



WASHINGTON ALLOY'S  
Quality Management System is  
Certified to ISO 9001:2008  
Cert # 05-R0925

# Alloy B3<sup>®</sup> Wire & Rod

U.S. ALLOY CO.  
dba Washington Alloy  
7010-G Reames Rd.  
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**American Welding Society**  
Sustaining Company Member



Washington Alloy B-3<sup>®</sup> alloy is an additional member of the nickel-molybdenum family of alloys with excellent resistance to hydrochloric acid at all concentrations and temperatures. Found for welding Ni-Mo alloy such as ASTM

B333, B335, B366, B564, B619, B622 and B626 as well as other nickel base alloys to their self or to steels. It also withstands sulfuric, acetic, formic and phosphoric acids, and other non-oxidizing media. B-3 alloy has a special chemistry designed to achieve a level of thermal stability greatly superior to that of its predecessors, e.g. HASTELLOY B-2 alloy. B-3 alloy has excellent resistance to pitting corrosion, to stress-corrosion cracking and to knife-line and heat-affected zone attack. The improved thermal stability of HASTELLOY B-3 alloy minimizes the problems associated with fabrication of B-2 alloy components. This is due to the reduced tendency to precipitate deleterious intermetallic phases in B-3 alloy, thereby, affording it greater ductility than B-2 alloy during and following various thermal cycling conditions. B-3 alloy is suitable for use in all applications previously requiring the use of HASTELLOY B-2 alloy. Like B-2 alloy, B-3 is not recommended for use in the presence of ferric or cupric salts as these salts may cause rapid corrosion failure. Ferric or cupric salts may develop when hydrochloric acid comes in contact with iron or copper. May also weld DIN specification of 17744 No. 2.4600 & TUV Werkstoffblatt 517.

### TYPICAL GMAW WELDING PROCEDURES; DCEP Spray Arc

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Electrical Stick-out	Argon (cfh)
0.030	550-750	175-250	26-32	3/8-1/2"	30-40
0.035	425-575	175-300	26-32	3/8-1/2"	30-40
0.045	250-350	200-310	26-32	3/8-1/2"	35-50
0.062	125-200	250-330	27-33	1/2"-5/8"	35-50

### TYPICAL GMAW WELDING PROCEDURES; DCEP Short Circuit (cfh)

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Electrical Stick-out	75Ar/25He
0.035	150-200	90-110	18-21	3/8-1/2"	35-45
0.045	175-225	100-140	19-23	3/8-1/2"	40-50

### TYPICAL GTAW WELDING PROCEDURES; DCEN with EWTh-2 truncated conical tip

Filler Wire Size	Tungsten	Amps	Volts	Gas Cup Size	Argon (cfh)	Base thickness
1/16"	1/16"	50-120	12	1/2" 20		1/16-1/8"
3/32"	3/32"	90-150	12	3/4" 25		1/8- 3/16"
1/8"	1/8"	100-175	12	5/8" 30		1/4-1/2"

Procedures may vary with change in position, base metals, filler metals, equipment and other changes.

### AWS CHEMISTRY REQUIREMENTS (%) & TYPICAL WELD METAL STRENGTHS;

Carbon	0.01 max	Nickel + Co	65.0 min.	Tensile Strength (psi)	110,000
Manganese	3.00 max	Cobalt	3.00 max	Yield Strength (psi)	80,000
Iron	1.0-3.0	Aluminum	0.50 max	Elongation	45%
Phosphorus	0.03 max	Titanium	0.20 max		
Sulphur	0.01 max	Chromium	1.0-3.0		
Silicon	0.10 max	Vanadium	0.20 max	Niobium (or Cb) + Tantalum	0.20 max
Copper	0.20 max	Tungsten	3.00 max	Molybdenum	27.0-32.0

Ni + Mo is 94.0-98.0; Ta is 0.02 max; Zr is 0.10 max

**AVAILABLE SIZES:** TN B3 = Cut lengths of 1/16, 3/32

Other sizes available – please inquire

**SPECIFICATIONS;** ANSI/AWS A5.14 ERNiMo-10

ASME SFA 5.14 ERNiMo-10 F# = 44

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