Technical Assistance From
AlcoTec Wire Corporation

AlcoTechnics

ALLOY 4047 WELD DATA SHEET

TYPICAL APPLICATIONS

- Welding Filler Wire

GENERAL INFORMATION

- Trade Designations: Almigweld and Altigweld
- Non-Heat treatable
- Similar to AlSi12 (Germany)
- ISO designation AlSi12
- Principle alloying elements: Silicon
- Applicable specifications: ANSI/AWS A5.10(ER & R), AMS 4185 (Chemistry Only)

WELDING APPROVALS

- Canadian Welding Bureau

TYPICAL PROPERTIES

Melting range:	1070 - 1080^{o}F	Resistance to corrosion:	B (Gen) A (SCC)
Conductivity:	41 % IACS (-O)	Anodize Color:	Gray-Black
Density:	.096 lbs./cu. in.		

CHEMISTRY

									OTHERS		
SILICON	IRON	COPPER	MANGANESE	MAGNESIUM	CHROMIUM	ZINC	TITANIUM	BERYLLIUM	EACH	TOTAL	ALUM
11.0-13.0	0.8	0 .30	0.15	0.10	-----	0.20	----	0.0003	0.05	0.15	REM

NOTE: SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

TYPICAL MECHANICAL PROPERTIES OF GTAW GROOVE JOINT WELDS*

	BASE ALLOY PROPERTIES			AS WELDED			POSTWELD HEAT-TREATED & AGED[1]		
BASE ALLOY	UTS (KSI)	UYS (KSI)	ELONG (%)	UTS (KSI)	UYS (KSI)	ELONG (%)	UTS (KSI)	UYS (KSI)	ELONG (%)
2014-T6	70	60	13	34	28	4	50	----	2
6061-T4	35	21	22	27	18	8	35[2]	----	8[2]
6061-T6	45	40	12	27	18	8	44	40	5
6063-T4	25	22	22	20	10	12	30	----	13

(1) REQUIRES SUFFICIENT DILUTION OF BASE METAL INTO WELD POOL FOR HEAT TREAT AND/OR AGE RESPONSE. REFER TO ALCOTECHNIC CONCERNING ALLOY 4643 FOR ADDITIONAL INFORMATION.
(2) POSTWELD AGED ONLY.
* ALLOYS 4043 AND 4047 ARE CONSIDERED THE SAME FOR PROPERTIES PER AWS D1.2 STRUCTURAL WELDING CODE.

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ALLOY CHARACTERISTICS

ALLOY 4047 WAS ORIGINALLY DEVELOPED AS A BRAZING ALLOY (BAlSi-4) OR (718) TO TAKE ADVANTAGE OF ITS LOW MELTING POINT AND NARROW FREEZING RANGE. IN ADDITION, IT HAS A HIGHER SILICON CONTENT THAN 4043, WHICH PROVIDES FOR INCREASED FLUIDITY AND REDUCED SHRINKAGE. THE ALLOY PRODUCES BRIGHT AND ALMOST SMUT FREE WELDS. HOT CRACKING IS SIGNIFICANTLY REDUCED WHEN 4047 IS USED AS A FILLER ALLOY.
THE ALLOY MAY BE USED IN APPLICATIONS OF SUSTAINED ELEVATED TEMPERATURES.

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.

THIS INFORMATION IS BASED ON DATA DEVELOPED UNDER LABORATORY CONDITIONS AND IS DESIGNED AS A GUIDELINE ONLY. INDIVIDUAL CONDITIONS, WELDING EQUIPMENT AND ENVIRONMENT CAN AFFECT SUGGESTED SETTINGS.

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