COPPER BASE WELDING ALLOYS

WELDING Cu & Cu BASE ALLOYS CONDITIONS / SHIELDING GAS INFO
COPPER BASE WELDING ALLOYS PROPERTIES

NICKEL-ALUMINUM BRONZE ALLOY

AWS A5.7-84 Class ERCuNiAl
†ASME SFA5.7 ERCuNiAl
†MIL-E-23765/3

DESCRIPTION AND APPLICATIONS

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 cavitation in salt or brackish water is required. Nickel-Aluminum Bronze is a very popular filler metal in offshore technology for such items as seawater desalting, shipbuilding and repair. Also used in the power plant and chemical industry for pumps and tube systems.

FILLER METAL CHEMISTRY (%)

*Cu	Balance
Zn	0.1 0 max.
Mn	0.60-3.50
Pb	0.02 max.
Fe	3.0-5.0
Si	0.1 0 max.
**Ni	4.00-5.50
Al	8.50-9.50

*Includes Silver (Ag)
**Includes Cobalt (Co)

MECHANICAL PROPERTIES OF WELD METAL

Tensile strength (psi).....72,000 min.
Brinell hardness.....160-200

MANGANESE-NICKEL-ALUMINUM BRONZE ALLOY

AWS A5.7-84 Class ERCuMnNiAl
†ASME SFA5.7 ERCuMnNiAl †MIL-E-23765/3

DESCRIPTION AND APPLICATIONS

Manganese-Nickel-Aluminum Bronze filler metal is designed for MIG and TIG welding or surfacing of cast or wrought basemetals of similar analysis. Especially suited for welding ship propellers where resistance to corrosion, erosion and cavitation is required. Manganese-Nickel-Aluminum Bronze is also used for joining or surfacing copper alloys of unalloyed and low alloy steel as well as grey cast iron. Good toughness and hardness.

FILLER METAL CHEMISTRY (%)

*Cu	Balance
Zn	0.15 max.
Mn	11.0-14.0
Pb	0.02
Fe	2.0-4.0
Si	0.10 max.
**Ni	1.5-3.0
Al	7.0-8.5

*Includes Silver (Ag)
**Includes Cobalt (Co)

MECHANICAL PROPERTIES OF WELD METAL

Tensile strength (psi).....75,000 min.
Brinell hardness.....160-200

PHOS-BRONZE A ALLOY NO. 518

AWS A5.7-84 Class ERCuSn-A
†ASME SFA5.7 ERCuSn-A
†QQ-R-571C MIL-R-1963B TYPE MIL-RCuSn-A

DESCRIPTION AND APPLICATIONS

Phos-Bronze A filler metal is used for MIG and TIG welding of tinbronze base metals such as 509 to 519 series, for brass and for overlay welding of steel.

Phos-Bronze A contains approximately 5% tin and up to 0.35% phosphorus. The tin content increases the wear resistance of the weld deposit while the phosphorus acts as a deoxidizer. Preheating is recommended.

FILLER METAL CHEMISTRY (%)

*Cu	Balance
Sn	4.0-6.0
P	0.10-0.35
Al	0.01
Pb	0.02

*Includes Silver (Ag)

MECHANICAL PROPERTIES OF WELD METAL

Tensile strength (psi).....35,000 min.
Brinell hardness..... 70-85

MSDS THIS PAGE AVAILABLE

PHOS-BRONZE "C" Phosphor Bronze — Properties Not Specified — The only phos/bronze per AWS A5.7 is class ERCuSn-A. Harris Welco offers ERCuSn-C, which has greater tin content, hardness and strength than ErCuSn-A.

CALL FOR SIZE AVAILABILITY & PRICING

COPPER BASE ALLOYS
for TIG and TORCH 36" CUT LENGTHS

PRODUCT and DESCRIPTION	SIZE	STOCK NUMBER	PRICE PER LB
3-Doc Deoxidized Copper For Tig or Torch 36" Cut Lengths	1/16"x36"	03D0C30	$6.43
	3/32"x36"	03D0C50	$6.31
	1/8"x36"	03D0C60	$6.22
3-SIB Silicon Bronze For Tig or Torch 36" Cut Lengths.	.035"x36"	03SIBF0	$10.36
	.045"x36"	03SIBH0	$8.70
	1/16"x36"	03SIB30	$7.87
	3/32"x36"	03SIB50	$7.69
	1/8"x36"	03SIB60	$7.58
3-ALB-A1 Aluminum Bronze E CuAl Used for Build up. For Tig or Torch 36" Cut Lengths	1/16"x36"	03ALB30	$15.55
	3/32"x36"	03ALB50	$15.20
	1/8"x36"	03ALB60	$13.96
3-ALB-A2 Aluminum Bronze E CuAl Used for Joining For Tig or Torch 36" Cut Lengths.	1/16"x36"	3ALB230	$18.55
	3/32"x36"	3ALB250	$18.20
	1/8"x36"	3ALB260	$18.96
3-PHB Phos-Bronze C For Tig or Torch 36" Cut Lengths.	1/16"x36"	03PHB30	$11.22
	3/32"x36"	03PHB50	$11.77
	1/8"x36"	03PHB60	$11.71

Naval bronze RBCuZn-A — Up to: 68,000 psi
1/16" thru 1/8" x 36" — 1670° to 1750°F / 910° to 954°C
Available Upon request

t Nickel Based and Cobalt-Based Alloys can be certified to most commercial and aircraft specifications, however material supplied to both ASME and MIL specifications are considered nonstandard and must be tested to the applicable specification. Such testing will necessitate additional charges to the buyer. It is the responsibility of the buyer to state these ASME or MIL specification requirements at the time of inquiry.

COPPER BASE ALLOY
2 Lb. SPOOLS

PRODUCT and DESCRIPTION	SIZE	STOCK NUMBER	PRICE PER LB
DOC- Deoxidized Copper ER Cu	.035	00D0CF2	$11.76
	.045	00D0CH2	$11.84
SIB-Silicon Bronze ER CuSiA	.025	00SIB12	$14.91
	.030	00SIBE2	$13.35
	.035	00SIBF2	$12.98
	.045	00SIBH2	$12.69

30 LB. SPOOLS

PRODUCT and DESCRIPTION	SIZE	STOCK NUMBER	PRICE PER LB
DOC - Deoxidized Copper ER Cu	.035	00D0CF8	$8.95
	.045	00D0CH8	$8.75
	1/16"	00D0C38	$8.46
	3/32"	00D0C58	$8.20
SIB-Silicon Bronze ERCuSi-A	.025	00SIB18	$11.32
	.030	00SIBE8	$9.49
	.035	00SIBF8	$9.11
	.045	00SIBH8	$9.05
	1/16"	00SIB38	$8.99
	3/32"	00SIB58	$8.90
PHB-Phos-Bronze C ERCuSn-C	.030	0PHBCE8	$10.60
	.035	0PHBCF8	$9.99
	.045	0PHBCH8	$9.71
	1/16"	0PHBC38	$9.51
	3/32"	0PHBC58	$9.50
ALB-AL Aluminum Bronze A1 ER CuAl-Al Used for Build Up	.035	0ALB1FB	$18.34
	.045	0ALB1H8	$17.80
	1/16"	0ALB138	$15.50
	3/32"	0ALB158	$14.80
ALB-A2 Aluminum Bronze A2 ER CuAl-A2 Used for Joining	.035	0ALB2F8	$23.10
	.045	0ALB2H8	$21.20
	1/16"	0ALB238	$18.29