive (metal-to-metal) wear. The deposit has good resistance to abrasion and impact making it a versatile overlay alloy. It is designed for use as an overlay on carbon and low alloy steels or as a base of Tube-Alloy Build Up-O. With proper preheating, crackfree deposits can be obtained. Tube-Alloy 242-O should never be used for joining.

Typical Applications

- carbon steel rolls
- crane wheels
- dragline chain
- frogs & switch points
- idlers
- low alloy steel railroad crossovers and rail ends
- steel shafts
- tractor rollers

Typical Deposit Analysis %

Carbon	0.25
Manganese	1.30
Silicon	0.70
Chromium	4.00
Molybdenum	0.50
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Good
Machinable	
Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1	36
2	39
3	42
Can be flame cut	
Magnetic	

Diameter and Polarity

.045"
1/16"
7/64"
DCEP

Armorwear™

ArmorWear is a self-shielded, flux-cored wire that deposits a premium martensitic alloy steel of H-12 tool steel composition. It has excellent resistance to adhesive (metal-to-metal) wear. It also has good resistance to abrasion and impact, and maintains its hardness up to 1000°F. It is designed for use as an overlay on carbon and low alloy steels. Because of its high hardenability, proper preheat may be required for crack-free deposits, particularly on low alloy steels. ArmorWear is formulated to optimize performance with the small 110/220V type wire welding machines.

Typical Applications

- bucket lips and teeth
- cultivator chisels and sweeps
- plow shares, scraper blades
- shanks, knives, teeth
- kiln trunnions
- spindles
- pump components

Typical Deposit Analysis %

Carbon	0.40
Manganese	1.00
Silicon	0.40
Chromium	5.80
Molybdenum	1.50
Tungsten	1.40
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Good
Machinability	Grind only
Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1	47
2	49
3	53
Flame cutting is difficult	
Magnetic	
Heat Treatable and Forgeable	
Maintains Hot Hardness to 1000°F	

Diameter and Polarity

.035"
DCEN

Tube-Alloy® 219-O

Tube-Alloy® 219-O is a work hardening austenitic manganese steel alloy. The high carbon and manganese content allows for a fully austenitic first layer on carbon steel. Deposits are extremely tough and work harden rapidly under high impact. It can be used for most railroad track maintenance applications.

Typical Applications

- manganese steel railroad crossovers & frogs
- similar to 218-O, except that it is slightly harder in the "as deposited" condition, and work hardens quicker

Typical Deposit Analysis %

Carbon	1.00
Manganese	20.00
Silicon	0.60
Chromium	4.50
Iron	Balance

Typical Properties

Abrasion Resistance	Fair
Impact Resistance	Excellent
Tensile Strength (psi)	137,000 (XX MPa)
Yield Strength (psi)	91,000 (XX MPa)
Elongation in 2"	34%
Machinability	Difficult
Hardness:	
As Deposited	16-23 Rc
Work Hardened	50-55 Rc
Flame cutting is difficult	

Diameter and Polarity

1/16"
7/64"
DCEP

Hardfacing Wires

Tube-Alloy® 258TiC-O

Tube-Alloy® 218 TiC-O deposit is a martensitic alloy steel containing a high volume fraction of titanium carbides. It is particularly good for resisting high stress abrasive wear. The alloy has good hot hardness. Deposits can be applied crack-free with proper procedures.

Typical Applications

- paving agitator screws

Typical Deposit Analysis %

Carbon	2.10
Manganese	1.30
Silicon	1.80
Chromium	7.00
Molybdenum	1.60
Titanium	6.00
Iron	Balance

Typical Properties

Abrasion Resistance	Excellent
Impact Resistance	Good
Machinability	Grinding only

Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1	60
2	55
3-8	48

Cannot be flame cut
Magnetic
Maintains hot hardness to 1000°F

Diameter and Polarity

1/16"
7/64"
DCEP

Tube-Alloy® 244-O

Tube-Alloy® 244-O deposit is a medium alloy carbide steel. It is designed primarily for the automatic rebuilding of dredge pump shells. Deposits do stress relief-check crack.

Typical Applications

- dredge pump impellers & side plates
- pipeline ball joints
- pump shells

Typical Deposit Analysis %

Carbon	2.50
Manganese	1.60
Silicon	2.00
Chromium	9.00
Copper	0.50
Iron	Balance

Typical Properties

Abrasion Resistance	Very Good	
Impact Resistance	Fair	
Machinability	Very Difficult	
Thickness	3-5 Layers Maximum	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel	12-14% Manganese
1	34	24
2	37	33
3	40	38

Cannot be flame cut
Slightly Magnetic
Deposit will relief-check crack

Diameter and Polarity

7/64"
DCEP

Tube-Alloy® A43-O

Tube-Alloy® A43-O deposit is a premium high chromium-columbium carbide surfacing alloy. It can be used on components subject to extremely severe high and low stress abrasive wear and moderate impact. It can also be used where high temperature (up to 1250°F) wear resistance is required. The deposit will stress relief-check crack readily. Can be run as submerged arc by using MK-N neutral flux.

Typical Applications

- augers
- bucket lips & teeth
- coal feeder screws
- coal pulverizer rolls & table
- coke chutes
- coke pusher shoes
- conveyor screws
- dredge cutter heads & teeth
- dredge pump inlet nozzle & side plates
- fan blades
- grizzly bars & fingers
- muller tires
- paving agitator screws
- pipeline ball joints
- pug mill paddles
- scraper blades
- sheepsfoot tampers
- sizing screws

Typical Deposit Analysis %

Carbon	5.50
Manganese	0.20
Silicon	1.00
Chromium	22.00
Columbium	6.50
Iron	Balance

Typical Properties

Abrasion Resistance	Excellent	
Impact Resistance	Poor	
Machinability	Grinding only	
Thickness	3 Layers Maximum	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel	12-14% Manganese
1	58	48
2-3	62	56

Cannot be flame cut

Diameter and Polarity

1/16"
7/64"
DCEP

Hardfacing Wires

VertiWear® 600

VertiWear® 600 deposits a multipurpose martensitic steel alloy. It can be used to surface mild and low alloy components subject to moderate abrasive wear and medium to high impact. Excellent operator appeal in all positions.

Typical Applications

- coupling boxes
- dragline chain
- dredge ladder rolls
- kiln trunnions
- mill guides
- sliding metal parts
- wobbler ends

Typical Deposit Analysis %

Carbon	0.40
Manganese	0.75
Silicon	0.60
Chromium	6.50
Molybdenum	1.00
Vanadium	0.05
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Very Good
Machinability	Good
Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1	52
2	56
3-8	57
Flame cutting is difficult	
Magnetic	

Diameter and Polarity

.045"
1/16"
DCEP
Gas-Shielded
75/25 (Ar/CO₂)
or 100% CO₂

Tube-Alloy® 255-G

Tube-Alloy® 255-G is a small-diameter, gas-shielded premium hardfacing wire that deposits an extremely wear-resistant chromium-carbide overlay. It is designed for overlay on carbon, low alloy, cast iron, and austenitic manganese base metals. It outlasts competitive wires which deposit martensitic deposits 9 to 1.

Typical Applications

- ammonia knives
- augers
- bucket teeth & lips
- bulldozer end bits and blades
- cement chutes
- coal feeder screws
- coal pulverizer hammers, rolls and table
- coke chutes
- coke pusher shoes
- conveyer screws
- crusher jaws and cones
- cultivator chisels and sweeps
- dragline buckets
- dredge cutter heads and teeth
- dredge pump inlet nozzle & side plates
- fan blades
- grizzly bars and fingers
- gyratory crusher mantles and cones
- manganese pump shells
- muller tires
- ore and coal chutes
- pipeline ball joints
- pug mill paddles
- ripper shanks
- road rippers
- scraper blades
- screw conveyors
- sheepsfoot tampers
- sizing screens
- subsoiler teeth

Typical Deposit Analysis %

Carbon	5.30
Manganese	1.00
Silicon	0.40
Chromium	18.00
Iron	Balance

Typical Properties

Abrasion Resistance	Excellent	
Impact Resistance	Poor	
Machinability	Grinding is Difficult	
Thickness	3 Layers Maximum	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel	Manganese Steel
1	58	47
2	61	51
3	65	54

Cannot be flame cut
Deposit will relief-check crack readily
Maintains hot hardness to 1250°F

Diameter and Polarity

.045"
DCEP
Gas-Shielded
98/2 (Ar/CO₂)
75/25 (Ar/CO₂)

VertiWear® AP

VertiWear® AP is a premium, work-hardening austenitic manganese steel alloy. This fluxcored, all-position wire can be used for buildup or overlay on austenitic manganese steel. It can also be used for joining austenitic manganese steel to manganese steel, carbon steel and low alloy steel. The deposit has excellent impact resistance.

Typical Applications

- bucket teeth and lips
- crusher jaws and cones
- dragline buckets
- dredge cutter heads and teeth
- grizzly bars and fingers
- gyratory crusher mantles and cones
- hammer mill hammers
- hydroelectric turbines
- impactor crusher bars
- muller tires
- pulverizer hammers
- sizing screens

Typical Deposit Analysis %

Carbon	0.45
Manganese	14.00
Silicon	0.50
Chromium	13.50
Nickel	0.50
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Excellent
Machinability	Fair
Hardness:	
Work Hardened	50-55 Rc
No. of Layers	1020 Steel
1	24 Rc
2	20 Rc
3-8	18 Rc
Cannot be flame cut	

Diameter and Polarity

.045"
DCEP
Gas-Shielded
75/25 (Ar/CO₂)
or 100% CO₂

Tube-Alloy® Build Up-G

Tube-Alloy® Build Up-G is a gas-shielded, metal-cored wire designed for build-up on carbon and low alloy steels. The weld metals have good compressive strength and impact resistance, making them excellent bases for more abrasion-resistant alloys.

Typical Applications

- bucket teeth & lips
- crane wheels
- dragline buckets
- dragline chain
- dredge ladder rolls
- gear teeth
- kiln trunnions
- mine car wheels
- spindles
- steel shafts
- wobblers ends

Typical Deposit Analysis %

Carbon	0.26
Manganese	1.73
Silicon	0.32
Chromium	1.85
Iron	Balance

Typical Properties

Abrasion Resistance	Fair
Impact Resistance	Very Good
Machinability	Good
Hardness	25 Rc
Can be flame cut	
Magnetic	

Diameter and Polarity

.045"
1/16"
DCEP
Gas-Shielded
75/25 (Ar/CO₂)
or 100% CO₂

Tube-Alloy® 258-G

(Formerly known as HW-7)

Tube-Alloy® 258-G is a metal-cored, gas-shielded wire which deposits a sound hot work tool steel alloy of the AISI H-12 type. It is extremely resistant to thermal shock and erosion at working temperatures. The alloy has good dimensional stability and uniform heat-treatment response, making it ideally suited for fabrication, modification, and repair of dies and other tool steel parts.

Typical Applications

- clean out rings
- die holders
- dummy blocks
- extrusion dies
- forming dies
- forging dies
- gripper dies
- guide rolls
- header dies
- hot forming dies
- mandrels
- swaging dies

Typical Deposit Analysis %

Carbon	0.40
Manganese	1.00
Silicon	0.55
Chromium	5.00
Molybdenum.....	1.45
Tungsten	1.25
Vanadium	0.40
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Good
Nonmachinable in As-Welded Condition	Grinding only
Hardness, as deposited, RC	
No. of Layers	A36 Plate
1	52
2	53
3	57
Temp.	Typical Hardness
950°F	54

Flame Cutting Difficult
Good Resistance to softening at elevated temperatures
Heat treatable
Good Dimensional Stability

Diameter and Polarity

.045"
1/16"
DCEP
Gas-Shielded
75/25 (Ar/CO₂)
or 100% CO₂

Tube-Alloy® 260-G

Tube-Alloy® 260-G is a gas-shielded, metal-cored wire that deposits a martensitic alloy steel. It is designed for use as an overlay on carbon and low alloy steels. It has very good resistance to adhesive (metal-to-metal) wear and good resistance to abrasion and impact.

Typical Applications

- coupling boxes
- dragline chain
- kiln trunnions
- mill guides
- spindles
- wobblers ends

Typical Deposit Analysis %

Carbon	0.70
Manganese	2.00
Silicon	1.00
Chromium	8.00
Iron	Balance

Typical Properties

Abrasion Resistance	Good
Impact Resistance	Good
Machinability	Grinding only
Hardness:	
As Deposited	55-60 RC
Cannot be flame cut	
Magnetic	

Diameter and Polarity

.045"
1/16"
DCEP
Gas-Shielded
75/25 (Ar/CO₂)
or 100% CO₂

Hardfacing Wires

Tube-Alloy® BU-S

Tube-Alloy® BU-S deposit is a low alloy steel composition. It can be used for build-up on mild and low alloy steel components. The weld metal has good compressive strength, making it an excellent base for surfacing.

Typical Applications

- crane wheels
- dredge ladder rolls
- mine car wheels
- spindles
- table rolls
- tractor idlers & rollers

Typical Deposit Analysis %

Carbon0.12
 Manganese 1.80
 Silicon0.80
 Chromium0.70
 IronBalance
 HF-N/SWX HF-N Flux

Typical Properties

Abrasion Resistance Fair
 Impact Resistance Very Good
 Machinability Excellent
 Thickness As required
 Hardness, as deposited, Rc
 No. of Layers 1020 Steel 1045 Steel
 1 20 35
 2 26 34
 3 30 31
 Can be flame cut
 Strongly Magnetic

Diameter and Polarity

3/32"
 1/8"
 5/32"
 DCEP

Tube-Alloy® 8620-S

Tube-Alloy® 8620-S deposit is a low alloy steel composition. Its sound, tough deposit makes it an excellent choice for steel mill roll build-up.

Typical Applications

- continuous caster rolls
- table rolls

Typical Deposit Analysis %

Carbon0.17
 Manganese0.80
 Silicon0.40
 Chromium0.50
 Molybdenum.....0.20
 Nickel.....0.40
 IronBalance
 HF-N/SWX HF-N Flux

Typical Properties

Abrasion Resistance Fair
 Impact Resistance Very Good
 Machinability Excellent
 Thickness As required
 Hardness, as deposited, Rc
 No. of Layers 1020 Steel
 1 12
 2 19
 3-8 21
 Can be flame cut
 Strongly Magnetic

Diameter and Polarity

3/32"
 1/8"
 DCEP

Tube-Alloy® 861-S

Tube-Alloy® 861-S deposit is a premium chrome-molybdenum steel composition. It can be used as build-up or overlay for steel mill roll applications. It offers superior resistance to softening in service versus mild steel deposits.

Typical Applications

- continuous caster rolls
- straightener rolls
- table rolls

Typical Deposit Analysis %

Carbon0.15
 Manganese0.90
 Silicon0.50
 Chromium1.70
 Molybdenum.....0.60
 IronBalance
 HF-N/SWX HF-N Flux

Typical Properties

Abrasion Resistance Fair
 Impact Resistance Fair
 Machinability Very Good
 Thickness As required
 Hardness, as deposited, Rc
 No. of Layers 1020 Steel
 1 21
 2 28
 3 30
 Cannot be flame cut
 Magnetic

Diameter and Polarity

1/8"
 DCEP

Hardfacing Wires

Tube-Alloy® 877-S

Tube-Alloy® 877-S deposit is a low alloy steel composition. It is a sound, tough, build-up alloy designed for use on steel mill con-cast rolls. Mechanical properties are outstanding.

Typical Applications

- continuous caster rolls

Typical Deposit Analysis %

Carbon	0.10
Manganese	1.00
Silicon	0.60
Chromium	1.00
Molybdenum	0.40
Nickel	1.30
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Abrasion Resistance	Fair
Impact Resistance	Very Good
Machinability	Excellent
Thickness	As required
Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1	22
2	23
3-8	24
Can be flame cut	
Strongly Magnetic	

Diameter and Polarity

1/8"
DCEP

Tube-Alloy® 242-S MOD

Tube-Alloy® 242-S Mod deposit is a low alloy medium hardness martensitic steel. It can be used as a hardfacing overlay where good abrasion resistance and machinability are required.

Typical Applications

- crane wheels
- tractor idlers & rollers

Typical Deposit Analysis %

Carbon	0.14
Manganese	1.90
Silicon	0.80
Chromium	3.00
Molybdenum	0.80
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Abrasion Resistance	Good	
Impact Resistance	Good	
Machinability	Good	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel	1045 Steel
1	29	44
2	38	45
3	39	40
Can be flame cut		
Strongly magnetic		

Diameter and Polarity

1/8"
DCEP

Tube-Alloy® 258-S

Tube-Alloy® 258-S deposit is a premium martensitic steel alloy. It is a hard, tough H-12 tool steel composition. It can be used as an overlay on steel mill rolls where high hardness and abrasion resistance are more important than fire cracking.

Typical Applications

- spindles
- table rolls

Typical Deposit Analysis %

Carbon	0.34
Manganese	1.50
Silicon	0.50
Chromium	6.00
Molybdenum	1.50
Tungsten	1.40
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic	
Abrasion Resistance	Good	
Impact Resistance	Good	
Machinability	Difficult with carbide tools	
Thickness	As required	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel	1045 Steel
1	46	52
2	48	53
3	53	54
Flame cutting is difficult		
Magnetic		

Diameter and Polarity

3/32"
1/8"
DCEP

Hardfacing Wires

Tube-Alloy® A2JL-S

Tube-Alloy® A2JL-S deposit is a modified stainless steel composition. It offers good resistance to metal-to-metal wear corrosion and thermal fatigue fire cracking.

Typical Applications

- continuous caster rolls

Typical Deposit Analysis %

Carbon	0.04
Manganese	0.80
Silicon	0.60
Chromium	13.50
Molybdenum.....	1.00
Nickel.....	2.00
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic
w/controlled ferrite	
Abrasion Resistance	Good
Impact Resistance	Good
Machinability	Good with carbide tools
Thickness	As required
Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1-3	40
4-8	33
Cannot be flame cut	
Slightly Magnetic	

Diameter and Polarity

1/8"
DCEP

Tube-Alloy® 887-S

Tube-Alloy® 887-S is a premium martensitic stainless steel alloy. It is a hard, tough composition that offers good resistance to metal-to-metal wear, corrosion and thermal fatigue.

Typical Applications

- continuous caster rolls

Typical Deposit Analysis %

Carbon	0.14
Manganese	0.88
Silicon	0.55
Chromium	12.50
Vanadium.....	0.23
Nickel.....	3.13
Molybdenum.....	1.50
Nb	0.18
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic
Abrasion Resistance	Good
Impact Resistance	Good
Machinability	Fair
Thickness	As required
Hardness, as deposited, Rc	
No. of Layers	1020 Steel
1	32
2	38
3	40
Cannot be flame cut	
Magnetic	

Diameter and Polarity

3/32"
1/8"
DCEP

Tube-Alloy® A250-S

Tube-Alloy® A250-S deposit is a modified 420 stainless steel composition. It offers good resistance to fire cracking and corrosion frequently encountered by steel mill rolls.

Typical Applications

- continuous caster rolls
- table rolls

Typical Deposit Analysis %

Carbon	0.19
Manganese	1.00
Silicon	0.50
Chromium	12.30
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic	
Abrasion Resistance	Good	
Impact Resistance	Good	
Machinability	Good with carbide tools	
Thickness	As required	
Hardness, as deposited, Rc		
No. of Layers	1020 Steel	1045 Steel
1	44	46
2	46	50
3	48	50
Cannot be flame cut		
Slightly Magnetic		

Diameter and Polarity

1/8"
DCEP

Hardfacing Wires

Tube-Alloy® A420M-S

Tube-Alloy® A420M-S deposit is a modified high carbon 420 stainless steel composition. It offers higher hardness than standard 420 stainless steel deposits, resulting in longer roll life where thermal fatigue is not the prime consideration.

Typical Applications

- back-up rolls
- continuous caster rolls
- plate leveler rolls
- straightener rolls

Typical Deposit Analysis %

Carbon	0.24
Manganese	1.60
Silicon	0.70
Chromium	14.70
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic	
Abrasion Resistance	Very Good	
Impact Resistance	Fair	
Machinability	Fair with carbide tools	
Thickness	As required	

Hardness, as deposited, Rc		
No. of Layers	1020 Steel	1045 Steel
1	46	48
2	49	52
3-8	53	56

Cannot be flame cut
Slightly Magnetic

Diameter and Polarity

1/8"
DCEP

Tube-Alloy® 865-S MOD

Tube-Alloy® 865-S Mod deposit is a modified stainless steel composition. It offers good resistance to metal-to-metal wear, corrosion and the ultimate resistance to thermal fatigue fire cracking frequently encountered by steel mill rolls.

Typical Applications

- continuous caster rolls

Typical Deposit Analysis %

Carbon	0.18
Manganese	1.10
Silicon	0.40
Chromium	13.50
Molybdenum.....	1.00
Nickel.....	2.70
Vanadium	0.20
Columbium.....	0.20
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic	
Abrasion Resistance	Good	
Impact Resistance	Good	
Machinability	Fair with carbide tools	
Thickness	As required	

Hardness, as deposited, Rc		
No. of Layers	1020 Steel	
1	45	
2	46	
3-8	48	

Cannot be flame cut
Magnetic

Diameter and Polarity

1/8"
DCEP

Tube-Alloy® 952-S

Tube-Alloy® 952-S is a premium modified high carbon martensitic stainless steel that produces higher hardnesses than standard 420 types. It offers excellent toughness for higher impact applications along with good resistance to abrasive wear. This alloy can be used in higher temperature applications (up to 1050°F). It should not be used where thermal fatigue fire cracking is the prime consideration. It is a high-deposition rate wire that produces sound, porosity-free, crack-free weld deposits.

Typical Applications

- straightener rolls
- plate leveler rolls
- edger rolls
- descale rolls
- back-up rolls
- aluminum caster rolls cores

Typical Deposit Analysis %

Carbon	0.27
Manganese	1.20
Silicon	0.60
Chromium	12.80
Tungsten	1.40
Molybdenum.....	1.80
Nickel.....	0.60
Vanadium	0.19
Niobium	0.18
Iron	Balance
HF-N/SWX HF-N Flux	

Typical Properties

Microstructure	Martensitic	
Abrasion Resistance	Good	
Impact Resistance	Good	
Machinability	Good with carbide tools	
Thickness	As required	

Hardness, as deposited, Rc		
No. of Layers	1020 Steel	1045 Steel
1	40	44
2	45	49
3	49	49

Flame cutting is difficult
Magnetic

Diameter and Polarity

3/32"
1/8"
DCEP

Hardfacing Wires

GP-O

Hobart GP-O is a multipurpose wire recommended for joining dissimilar metals and hard to weld steels. It can be used for any high-strength application where wear, impact, heat and corrosion resistant properties are required.

Typical Applications

- welding attachments to manganese castings
- welding grouser bars to grousers
- welding T-1 steel lips to manganese buckets

Typical Deposit Analysis %

Carbon	0.06
Manganese	1.00
Silicon	0.50
Chromium	26.50
Nickel.....	9.00
Iron	Balance

Typical Properties

Tensile Strength (psi)	120,000 (XX MPa)
Yield Strength (psi)	90,000 (XX MPa)
Elongation in 2"	27%
Machinability	Good
Thickness	As required
Cannot be flame cut	
Nonmagnetic	

Diameter and Polarity

1/16"
DCEP

HF-N & SWX HF-N

Benefits:

- provides excellent element recovery; suitable for use with the entire range of Hobart SAW hardfacing wires
- offers good wetting action to provide smooth, uniform, hardfacing weld beads
- provides excellent slag release, even at high currents
- can be used with an oscillating technique and twin-wire torch configuration for maximized bead width and productivity
- SWX HF-N is supplied in moisture-proof packaging that eliminates the need to re-dry unopened product

Typical Applications:

- SAW hardfacing
- steel mills
- continuous casting rolls

Flux Type:

Agglomerated fluoride-basic flux

Basicity Index (Boniszewski): 2.6

Alloy Transfer: None

Density: ~1.2 kg/L

Grain Size: 0.2 – 1.6 mm/ 10 – 65 mesh

Type of Current: DCEP

Primary Flux Composition:

Al ₂ O ₃ + MnO	~19%
CaO + MgO.....	~34%
SiO ₂ + TiO ₂	~18%
CaF ₂	~29%

Commonly Used With:

- Tube-Alloy® 242-S MOD
- Tube-Alloy® 810-S
- Tube-Alloy® 8620-S
- Tube-Alloy® 865-S MOD
- Tube-Alloy® 875-S
- Tube-Alloy® 952-S
- Tube-Alloy® A250-S
- Tube-Alloy® A2JL-S
- Tube-Alloy® BU-S

Packaging Available:

- SWX HF-N
- 55 lb. (25 kg) Bag
- SWX HF-N
- 55 lb. (25 kg) EAE Bag
- 2200 lb. (1000 kg) DoubleBag™