

# Aluminum 5356

## ◆ INTRODUCTION

Aluminum 5356 is the most widely used welding alloy and can be classified as a general purpose type filler alloy. AL5356 is typically chosen because of its relatively high shear strength. The 5XXX alloy base material, welded with AL5356, possessing a weld pool chemistry greater than 3% magnesium and service temperatures in excess of 150°F will be susceptible to stress corrosion cracking.

## ◆ APPLICATIONS

- Welding filler wire
- Nail wire

## ◆ GENERAL INFORMATION

- Non-Heat treatable
- ISO Designation: AIMg5Cr(A)
- Principle alloying elements: Magnesium, Manganese, Chromium, Titanium
- Moderate high strength capabilities

## ◆ CHEMICAL COMPOSITION

<u>Silicon</u>	<u>Iron</u>	<u>Copper</u>	<u>Beryllium</u>	<u>Manganese</u>	<u>Magnesium</u>	<u>Zinc</u>	<u>Titanium</u>	<u>Others</u> <u>Each</u>	<u>Total</u>
0.25	0.40	0.10	0.0008	0.05-0.20	4.5-5.5	0.10	0.06-0.20	0.05	0.15
<u>Aluminum</u>		<u>Chromium</u>							
Remainder		0.05-0.20							

Note: All values are maximum percentage, unless shown in range.

## ◆ PHYSICAL PROPERTIES

Melting Range:	1060-1175°F
Density, at 68°F:	0.096 lb/in <sup>3</sup>
Conductivity:	29% IACS (-O) 27% IACS (-H18)
Resistance to Corrosion:	A (Gen) C (SCC)
Hardness (BHN):	105 (-H18)
Anodize Color:	White



## ◆ SPECIFICATIONS MEET or EXCEED

- ANSI/AWS A5.10 (ER & R 5356)

## ◆ STANDARD SIZES AND DIAMETERS

<u>Diameters</u>	<u>Package Form</u>
.030, .035, 3/64, 1/16, 3/32, 1/8	4 & 12 in. Spools
1/16, 3/32, 1/8, 5/32, 3/16, 1/4	Straight lengths

## ◆ TYPICAL MECHANICAL PROPERTIES OF GMAW GROOVE JOINT WELDS

<u>BASE ALLOY</u>	<u>BASE ALLOY</u>			<u>AS WELDED</u>		
	<u>UTS (KSI)</u>	<u>UYS (KSI)</u>	<u>ELONG (%)</u>	<u>UTS (KSI)</u>	<u>UYS (KSI)</u>	<u>ELONG (%)</u>
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



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### ◆ TYPICAL GMAW PARAMETERS

Wire diameter	Range		Base material thickness	Suggested		Wire feed	Gas flow	Consumption 100 ft of weld
	<u>Inches</u>	<u>Amps</u>		<u>Volts</u>	<u>Amps</u>			
0.030	60-170	13-24	0.062	90	21	350	35	1.5
			0.094	100	22	560		1.8
			0.125	120	22	670		2
			0.187	140	23	780		4
0.035	70-180	15-26	0.062	100	21	350	35	1.5
			0.125	130	22	420		2
			0.250	170	23	640		6
0.047	140-260	20-29	0.094	100	22	150	45	1.8
			0.125	150	23	220		2
			0.250	190	24	320		6
			0.375	220	25	400		16
0.062	190-350	25-30	0.250	200	23	200	55	6
			0.375	230	24	220		16
			0.500	260	26	270		30
			0.750	280	27	300		50
			1.000	300	28	320		105
0.094	280-400	26-31	>1.000	350	30	180	60	150+

NOTE: Parameters based on flat position, groove joint, backing strip, and 100% argon gas.