

Aluminum Bronze A-1

◆ INTRODUCTION

Aufhauser Aluminum Bronze A-1 is an iron-free aluminum bronze filler metal used for MIG and TIG overlay welding. Aluminum Bronze A-1 is not recommended for joining.

◆ APPLICATIONS

- MIG and TIG overlay welding of wear resistant surfaces exposed to corrosive environments such as salt or brackish water and commonly used acids.
- Overlaying tube sheets, valve seats and refineries in steel and pulp mills.

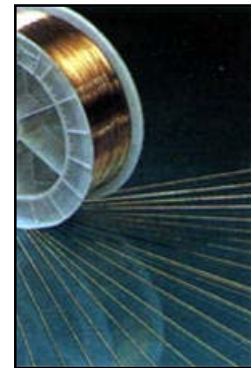
◆ CHEMICAL COMPOSITION

<u>Copper</u>	<u>Aluminum</u>	<u>Iron</u>	<u>Lead</u>	<u>Silicon</u>	<u>Zinc</u>
Remainder	6.0-8.5	.50	.02	.10	.20

Note: Copper contains Silver. Copper + Named elements = 99.5% min.

◆ PHYSICAL and MECHANICAL PROPERTIES

Melting Point:	1905°F
Density, at 68°F:	0.281 lb/in ³
Electrical Conductivity, at 68°F:	15 %IACS
Thermal Conductivity, at 68°F:	40.0 Btu · ft/(hr · ft ² · °F)
Electrical Resistivity, at 68°F:	69.2 ohms-cmil/ft
Specific Gravity:	7.78
Specific Heat Capacity, at 68°F:	0.09 Btu/lb/°F
Tensile Strength:	55,000 psi, min.
Yield Strength:	24 ksi
Elongation, in 2 in.:	30%
Brinell Hardness:	80-110



◆ SPECIFICATIONS MEET or EXCEED

- AWS A5.7 Class ERCuAl-A1
- ASME SFA5.7 ERCuAl-A1
- QQ-C-450

◆ STANDARD SIZES AND DIAMETERS

<u>Size</u>	<u>Cast</u> (12" spool)	<u>Helix</u> (12" spool)
3/32 or 1/8 x 36" rod	N/A	N/A
.035" dia. X 30 lb. spl	15-40"	< 1"
.045" dia. X 30 lb. spl	15-40"	< 1"
.062" dia x 30 lb. Spl	15-40"	< 1"

Copper and its alloys require a relatively high heat input with shortened welding time. Higher preheat temperatures and faster welding rates than for steel are necessary.



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◆ RECOMMENDED WELDING PARAMETERS:

* **GMAW (MIG) Parameters** (DC Reverse Polarity) Electrode Positive Spray transfer

Wire Diameter	Amps	Volts	Argon (cfh)	Wire Feed (ipm)
0.030	70-140	25-26	25	340-450
0.035	130-200	26-27	30	280-400
0.045	185-245	27-28	30	200-300
1/16	250-400	28-30	40	150-210

***GTAW (TIG) Parameters** (DCSP)² Electrode negative or ACHF

Material	2% Thoriated ²	Filler Wire Size	Amps (DC)	Amps (AC)	Gas Cup	Argon (cfh)
1/16"	1/16"	1/16"	80-120	80-120	3/8-1/2	15
3/32"-1/8"	3/32"	3/32"	145-205	145-195	7/16-1/2	15
3/16"	1/8"	3/32"-1/8"	300-350	255-300	7/16-1/2	20
1/2"	3/16"	1/8"	515-640	340-485	1/2	25

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