Technical Assistance From
AlcoTec Wire Corporation

AlcoTechnics

ALLOY 2319 WELD DATA SHEET

TYPICAL APPLICATIONS

- Welding Filler Wire

GENERAL INFORMATION

- Heat treatable
- Principle alloying elements: Copper, Manganese, Vanadium, Zirconium, Titanium
- Applicable specification: ANSI/AWS A5.10(ER & R), AMS 4191 (Chemistry Only)

TYPICAL PROPERTIES

Melting range:	1010 - 1190^{o}F	Resistance to corrosion:	D(Gen)C (SCC)
Density:	100 lbs/cu. in.	Anodize Color:	Golden

CHEMISTRY

SILICON	IRON	COPPER	MANGANESE	MAGNESIUM	CHROMIUM	ZINC	TITANIUM	BERYLLIUM	OTHERS EACH	OTHERS TOTAL	ALUMINUM
0.20	0.30	5.8-6.8	0.20 -0.40	0.02	-----	0.10	0.10 -0.20	0.0003	0.05	0.15	REM

VANADIUM	ZIRCONIUM
0.05-0.15	0.10-0.25

NOTE: SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

TYPICAL MECHANICAL PROPERTIES OF GMAW GROOVE JOINT WELDS

	BASE ALLOY			AS WELDED			POST WELD HEAT TREAT AND AGE		
BASE ALLOY	UTS(KSI)	UYS(KSI)	ELONG(%)	UTS(KSI)	UYS(KSI)	ELONG(%)	UTS(KSI)	UYS(KSI)	ELONG(%)
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 GMAW GROOVE JOINT WELDS

BASE	FILLER	-100^{0}F	100^{0}F	300^{0}F	500^{0}F
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 AGED.

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ALLOY CHARACTERISTICS

ALLOY 2319 WAS DEVELOPED AS A FILLER ALLOY FOR ALLOY 2219 THAT IS WIDELY USED IN HIGH STRENGTH STRUCTURAL AND AIRCRAFT APPLICATIONS WHERE SUPERIOR RESISTANCE TO STRESS CORROSION CRACKING (SCC) AND HIGH 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.

Typical Semiautomatic GMA Procedures for Fillet and Lap Welding Aluminum

Wire Dia	DC(EP)[3] Range		Base[1] Thickness	DC(EP) Suggested		Wire Feed	Argon Gas Flow	Approximate Consumption[2]
Inches	Amps	Volts	Inches	Amps	Volts	IPM	CFH	Lbs/100Ft
.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	22026	.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 ¾" 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. 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.

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