

# ALLOY 5654 WELD DATA SHEET

## TYPICAL APPLICATIONS

- Welding Filler Wire

## GENERAL INFORMATION

- Non-Heat treatable
- Principle alloying elements: Magnesium, Chromium, Titanium
- Applicable specifications: ANSI/AWS A5.10 (ER & R)

## TYPICAL PROPERTIES

Melting range: 1100 - 1190°F  
Density: 0.096 lbs./cu. in.

Resistance to corrosion: A(Gen) A(SCC)  
Anodize Color: White

## 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>ALUM</u>
(1)	(1)	0.05	0.01	3.1-3.9	0.15-0.35	0.20	0.05-0.15	0.0003	<u>EACH</u>	<u>TOTAL</u>	<u>REM</u>
									0.05	0.15	

NOTE: (1) SILICON PLUS IRON = 0.45 MAXIMUM  
SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

## ALLOY CHARACTERISTICS

EXPOSURE TO CERTAIN CORROSIVE CHEMICALS REQUIRES SPECIAL CONTROLS ON THE ELEMENTS THAT MAKE UP THE ALUMINUM ALLOYS THAT ARE USED TO CONTAIN THEM. ALLOY 5654 WAS ORIGINALLY DEVELOPED IN 1968 TO PROVIDE CONTROLLED LOW LIMITS OF MAGNESIUM AND COPPER. THE RESULT WAS A UNIQUE FILLER ALLOY THAT CAN BE USED TO WELD TANKS FOR STORAGE OF HYDROGEN PEROXIDE.

THE ALLOY CONTAINS MORE THAN 3% MAGNESIUM, THEREFORE, IT IS NOT RECOMMENDED FOR ELEVATED TEMPERATURE APPLICATIONS DUE TO ITS SUSCEPTIBILITY TO STRESS CORROSION CRACKING.

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## TYPICAL SEMIAUTOMATIC GMA PROCEDURES FOR FILLET AND LAP WELDING ALUMINUM

Wire Dia <u>Inches</u>	DC(EP) <sup>3</sup> Range		Base <sup>1</sup> Thickness <u>Inches</u>	DC(EP) <sup>3</sup> Suggested		Wire Feed <u>IPM</u>	Argon Gas Flow <u>CFH</u>	Approximate Consumption <sup>2</sup> <u>Lbs/100Ft</u>
	<u>Amps</u>	<u>Volts</u>		<u>Amps</u>	<u>Volts</u>			
.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. Number of weld passes and electrode consumption given for weld on one side only.
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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