Aluminum 5554

Aufhauser
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♦ INTRODUCTION

Aluminum 5554 was developed as a filler alloy, primarily for alloy 5454 that is widely used in the manufacture of chemical storage tanks, automotive wheels, and in particular, those applications that may be subjected to temperatures in excess of 150 ºF. This combination of alloys does not become sensitive to stress corrosion cracking at elevated temperatures.

♦ APPLICATIONS

- Welding filler wire

♦ GENERAL INFORMATION

- Non-Heat treatable
- ISO Designation: AlMg3Mn(A)
- Principle alloying elements: Magnesium, Manganese, Chromium, Titanium

♦ CHEMICAL COMPOSITION

Silicon	Iron	Copper	Beryllium	Manganese	Magnesium	Zinc	Titanium	Others Each	Others Total
0.25	0.40	0.10	0.0008	0.50-1.0	2.4-3.0	0.25	0.05-0.20	0.05	0.15

Aluminum	Chromium
Remainder	0.05-0.20

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

♦ PHYSICAL PROPERTIES

Melting Range:	1155-1195°F
Density, at 68°F:	0.097 lb/in^3
Resistance to Corrosion:	A (Gen) A (SCC)
Anodize Color:	White

♦ SPECIFICATIONS MEET or EXCEED

- ANSI/AWS A5.10 (ER & R 5554)

♦ STANDARD SIZES AND DIAMETERS

Diameters	Package Form
.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

	BASE ALLOY			AS WELDED		
BASE ALLOY	UTS (KSI)	UYS (KSI)	ELONG (%)	UTS (KSI)	UYS (KSI)	ELONG (%)
5454-0	36	17	22	35	16	17

♦ TYPICAL ULTIMATE TENSILE STRENGTHS AT, SELECTED TEMPERATURES OF GMAW GROOVE JOINT WELDS

BASE	FILLER	-100°F	100°F	300°F	500°F
5454	5554	32.0 KSI	31.0 KSI	26.0 KSI	15.0 KSI

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♦ TYPICAL GMAW PARAMETERS

Wire diameter	Range		Base material thickness	Suggested		Wire feed	Gas flow	Consumption 100 ft of weld
Inches	Amps	Volts	Inches	Amps	Volts	Ipm	Cfh	pounds
0.030	60-170	13-24	0.062	90	21	350	25	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	80-400	26-31	>1.000	350	30	180	60	150+

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