

ALLOY 5356 WELD DATA SHEET

TYPICAL APPLICATIONS

- Welding Filler Wire

GENERAL INFORMATION

- Trade Designation: mig and tig
- Non-Heat treatable
- Similar to AlMg5 (DIN)
- EN ISO designation AlMg5Cr(A)
- Principle alloying elements: Magnesium, Manganese, Chromium, Titanium
- Moderate high strength capabilities
- Applicable specification: ANSI/AWS A5.10 (ER & R)

WELDING APPROVALS

- | | | |
|-------------------------------|-------------------------|-----------------|
| • American Bureau of Shipping | Canadian Welding Bureau | Lloyds Register |
| • Bureau Veritas | RINA | Korean Register |
| • Det Norske Veritas | TuV | CE |
| • DB | | |

TYPICAL PROPERTIES

Melting range:	1060 - 1175°F	Resistance to corrosion:	A (Gen) C (SCC)
Conductivity:	29 % IACS (-O)	Anodize Color:	White
Density:	.096 lbs/cu.in		

CHEMISTRY

<u>SILICON</u>	<u>IRON</u>	<u>COPPER</u>	<u>MANGANESE</u>	<u>MAGNESIUM</u>	<u>CHROMIUM</u>	<u>ZINC</u>	<u>TITANIUM</u>	<u>BERYLLIUM</u>	<u>OTHERS</u>		<u>ALUMINUM</u>
									<u>EACH</u>	<u>TOTAL</u>	<u>REM</u>
0.25	0.40	0.10	0.05-0.20	4.5-5.5	0.05-0.20	0.10	0.06-0.20	0.0003	0.05	0.15	

NOTE: SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

TYPICAL MECHANICAL PROPERTIES OF GMAW GROOVE JOINT WELDS

BASE ALLOY	BASE ALLOY PROPERTIES			AS WELDED		
	UTS(KSI)	UYS(KSI)	ELONG(%)	UTS(KSI)	UYS(KSI)	ELONG(%)
6061-T6, -T651	45	40	12	30	19	11
6063-T6	35	31	12	20	12	12
7005-T6, -T63	54	46	12	46	30	10
7039-T64	65	55	13	44	25	13
5086-H32	42	30	12	39	17	17

Typical Semiautomatic GMA Procedures for Fillet and Lap Welding Aluminum

Wire Dia Inches	DC(EP) ³ Range		Base ¹ Thickness Inches	DC(EP) Suggested		Wire Feed IPM	Argon Gas Flow CFH	Approximate Consumption ² Lbs/100Ft
	Amps	Volts		Amps	Volts			
.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	22-26	.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 3/4" 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.

WELDING APPLICATIONS

A CHARACTERISTIC OF THE 5XXX SERIES OF ALLOYS IS THEIR SUSCEPTIBILITY TO STRESS CORROSION CRACKING WHEN THE WELD POOL CHEMISTRY IS GREATER THAN 3% Mg AND THERE IS EXPOSURE TO PROLONGED TEMPERATURES IN EXCESS OF 150° F. SPECIAL ALLOYS AND TEMPERS ARE OFTEN REQUIRED TO OVERCOME THIS PROBLEM. CONTACT ALCOTEC FOR ASSISTANCE IN ALLOY AND TEMPER SELECTION WHEN ELEVATED TEMPERATURE SERVICE IS A CONCERN.