



# ALLOY 5556

Weld Data Sheet

D/F MACHINE SPECIALTIES  
1750 Howard Drive  
North Mankato, MN 56003  
Ph: (507) 625-6200  
Fax: (507) 625-6203

## TYPICAL APPLICATIONS

- Welding Filler Wire

## GENERAL INFORMATION

- Non-Heat treatable
- Similar to AlMg5Mn (Germany)
- Principle alloying elements: Magnesium, Manganese, Chromium, Titanium
- Applicable specification: ANSI/AWS A5.10(ER & R)

## WELDING APPROVALS

- |                               |                    |     |
|-------------------------------|--------------------|-----|
| • Canadian Welding Bureau     | Germanischer Lloyd | NKK |
| • American Bureau of Shipping | Lloyds Register    |     |
| • Det Norske Veritas          | Korean Register    |     |

## TYPICAL PROPERTIES

Melting range:	1055 - 1175° F	Resistance to corrosion:	A (Gen) B (SCC)
Density:	.096 lbs./cu. in.	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>
									<u>EACH</u>	<u>TOTAL</u>	<u>REM</u>
0.25	0.40	.010	0.05-0.20	4.5-5.5	0.05-0.20	0.25	0.05-0.20	0.0003	0.05	0.15	

NOTE: SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

## TYPICAL MECHANICAL PROPERTIES OF GMAW GROOVE JOINT WELDS

<u>BASE ALLOY</u>	<u>BASE ALLOY PROPERTIES</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 MECHANICAL PROPERTIES OF GTAW GROOVE JOINT WELDS

ALLOY 5556 WAS FIRST UTILIZED IN 1956. IT DEVELOPS THE HIGHEST AS-WELDED STRENGTHS IN FILLET WELDS AND IT IS NEARLY DOUBLE THAT OF 4043.

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% Mg AND THERE IS EXPOSURE TO PROLONGED TEMPERATURES IN EXCESS OF 1500F. SPECIAL ALLOYS AND TEMPERS ARE OFTEN REQUIRED TO OVERCOME THIS PROBLEM. CONTACT ALCOTEC FOR ASSISTANCE IN ALLOY/TEMPER SELECTION.

### Typical Semiautomatic GMA Procedures for Fillet and Lap Welding Aluminum

Wire Dia. Inches	DC(EP) <sup>3</sup> Range		Base <sup>1</sup> Thickness Inches	DC(EP) Suggested		Wire Feed IPM	Argon Gas Flow CFH	Approximate Consumption <sup>2</sup> 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
	180-220	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" 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.

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.