Technical Assistance From
AlcoTec Wire Corporation

AlcoTechnics

ALLOY 1100 WELD DATA SHEET

TYPICAL APPLICATIONS

- Welding Filler Wire
- Heat Exchangers
- Food Handling Equipment
- Rivets
- Tie Wire
- Metallizing

GENERAL INFORMATION

- Non-Heat treatable
- ISO designation Al99.0Cu
- Principle alloying elements: Copper
- Applicable specifications: ANSI/AWS A5.10(ER & R), ASTM B316, QQ-A-430, AMS 4102 (Chemistry Only)

WELDING APPROVALS

- Canadian Welding Bureau

TYPICAL PROPERTIES

Melting range:	1190 - 1215°F	Resistance to corrosion:	A (Gen) A(SCC)
Conductivity:	59 % IACS (-H12)	Anodize Color:	Light Golden
Density:	.098 lbs./cu. in.	Workability rating:	A(-H14)

CHEMISTRY

								OTHERS		
SILICON	IRON	COPPER	MANGANESE	MAGNESIUM	CHROMIUM	ZINC	TITANIUM	EACH	TOTAL	ALUM (MIN)
*	*	0.05-0.20	0.05	-	-	0.10	-	0.05	0.15	99.00

* SILICON PLUS IRON 0.95

NOTE: SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

TYPICAL MECHANICAL PROPERTIES

Temper	UTS (KSI)	UYS(KSI)	%E(2 in.)	BHN	Shear(KSI)
-O	13.0	5.0	35	23	9
-H12	16.0	15.0	2	28	10
-H14	18.0	17.0	9	32	11
-H16	21.0	20.0	6	38	12
-H18	24.0	22.0	5	44	13

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TYPICAL BEND RADII 90^0 COLD BENDS

	Thickness					
	.062"	.125"	.187"	.250"	.375"	.500"
-H12	0	1/2T	1T	1T	1 1/2T	2T
-H18	1T	1 1/2T	2 1/2T	3T	4T	4 1/2T

NOTE: EXPRESSED IN TERMS OF SHEET AND PLATE THICKNESS (T).

TYPICAL THERMAL TREATMENT

	METAL TEMPERATURE	TEMPER
Anneal Practice	650^0 F	-O

ALLOY CHARACTERISTICS

Alloy 1100 is highly resistant to chemical attack and weathering. It is a relatively soft alloy that is very formable and is used extensively in thin gauge and foil products. It has good welding characteristics and it is also used as a filler alloy for welding purposes.

A desirable characteristic of the alloy is the bright finishes obtained by anodizing.

Typical Semiautomatic GMA Procedures for Fillet and Lap Welding Aluminum

Wire Dia	DC(EP)[3] Range		Base[1] Thickness	DC(EP) Suggested		Wire Feed	Argon Gas Flow	Approximate Consumption[2]
Inches	Amps	Volts	Inches	Amps	Volts	IPM	CFH	Lbs/100Ft
.030	100-130	18-22	.094	100	22	500	30	0.75
	125-150	20-24	.125	120	22	600	30	1
.035	85-120	20-23	.094	110	22	480	30	0.75
	125-150	20-24	.125	130	22	566	30	1
	170-190	21-26	.250	170	23	740	35	4
.047	125-150	20-24	.125	150	23	360	30	1
	180-210	22026	.187	180	23	410	30	2.3
	170-240	24-28	.250	190	24	470	40	4
.062	190-260	21-26	.250	200	23	265	50	4
	240-300	22-27	.375	230	24	300	50	9
	260-310	22-27	.500	260	26	340	60	16
	280-320	24-28	.750	280	27	385	65	36
	290-340	26-30	1.000	300	28	420	70	64
.094	280-360	26-30	.750	320	29	170	60	36
	300-400	26-32	1.000	330	30	180	80	64

1. Metal thickness of ¾" or greater for fillet welds sometimes employs a double vee bevel of 50 deg or greater included vee with 3/32 to 1/8 inch land thickness on the abutting member.
2. Electrode consumption given for weld on one side only and based on leg length equal to plate thickness.
3. For 5XXX series electrodes use a welding current in the high side of the range given and an arc voltage in the lower portion of the range. 1XXX, 2XXX, and 4XXX series electrodes would use the lower currents and higher arc voltages.

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