



WASHINGTON ALLOY CO. Introduces

New **HARDFACING ELECTRODES**

BUILD-UP 400

Medium abrasion, high impact, high compression, Rockwell C 37-42

Washington Alloy's Build-up 400 is a flux covered electrode designed for re-surfacing parts that are subjected to moderate abrasion and medium to heavy impact. Build-up 400 has excellent compression resistance, making it a great choice for use as a surfacing alloy or as an underlayment for harder surfacing alloys (if using Build-up 400 as a bearing surface for high impact, a softer sub-layer is recommended).

Weld deposits are machinable.

Typical applications

Dredging equipment, gear teeth and wheels, track rollers, runners, sprockets, bearing journals, truck links or any parts requiring machinable weld deposits.

Welding positions



Amperage settings

3/32" (2.5mm)	70-100 Amps
1/8" (3.25mm)	105-115 Amps
5/32" (4.0mm)	120-160 Amps
3/16" (5.0mm)	180-240 Amps
1/4" (6.0mm)	250-290 Amps

Packaging: 10 lb plastic tube (re-closable)
60 lb Master Carton

(Hermetically sealed cans available on request)

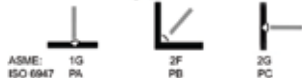
TOOL HARD 600

Metal to Metal, Cutting Tools & High Speed Steels
Rockwell C 60-65 (as welded)

Tool Hard 600 is a flux covered electrode that is excellent for hard facing surfaces and parts that are subjected to metal-to-metal wear without severe thermal shock. Tool Hard 600 is designed to give maximum wear longevity in the fabrication and reclamation of high speed tools, withstanding service temperatures up to 1,000°F (550°C). Typical applications include wire guides, cold shear blades, machine tools, knives, punches and dies, high speed steel cutting tools. Tool Hard 600 has a strong forceful arc, great travel speed and deposition rate. It is recommended to preheat to 300°F (150°C) and allow to slow cool after welding. Peening the weld deposit is recommended to relieve stress. On hard-to-weld or fatigued steel use a buffer layer of Washington Alloy "Tensileweld".

Re-dry @ 300°C (570°F) for 2 hr

Welding positions



Amperage settings

3/32" (2.5mm)	80-100 Amps
1/8" (3.25mm)	110-130 Amps
5/32" (4.0mm)	130-150 Amps

Packaging: 10 lb plastic tube (re-closable)
60 lb Master Carton

(Hermetically sealed cans available on request)

WEAR HARD 60

Intense Abrasion with Impact
Rockwell C 56 (as welded)

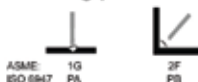
Wear Hard 60 is a flux covered electrode that is designed for hard facing surfaces and parts that are subjected to intense abrasion with shocks and impacts from within the media, such as metal to earth applications where rocks and other debris are present.

Wear Hard 60 finds wide use on wear plates for quarry equipment, meshing gears for trefoil mixers, hammers for refractory materials clay and basalt, hammers for gyratory crushers, wire guides, tamper rollers, auger parts, bucket teeth, etc. where mild, carbon or low alloy steels are used.

When building up prior to using Wear Hard 60, Manganese 500 is recommended. A buffer layer of "Armorweld 307" may also be used on hard-to-weld or fatigued steels.

Re-dry @ 300°C (570°F) for 1 hr

Welding positions



Amperage settings

1/8" (3.25mm)	115-150 Amps
5/32" (4.0mm)	150-200 Amps
3/16" (5.0mm)	190-240 Amps

Packaging: 10 lb plastic tube (re-closable)
60 lb Master Carton

(Hermetically sealed cans available on request)

WEAR HARD 80

Severe Abrasion, Moderate Impact, High compression
Rockwell C 64 (as welded)

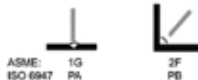
Wear Hard 80 is a flux covered electrode that is suited for hard facing surfaces and parts that are subjected to severe abrasion with moderate impact levels and high compression.

Wear Hard 80 is widely used in the stone and concrete industries on cement and brick presses, refractory press screws, conveyor screws, mixer blades, press screws, palm nuts shovel tracks, plow shears, cultivator shoes, bucket lips, etc.

Wear Hard 80 has a graphite flux coating that gives the electrode a soft, stable arc. The weld bead maintains a high profile for added protection of the base metal. The graphite slag flows away from the bead crown eliminating the need to de-slag before the next pass. The weld deposit will "cross check"

Re-dry @ 300°C (570°F) for 1 hr

Welding positions



Amperage settings

1/8" (3.25mm)	115-150 Amps
5/32" (4.0mm)	135-200 Amps
3/16" (5.0mm)	195-255 Amps

Packaging: 10 lb plastic tube (re-closable)
60 lb Master Carton

(Hermetically sealed cans available on request)

WEAR HARD 67

Abrasion with heavy Impact, high compression
Rockwell C 57 -62 (as welded)

Wear Hard 67 is a flux covered electrode that is designed for hard facing surfaces and parts that are subjected to heavy abrasion with severe impacts. The weld deposit is crack and pore free and exhibits very high compression resistance. Can be machined only by grinding. On difficult-to-weld steels a buffer layer of our "Armorweld 307" should be used.

Wear Hard 67 is used on demolition jaws and balls, beaters, excavator parts, dredge bucket blades, gripper cogs, percussion drill bits, mining tools, screw conveyors, etc.

Re-dry @ 300°C (570°F) for 2 hr

Welding positions



Amperage settings

3/32" (2.5mm)	60-80 Amps
1/8" (3.25mm)	100-130 Amps
5/32" (4.0mm)	140-180 Amps
3/16" (5.0mm)	190-240 Amps
1/4" (6.0mm)	220-280 Amps

Packaging: 10 lb plastic tube (re-closable)
60 lb Master Carton

(Hermetically sealed cans available on request)

MANGANESE 500

Rebuilding & Hardfacing
Rockwell C 20 (as welded) 55 (work hardened)

Manganese 500 is a flux covered electrode designed for rebuilding, hardfacing and joining 14% manganese steel to mild and carbon steels and as a buffer prior to hardfacing. This electrode is manganese austenitic and is cold work hardening. The initial weld deposit will be approx. 20 Rc and can be machined prior to work hardening. Mn 500 readily welds on hard-to-weld steels without spalling off. Typically used for filling and coating carbon and manganese steel, Hadfield steel, armored steel etc. on railroad frogs tracks and wheels, crusher plates, pumps, hammers, dredger teeth, conveyor belts, agricultural machinery, rock crushing equipment and cones, bulldozer parts and bucket lips and teeth. Do Not preheat manganese steel. Use the lowest possible amperage to avoid over-heating the base metal. If your base metal is hardened, you should cut out the hardened zone before welding.

Tensile strength up to 120,000 psi
Elongation in 2" 45-60%
Re-dry @ 300°C (570°F) for 2 hr

Welding positions



Amperage settings

1/8" (3.25mm)	110-140 Amps
5/32" (4.0mm)	150-190 Amps
3/16" (5.0mm)	200-250 Amps

Packaging: 10 lb plastic tube (re-closable)
60 lb Master Carton

(Hermetically sealed cans available on request)

WASHINGTON ALLOY CO.

Hardfacing Electrodes

Build-up 300	RC 26-31 Fair abrasion, high impact, good compression
Build-up 400	RC 37-42 Medium abrasion, high impact high compression
Manganese 500	RC 20-55 Build-up, repair and surfacing manganese steels. Work-hardening
Manganese 900	RC 50-55 Build-up joining and surfacing manganese steels. Work Hardened
Tool Hard 600	RC 60-65 As welded. Metal to metal, cutting tools, high speed steels
Hard Face 700	RC 58-62 Considerable impact, heavy abrasion, fatigued steels
Everwear 800	RC 62-65 light impact, severe abrasion, corrosion resistant
Chrome-Carb 60	RC 58-60 Heavy impact, severe abrasion, high temp service
Wear Hard 60	RC 56 As welded, Intense abrasion, metal to earth with debris.
Wear Hard 67	RC 57-62 Abrasion, heavy impact, high compression, metal to earth
Wear Hard 80	RC 64 As welded. Severe abrasion, moderate impact, High compression
310Mo-16	RC 16 (Brinell 205) abrasion resistance in light media, fatigued austenitic steel

Hardfacing Flux-cored Wires

Build-up 250HT	RC 20-26 100% CO ₂ shielding gas. Light abrasion, good compression, underlay
Build-up 300HT	RC 28-32 100% CO ₂ shielding gas. Light abrasion, good compression, underlay
Build-up 350HT	RC 34-39 100% CO ₂ shielding gas. Fair abrasion, good compression, underlay
450HT	RC 43-48 100% CO ₂ shielding gas. Fair abrasion, high impact, strong build-up
600HT	RC 53-56 100% CO ₂ shielding gas. Heavy impact, abrasion and compression
700HT	RC 58-61 100% CO ₂ shielding gas. Heavy impact, abrasion and compression
800HT-O	RC 60-63 Gasless. Severe abrasion, moderate impact, high temp. service
Ni-Mang 14-O	RC 20-55 Gasless. Deposits 20RC work hardens to 55, build-up, repair, and surfacing of manganese steels
TIG 600H	RC 45-47 100% Argon shielding gas. moderate abrasion, considerable impact

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