

Aluminum 2319

◆ INTRODUCTION

Aufhauser Aluminum 2319 was developed as a filler metal for alloy 2219. It is widely used in high strength structural, aircraft and truck body applications where superior resistance, formability and/or electrical conductivity are required. Especially where superior resistance to stress corrosion cracking and excellent elevated temperature properties are desired. The alloy is heat treatable and provides higher strength and better ductility than the 4XXX filler alloys when welding 2XXX alloys.

◆ APPLICATIONS

- Welding filler wire for high strength structural, aircraft and truck body applications.

◆ GENERAL INFORMATION

- Heat treatable
- Principle alloying elements: Copper, Manganese, Vanadium, Zirconium, Titanium

◆ CHEMICAL COMPOSITION

<u>Silicon</u>	<u>Iron</u>	<u>Copper</u>	<u>Manganese</u>	<u>Magnesium</u>	<u>Zinc</u>	<u>Titanium</u>	<u>Others</u>		<u>Aluminum</u>
							<u>Each</u>	<u>Total</u>	<u>Remainder</u>
0.20	0.30	5.8-6.8	0.20-0.40	0.02	0.10	0.10-0.20	0.05	0.15	
<u>Vanadium</u>		<u>Zirconium</u>							
0.05-0.15		0.10-0.25							

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

◆ PHYSICAL PROPERTIES

Melting Range:	1010-1190°F
Density, at 68°F:	0.100 lb/in ³
Resistance to Corrosion:	D (Gen) C (SCC)
Anodize Color:	Golden



◆ SPECIFICATIONS MEET or EXCEED

- AWS A5.10 (ER & R 2319)
- AMS 4191

◆ 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>POST WELD HEAT TREAT AND AGE</u>		
	<u>UTS (KSI)</u>	<u>UYS (KSI)</u>	<u>ELONG (%)</u>	<u>UTS (KSI)</u>	<u>UYS (KSI)</u>	<u>ELONG (%)</u>	<u>UTS (KSI)</u>	<u>UYS (KSI)</u>	<u>ELONG (%)</u>
2014-T6	70	60	13	43	28	5	60	46	5
2219-T81	66	51	10	35	26	3	55	38	7
2219-T87	72	64	10	37	33	4	56	--	5.5

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

<u>BASE</u>	<u>FILLER</u>	<u>-100°F</u>	<u>100°F</u>	<u>300°F</u>	<u>500°F</u>
2219-T37 ¹	2319	36.0 KSI	35.0 KSI	31.0 KSI	19.0 KSI
2219 ²	2319	55.0 KSI	50.0 KSI	38.0 KSI	22.0 KSI

NOTE: 1) As welded 2) Post weld heat treat and artificial age.



Aufhauser
Corporation
39 West Mall
Plainview, NY 11803
Telephone:
516-694-8696
800-645-9486
Fax:
516-694-8690

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◆ TYPICAL GMAW PARAMETERS

<u>WIRE DIAMETER (IN)</u>	<u>RANGE</u>		<u>BASE MATERIAL</u>	<u>SUGGESTED</u>		<u>CONSUMPTION</u>		
	<u>AMPS</u>	<u>VOLTS</u>	<u>THICKNESS (INCHES)</u>	<u>AMPS</u>	<u>VOLTS</u>	<u>WIRE FEED (IPM)</u>	<u>GAS FLOW (CFH)</u>	<u>100 FT OF WELD (LBS)</u>
0.030	60-170	13-24	0.062	90	22	260	25	1.5
			0.094	110	23	320		
			0.125	130	24	380		
			0.187	150	24	430		
			0.250	175	25	510		
0.035	70-180	15-26	0.062	90	23	250	35	1.5
			0.125	130	24	360		
			0.250	170	25	470		
0.047	140-260	20-29	0.094	110	23	215	45	1.8
			0.125	150	24	290		
			0.250	190	25	370		
			0.375	220	25	430		
0.062	190-350	25-30	0.250	200	25	190	55	6
			0.375	230	25	215		
			0.500	260	27	240		
			0.750	280	28	261		
			1.000	300	29	280		
0.094	280-400	26-31	0.500	280	28	170	65	30
			0.750	290	29	175		

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