MAXAL 5183

AWS A5.10 (Revised 110705)

5183 filler metal is the most common aluminum/magnesium alloy for welding 5083 base metal in ship building applications. 5183 has higher strength values than 5356 with excellent salt water corrosion resistance when welded to 5083. The as welded metal alloy characteristics have high strength, ductility, toughness, fatigue and corrosion resistance. 5183 is a good choice when anodizing will be performed after welding 5xxx and 6xxx series base metal alloys. Because of the typical 4.6% Mg content of this alloy, the weld will have higher smut and discoloration when compared to non-magnesium bearing filler alloys. 5183 is suitable for welding 5083 strength level alloys and lower. MAXAL MIG electrodes have precisely controlled wire diameter, cast and helix, high column strength and a surface condition that optimizes feedability. These features produce good commutation of electricity, reduced burn backs and produce a stable arc. The surface condition and alloy content control also produces a TIG product with excellent weldability and operator appeal.

This alloy is not recommended for elevated temperature applications (above 150°F).

Refer to the MAXAL filler metal selection chart for further guidance in selecting filler metals for welding specific base metals.

APPLICATIONS:

- 5083 and lower strength alloys (40 ksi minimum UTS)
- Pressure vessels
- Shipbuilding
- Cryogenic tanks

SHIELDING GAS: 100% Argon (Ar) or Argon/Helium mixtures

STANDARD DIAMETERS: 0.035" (0.9 mm), 3/64" (1.2 mm), 1/16" (1.6 mm), 3/32" (2.4 mm), 1/8" (3.2 mm)

STORAGE: Product should be stored in a dry, enclosed environment, and in its original intact packaging

ALLOY CLASSIFICATION COMPOSITION REQUIREMENT (WEIGHT PERCENT):

Weld Metal Analysis	ER & R 5183
Silicon (Si)	0.40
Iron (Fe)	0.40
Copper (Cu)	0.10
Manganese (Mn)	0.50-1.0
Magnesium (Mg)	4.3-5.2
Chromium (Cr)	0.05-0.25
Zinc (Zn)	0.25
Titanium (Ti)	0.15
Beryllium (Be)	<0.0003
Others Each	0.05
Others Total	0.15
Aluminum (Al)	Remainder

*Unless noted-single values are maximums.

TYPICAL PROPERTIES:

Melting Range	Density	Electrical/Thermal Conductivity
1075-1180°F	0.096 lbs/in^3	29% IACS/810 EU

As Welded UTS Typical	Anodized Color	Elevated Temp. Applications +150°F
41 ksi	Clear/White	NO

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MIG EQUIPMENT SET-UP PARAMETERS:
The chart below provides approximate welding parameters as a starting point only. Qualified welding procedures utilizing tested practices should be developed for actual production weldments.

Diameter		Base Material Thickness		Amps		Volts		Wire-Feed Speed (ipm)	
Inches	(mm)	Inches	(mm)	4xxx	5xxx	4xxx	5xxx	4xxx	5xxx
0.030	(0.8)	1/16	(1.6)	90	100	20	18	260	300
0.030	(0.8)	3/32	(2.4)	110	120	22	21	350	400
0.030	(0.8)	1/8	(3.2)	130	140	23	21	450	500
0.030	(0.8)	3/16	(4.8)	150	160	24	22	550	600
0.030	(0.8)	1/4	(6.4)	175	185	24	22	650	700
0.035	(0.9)	1/16	(1.6)	90	100	23	21	300	350
0.035	(0.9)	1/8	(3.2)	130	140	24	22	400	450
0.035	(0.9)	1/4	(6.4)	170	180	25	23	500	600
3/64	(1.2)	3/32	(2.4)	110	120	25	24	170	220
3/64	(1.2)	1/8	(3.2)	150	160	26	25	270	330
3/64	(1.2)	1/4	(6.4)	190	220	26	25	320	370
3/64	(1.2)	3/8	(9.5)	220	230	27	25	390	450
1/16	(1.6)	1/4	(6.4)	200	210	26	24	170	200
1/16	(1.6)	3/8	(9.5)	230	240	27	25	200	230
1/16	(1.6)	1/2	(12.7)	260	270	28	26	240	270
1/16	(1.6)	3/4	(19.1)	280	290	29	27	260	300
1/16	(1.6)	1	(25.4)	300	310	30	28	280	320

STANDARD DIAMETERS AND PACKAGES: For a complete list of diameters and packaging, please call (800) 346-2529.

Diameter		1-lb. Spool	16-lb. Reel	16-lb. Plastic	22-lb. Plastic	300-lb. Drum	36-In Cut Length (10lb)
Inches	(mm)						
0.035	(0.9)	518303504				518303523	
3/64	(1.2)	518304704	518304712	518304712P	518304712P22	518304723	
1/16	(1.6)		518306212	518306212P			518306270
3/32	(2.4)						518309470
1/8	(3.2)						518312570

300 lb drum dimensions: diameter = 23-1/2"; height = 36"
100 lb drum dimensions: diameter = 23-1/2"; height = 18"

CONFORMANCES AND APPROVALS:
- AWS A5.10, ASME SFA 5.10
- AWS A5.01 Class S1, Schedule F
- CWB
- ABS

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