

Tubular Hardfacing Electrodes

Advanced Wear Resistance Technology



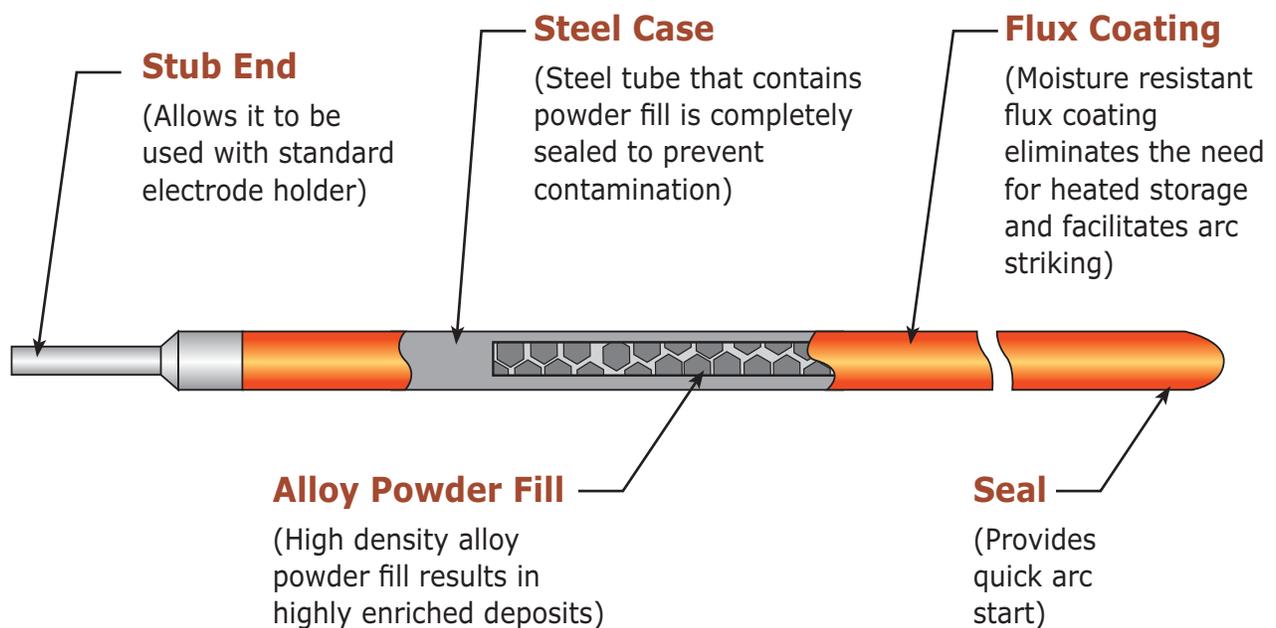
 **HARDFACE**
TECHNOLOGIES
by POSTLE INDUSTRIES

www.hardfacetechologies.com



Postalloy® Tubular Electrodes compared to Conventional Electrodes have...

- † Superior Abrasion Resistance
- † Better Recovery rate, 90% compared to 65%
- † 55% more inches of weld deposit per pound
- † Better Deposition rate, up to 3 times faster
- † Lower amperage with less dilution and better first pass hardness
- † De-slagging between layers is not necessary
- † Ease of use, can be used with AC or DC welding equipment
- † Storage - moisture resistant coating even under severe weather or high humidity



Postalloy® Tubular Hardfacing Electrodes are a unique concept in hardfacing technology. As a tubular electrode, they are filled with the highest percentage of carbide forming alloys, much more (20%+) than any other Tubular Flux-Cored Wire. This gives much better wear resistance and overall product performance. They were engineered to provide extended life to parts subject to wear due to abrasion, impact and erosion.

Postalloy® Tubular Hardfacing Electrodes are available in the following diameters: 1/4" (6mm), 3/8" (9.5mm) and 1/2" (12.7mm). They are designed for use in standard electrode holders. The 1/4" (6mm) diameter electrode may be used as low as 80 amps and can be used in vertical down and overhead hardfacing applications. The 1/2" (12.7mm) diameter electrode may be used up to 350 amps for covering large areas at high deposition rates.

Postalloy® Tubular Electrodes Offer:

- ✦ High Deposition Rates – Up to 3 times faster than ordinary electrodes.
- ✦ Ease of Use – Can be used with AC or DC welding equipment.
- ✦ High Metal Recovery – There is no slag to remove, making it over 90% efficient. Ordinary electrodes waste up to 40%.
- ✦ Low Amperage
 1. Reduces distortion
 2. Reduces dilution - to improve the performance of the first layer
 3. Minimizes the risk of burn-through
 4. Allows hardfacing on a thin edge

1/4" (6mm) 80 to 130 amps	3/8" (9.5mm) 140 to 190 amps	1/2" (12.7mm) 190 to 350 amps
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- ✦ Moisture Resistant Coating – even under severe weather or high humidity.
- ✦ De-slagging between layers is not necessary.
- ✦ Reduces power consumption.

Tubular Electrodes, 233HD,150HD Vanguard and Nico-Tek are formulated with **RCT™ Reactive Core Technology**

Postle Welding Products with RCT™ contain special "Reactors" in the core to assure a controlled reaction between the alloys and other elements. This improves weldability and optimizes wear properties.

COMPLEX CARBIDE ALLOYS

HIGH ABRASION/MILD IMPACT

	Postalloy® 217HD	A mixture of Chromium Carbide, Niobium Carbide and Molybdenum Carbide. It is designed for applications that require more abrasion resistance than Postalloy 215HD at a slight sacrifice to impact resistance. The carbide concentration is denser and slightly harder than Postalloy 215HD providing a better, more abrasion-resistant surface.	Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Hardness	62Rc	<ul style="list-style-type: none"> Relief checks readily to prevent stress build-up Cannot be flame cut
	Deposit Thickness	2 Passes	
Applications: Swing hammers, brick & clay mill augers, screens & chutes in coal mining, siliceous coal grinding equipment, bucket lips & teeth of open mining wheel excavators & shovels, ground nut oil expeller screws, dredging teeth and cutters, clamshell and dragline buckets.			

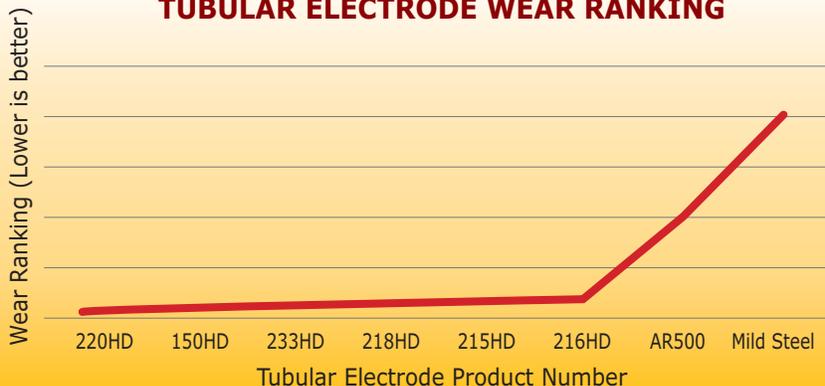
SEVERE ABRASION, EROSION & MILD IMPACT

	Postalloy® 218HD	Produces a multi-carbide weld deposit that resists many types of wear. The weld deposit is a tightly packed, dense, interconnected network of Chromium Carbides, Vanadium Carbides, Molybdenum Carbides, Niobium Carbides and Tungsten Carbides. Weld deposits offer exceptional wear resistance to general abrasion, high stress grinding, low stress scratching and erosion. Impact resistance is limited. This alloy may also be used at elevated temperatures up to 1500°F (816°C).	Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Hardness	65Rc	<ul style="list-style-type: none"> Cannot be flame cut
	Deposit Thickness	2 Passes	
Applications: Boiler fan blades, blast furnace deflecting plates, sinter plant hot crusher parts, hot sinter screens, and exhaust fan blades in sinter and pelletizing plants, coke crusher segments and pusher shoes.			

SEVERE ABRASION, EROSION & IMPACT

	Postalloy® 233HD (RCT™)	A Chromium Carbide tubular hardface electrode with the addition of Niobium and Molybdenum. The addition of these alloys improves the heat resistance of the weld deposit and wear resistance. Excellent for repairing and filling in gaps of overlay plate without losing abrasion and wear characteristics of overlay plate. Weld deposit chemistry consists of chromium carbides combined in such a way as to produce extremely good abrasion resistance coupled with mild to moderate impact resistance. Deposits take on a high polish to resist sliding particle abrasion and will maintain good hot hardness up to 1000°F (538°C).	Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Hardness	58-62Rc	<ul style="list-style-type: none"> Relief checks readily to prevent stress build-up Cannot be flame cut
	Deposit Thickness	2 Passes	
Applications: Mining and construction screw conveyors, clamshell and dragline buckets, bucket lips and teeth, shredder and fibrizer hammers, chutes and liner plates, and scraper and grader blades.			

TUBULAR ELECTRODE WEAR RANKING



COMPLEX CARBIDE ALLOYS

SEVERE ABRASION, EROSION & MILD IMPACT

Postalloy® 243HD	Modified Chromium Carbide tubular hardfacing electrode, alloyed with Niobium and a small addition of Molybdenum. The micro structure has very fine carbides which give improved wear, erosion and impact resistance over traditional Chromium Carbides. It is designed for applications that require more abrasion resistance than Postalloy® 215HD. The carbide concentration is denser and slightly harder but less brittle than 215HD providing a better, more wear-resistant surface. Heat resistant to 1100°F (593°C).		Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Hardness 60Rc	<ul style="list-style-type: none"> Relief checks readily to prevent stress build-up Cannot be flame cut 	
Deposit Thickness 2 Passes	Applications: Mining and quarry equipment, dredge bucket lips and teeth, scraper and grader blades, screw conveyors, swing hammers and palm oil crusher rolls.		



SEVERE ABRASION, EROSION & MILD IMPACT

Postalloy® 6710HD	Modified complex Niobium Chromium Carbide tubular hardfacing electrode, alloyed with a small addition of Molybdenum. The micro structure has very fine carbides which give improved wear, erosion and impact resistance over traditional Chromium Carbides. Heat resistant to 1100°F (593°C).		Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Hardness 62-65Rc	<ul style="list-style-type: none"> Relief checks readily to prevent stress build-up Cannot be flame cut 	
Deposit Thickness 2 Passes	Applications: Mining and quarry equipment, dredge bucket lips and teeth, scraper and grader blades, screw conveyors, swing hammers, sugar cane crusher rolls and crusher mantles and liners.		

TUNGSTEN CARBIDE ALLOYS

EXTREME ABRASION

Postalloy® 219HD	Used when protection with tungsten carbide is needed. Weld deposits contain tungsten carbide in a chromium carbide rich matrix for added wear and corrosion resistance.		Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Matrix Hardness 64-68Rc	<ul style="list-style-type: none"> Relief checks readily to prevent stress build-up Cannot be flame cut 	
Deposit Thickness 2 Passes	Applications: Auger points, debarking hammers, bucket pin ends, muller plows, shredder and anvil knives, mixer paddles and fan blades, cutter and dredge teeth, fly ash conveyors, debarking hammers, tamping tools and impeller tips.		



Postalloy® 220HD	Used for applications that have extreme abrasion with very little impact or compressive loading. Temperature limit on this alloy is 900°F (488°C). This alloy is especially good where abrasive media is hard and sharp. It contains over 50% Tungsten Carbide and 10% Chromium Carbide. Chromium Carbide lowers the coefficient of friction and hardens the matrix, thereby protecting the Tungsten Carbide particles from premature wear.		Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)
	Average Matrix Hardness 64-68Rc	<ul style="list-style-type: none"> Relief checks readily to prevent stress build-up Cannot be flame cut 	
Deposit Thickness 2 Passes	Applications: Pan scrapers, coal & cement fans, dry cement pump screws, suction dredge blades, shredder knives, pilot blades, mixer paddles and blades, churn drills, ditcher teeth, fly ash conveyors, debarking hammers, sand slinger cups and impeller tips.		



CHROMIUM CARBIDE ALLOYS

HIGH ABRASION/MILD to MODERATE IMPACT

 <p>Postalloy® 210HD</p>	<p>This alloy is formulated with a high percentage of Chromium Carbides producing an overlay that is highly resistant to abrasion with mild or moderate impact. Weld deposits are smooth and take on a high polish to resist sliding particle abrasion. Hot hardness up to 1000°F (538°C). 210HD can be applied to carbon and alloy steels, manganese steel, as well as cast iron. High compression strength – deposits do not spall off under conditions of high impact. Ideal for gouging abrasion.</p>		<p>Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)</p>
	<p>Average Hardness 50-55Rc</p>	<ul style="list-style-type: none"> • Relief checks readily to prevent stress build-up • Cannot be flame cut 	
	<p>Deposit Thickness 2 Passes</p>		
<p>Applications: Swing hammers, fixed hammers, shovel buckets, crusher rolls, muller tires, blow bars, tampers and log grapples.</p>			
 <p>Postalloy® 215HD</p>	<p>This alloy is formulated with a high percentage of Chromium Carbides producing an overlay that is highly resistant to abrasion with mild or moderate impact. Weld deposits are smooth and take on a high polish to resist sliding particle abrasion. Hot hardness up to 1000°F (538°C). 215HD can be applied to carbon and alloy steels, manganese steel, as well as cast iron.</p>		<p>Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)</p>
	<p>Average Hardness 60Rc</p>	<ul style="list-style-type: none"> • Relief checks readily to prevent stress build-up • Cannot be flame cut 	
	<p>Deposit Thickness 2 Passes</p>		
<p>Applications: Bucket lips and teeth, crusher jaws, crusher mantles & liners, shredder and fibrizer hammers, quarry screen plates, grizzly bars & feeder spouts, mining and construction screw conveyors, and dozer end bits.</p>			
 <p>Postalloy® 216HD</p>	<p>Primarily engineered for the sugar cane industry (Roll-Arcing), to be used while the sugar cane roll is rotating. Postalloy® 216HD produces a rough weld deposit that will aid in pulling, tearing and crushing the sugar cane as it feeds through the rolls during processing. Also used for sugar mill rolls hooks (Picote).</p> <p>A chromium carbide tubular hardfacing electrode with much higher percentages of carbide forming elements contained in the core than with conventional flux-coated electrodes. Weld chemistry produces a chromium carbide weld deposit for overlaying surfaces exposed to high abrasion and medium impact.</p>		<p>Sizes: 1/4 (6mm) 3/8 (9.5mm) 1/2 (12.7mm)</p>
	<p>Average Hardness 60Rc</p>	<ul style="list-style-type: none"> • Relief checks readily to prevent stress build-up • Cannot be flame cut 	
	<p>Deposit Thickness 2 Passes</p>		
<p>Applications: Sugar mill rolls (Chapisco), sugar mill roll hooks (Picote), cane rakes and combs, casing cane crushers, cane knives (Cuchillas) and fibrizer hammers (Martillo).</p>			

VANADIUM - TUNGSTEN CARBIDE ALLOYS

EXTREME ABRASION & IMPACT

 <p>Postalloy® 150HD Vanguard (RCT™)</p>	<p>Used when protection with tungsten carbide is needed. Weld deposits contain tungsten carbide in a chromium carbide rich matrix for added wear and corrosion resistance.</p>		<p>Sizes: 1/4 (6mm)</p>
	<p>Average Matrix Hardness 62-67Rc</p>	<ul style="list-style-type: none"> • Does not check crack with proper procedures • Cannot be flame cut 	
	<p>Deposit Thickness 2 Passes</p>		
<p>Applications: Recycling wear parts, shredder hammers, augers, grinding equipment, stabilizers and rippers.</p>			

CAST IRON ALLOYS

CAST IRON REPAIR

Postalloy®
Nico-Tek
(RCT™)

A superior tubular cast iron electrode using state of the art manufacturing and coating technology to produce a welding electrode suitable for joining and surfacing various grades of cast iron. Ideal for heavy weldments and filling in deep cavities. Nico-Tek produces a weld deposit with lower weld shrinkage stress which reduces the possibility of weld or heat-affected zone cracking. Nico-Tek has excellent arc-gouging action that penetrates through surface contamination. The easily controlled weld metal results in spatter-free weld deposits with no undercutting.

- Base metal should be pre-heated to 400°F (204°C).
- 1/4" diameter tubular electrode operates at 90 to 120 amps – the same as a standard 1/8" diameter flux coated electrode.
- Tubular construction allows use at lower amperage.
- Tubular electrodes resist overheating.
- Creates dense deposits on dirty, oil-soaked cast iron.
- Low amperage prevents heat rise in casting.
- Weld layers can be easily filled or machined.

Sizes:
1/4 (6mm)

Applications: Castings, cast iron, valves, machine parts



BARE TUBE OXY-ACETYLENE HARDFACING ALLOYS

CHROMIUM CARBIDE

Postalloy®
BT
Chromalloy

A chromium carbide bare tubular rod for oxy-acetylene applications. It is an ideal solution for extreme metal to earth applications. It offers excellent abrasion resistance with mild or moderate impact. It is well suited for applications requiring thin deposits. Excellent for application to tillage tools. It can be applied to carbon, low alloy and manganese steels. Can be used in hot wear applications up to 900°F (482°C).

Sizes:
1/4 (6mm)
3/16 (4.8mm)

Average Hardness	57-62Rc	• Deposits cannot be machined or forged
Deposit Thickness	1 Pass	

Applications: Sand chutes, subsoiler blades, cultivator dies, conveyor & classifier flights, plowshares, sweeps and tillage tools



TUNGSTEN CARBIDE

Postalloy®
BT 2954

Iron-based bare tubular rod for oxy-acetylene applications manufactured with over 60% tungsten carbide particles. An ideal solution for extreme abrasion resistant applications and moderate to low impact. Also good for metal-to-earth applications involving extreme abrasion and moderate to low impact. Well suited for applications requiring thin deposits. It can be applied to carbon and low alloy steels. Can be used in hot wear applications up to 900°F (482°C).

Sizes:
1/4 (6mm)

Average Matrix Hardness	57-62Rc	• Deposits cannot be machined or forged
Tungsten Carbide Hardness	300 Hv	
Deposit Thickness	1-2 Passes	

Applications: Grain mill hammers, agricultural implements, cane knives, drill bits and reamers and tunnel boring heads.



Wear Resistant Solutions for All Industries



MINING/QUARRIES



SUGAR CANE



CONSTRUCTION



ENERGY/POWER



LOGGING



FOUNDATION DRILLING



RECYCLING



DREDGING



AGRICULTURE



RAILROADS



CEMENT INDUSTRY



WOOD/MULCH

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