

ALLOY 4145 WELD DATA SHEET

TYPICAL APPLICATIONS

- Welding Filler Wire
- Brazing Wire

GENERAL INFORMATION

- Heat treatable
- Principle alloying elements: Silicon, Copper
- Applicable specifications: ANSI/AWS A5.10 (ER & R), ANSI/AWS A5.8, AMS 4184 (Chemistry Only)
- Brazing alloy BAISi3

TYPICAL PROPERTIES

Melting range: 970 - 1085°F
Density: .099 lbs./cu. in.

Anodize Color: Gray

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>
9.3-10.7	0.8	3.3-4.7	0.15	0.15	0.15	0.20	---	0.0003	0.05	0.15	

NOTE: SINGLE VALUES ARE MAXIMUM UNLESS OTHERWISE NOTED.

ALLOY CHARACTERISTICS

ALLOY 4145 WAS ORIGINALLY DEVELOPED AS A BRAZING ALLOY BECAUSE OF ITS LOW MELTING TEMPERATURE AND HIGH FLUIDITY. IT PROVIDES VERY LOW SUSCEPTIBILITY TO WELD CRACKING WHEN USED WITH 2XXX SERIES ALLOYS OR, ALUMINUM-COPPER, OR ALUMINUM-COPPER-SILICON CASTINGS. IT CAN BE USED IN ELEVATED TEMPERATURE SERVICE APPLICATIONS. THE ALLOY IS OFTEN PREFERRED OVER 2319 WHEN MIG WELDING BECAUSE IT "WETS" OUT BETTER, PROVIDES A BRIGHTER LOOKING WELD, AND PRODUCES LESS SMUT. IT DOES, HOWEVER, HAVE LOWER WELD TENSILE STRENGTHS THAN 2319, AND IT IS NOT SUITED FOR WELDING HIGH MAGNESIUM CONTAINING ALLOYS.

AlcoTec Wire Corporation

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Typical Semiautomatic GMA Procedures for Fillet and Lap Welding Aluminum

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

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