

Aluminum 5556

◆ INTRODUCTION

Aluminum 5556 was first utilized in 1956. It develops the highest as-welded strengths in fillet welds, which is nearly double that of AL4043. The 5XXX series of alloys offer an excellent combination of corrosion resistance, strength, toughness, workability, and weldability. As a result, they are used in a wide variety of applications. A characteristic of this series of alloys, however, is their susceptibility to stress corrosion cracking when the weld pool chemistry is greater than 3% magnesium and there is exposure to prolonged temperatures in excess of 150 °F. Special alloys and tempers are often required to overcome this problem.

◆ APPLICATIONS

- Welding filler wire

◆ GENERAL INFORMATION

- Non-Heat treatable
- ISO Designation: AIMg3Mn(A)
- Principle alloying elements: Magnesium, Manganese, Chromium, Titanium

◆ 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>	Others	
								<u>Each</u>	<u>Total</u>
0.25	0.40	0.10	0.0008	0.50-1.0	4.7-5.5	0.25	0.05-0.20	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:	1055-1175°F
Density, at 68°F:	0.096 lb/in ³
Resistance to Corrosion:	A (Gen) B (SCC)
Anodize Color:	White



◆ SPECIFICATIONS MEET or EXCEED

- ANSI/AWS A5.10 (ER & R 5556)

◆ 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>
5456-H112	46	24	22	45	23	14



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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.