Nickel Aluminum Bronze Welding Wire and Rod

U.S. ALLOY CO.
dba Washington Alloy
7010-G Reames Rd.
Charlotte, NC 28216
www.weldingwire.com

Quality Management System
in accordance with
ISO 9001
Cert # 05-R0925

American Welding Society
Sustaining Company Member

GAWDA
GASES AND WELDING DISTRIBUTORS ASSOCIATION

ALLOY DESCRIPTION AND APPLICATION;

Washington Alloy Nickel-Aluminum Bronze filler metal is used for MIG and TIG welding of cast and wrought nickel-aluminum bronze parts such as ship propellers, where high resistance to corrosion, erosion and cavitations in salt or brackish water is required. Nickel-Aluminum Bronze is a very popular filler metal in offshore technology for such items as sea-water desalting, shipbuilding and repair. Also used in the power plant and chemical industry for pumps and tube systems. Helium may be preferred when TIG welding on Al-bronzes that has 300°F maximum interpass recommendations.

TYPICAL GMAW WELDING PROCEDURES; DCEP Spray transfer

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Argon (cfh)
0.023	460-580	60-120	21-22	20-25
0.030	450-525	130-160	21-24	20-30
0.035	385-455	155-190	23-25	25-30
0.045	275-310	210-235	26-28	30-35
1/16	150-240	250-310	27-31	35-40

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”	80-170	12	3/8-1/2”	20	1/16-1/8”
3/32”	3/32”	140-275	12	3/8-1/2”	20	1/8- 3/16”
1/8”	1/8”	200-375	12	1/2”	25	1/4-3/8”
1/8-5/32”	3/16”	260-475	12	1/2-3/4”	30	3/8-1/2”

Procedures may vary with change in position, base metals, filler metals, equipment and other changes.
Copper base may need preheat and high side of range, Bronze base may need preheat and mid-high side of range, Steels preheat per carbon content

CHEMICAL COMPOSITION REQUIREMENT (%) AND PHYICAL PROPERTIES;

Zinc	0.02	Solidus	1904° F
Iron	3.0-5.0	Liquidus	1940°F
Silicon	0.10	Density (lbs/in^3)	0.275
Aluminum	8.5-9.5	Thermal Conductivity	37.0 Btu
Lead	0.02	Brinell Hardness	160-200
Copper	Remainder	Elongation	23 %
Manganese	0.60-3.50	Tensile Strength (psi)	72-140,000
Nickel	4.0-5.5	Yield Strength (psi)	35-60,000

All single values on composition are maximum percentages & Total others elements 0.50

AVAILABLE SIZES: TCU CU-NI-AL = Spools of .035, .045, 1/16
TCU CU-NI-AL/ Cut lengths of .045, 1/16, 3/32, 1/8, 5/32
Other sizes available – please inquire

SPECIFICATIONS; **ANSI/AWS** A5.7 ERCuNiAl
ASME SFA 5.7 ERCuNiAl

EAST COAST
825 Groves St
Lowell, NC 28098
Tel (980) 550-2002
Fax (909) 291-4586

GULF COAST
4855 Alpine Drive #100
Stafford, TX 77 477
Tel (888) 522-8296
Fax (909) 291-4586

WEST COAST
8885 White Oak, Ste104
Rancho Cucamonga, CA 91730
Tel (888) 522-8296
Fax (909) 291-4586

Warehouse Distribution Center – Dallas/Fort Worth & Portland, Oregon & Boston, Massachusetts Head Office – Puyallup, Washington

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