



ALUMINUM BRONZE A3 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



ALLOY DESCRIPTION AND APPLICATION;

Description

Washington Alloy Aluminum Bronze A-3 contains a higher Iron (Fe) content than Aluminum Bronze A-2. The higher Iron content gives "A-3" greater strength when joining aluminum bronze castings of similar composition. "A-3" is often used for piston overlay and bearing surface applications which require higher strength, while maintaining good ductility. May be found applications and alloy such as C954, pistons, bearings, rams, turbines, valve seats, impellers, bushing, wear plates, breaker blocks and many others.

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 REQUIRMENT (%) AND PHYSICAL PROPERTIES;

| | | | |
|------------------|-----------|--------------------------------|-------------------|
| Zinc | 0.10 | Solidus | 1880° F |
| Iron | 2.0-4.5 | Liquidus | 1900°F |
| Silicon | 0.10 | Electrical Conductivity | 12.0% (% of IACS) |
| Aluminum | 10.0-11.5 | Density (lbs/in ³) | 0.269 |
| Lead | 0.02 | Thermal Conductivity | 34.0 Btu |
| Copper | Remainder | Elongation | 22 % |
| | | Tensile Strength (psi) | 65-110,000 |
| Brinell Hardness | 140-185 | Yield Strength (psi) | 35-48,000 |

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

AVAILABLE SIZES: TCU AB = Spools of .035, .045, 1/16

TCU AB Cut lengths of 1/16, 3/32, 1/8

Other sizes available – please inquire

SPECIFICATIONS; ANSI/AWS A5.7 ERCuAl-A3
ASME SFA 5.7 ERCuAl-A3 : F-36, A-NA

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