

GUIDE TO THE CHOICE OF FILLER METAL FOR GENERAL PURPOSE WELDING OF ALUMINUM (continued)

General Notes:

1. Service conditions such as immersion in fresh or salt water, exposure to specific chemicals, or a sustained high temperature (over 150oF [66oC]) may limit the choice of filler metals. Filler metals ER5183, ER5356, ER5556 are not recommended for sustained elevated temperature service.
2. Recommendations in this table apply to gas shielded arc welding processes. For oxyfuel gas welding, only ER1188, ER1100, ER4043, ER4047, and ER4145 filler metals are ordinarily used.
3. Where no filler metal is listed, the base metal combination is not recommended for welding.

Notes:

- a. ER4145 may be used for some applications.
- b. ER4047 may be used for some applications.
- c. ER4043 may be used for some applications.
- d. ER5183, ER5356, or ER5556 may be used.
- e. ER2319 may be used for some applications. It can supply high strength when the weldment is postweld solution heat treated and aged.
- f. ER5183, ER5356, ER5554, ER5556, and ER5654 may be used. In some cases, they provide: (1) improved color match after anodizing treatment; (2) highest weld ductility, and (3) higher weld strength. ER5554 is suitable for sustained elevated temperature service.
- g. ER4643 will provide higher strength in 1/2in. [12mm] and thicker groove welds in 6XXX base alloys when postweld solution heat treated and aged.
- h. Filler metal with the same analysis as the base metal is sometimes used. The following wrought filler metals possess the same chemical composition
- i. Base metal alloys 5254 and 5652 are used for hydrogen peroxide service. ER5654 filler metal is used for welding both alloys for service temperatures below 150oF [66oC].
- j. ER1100 may be used for some applications.

TYPICAL WELDING PARAMETERS OF ALUMINUM TIG & MIG WIRE

Process	Diameter of Wire		Voltage (V)	Amperage (A)	Shielding Gas
	Inches	Millimeters			
TIG (GTAW)	1/16"	1.6		60-100	100% Argon
	3/32"	2.4		125-160	
	1/8"	3.2		180-240	
MIG (GMAW) SHORT CIRCUITING TRANSFER	0.030	0.8	15-18	45-120	100% Argon
	0.035	0.9	17-19	50-150	
	0.045	1.2	16-20	60-175	
MIG (GMAW) SPRAY TRANSFER	0.030	0.8	22-28	90-150	100% Argon 75% Argon 25% Helium
	0.035	0.9	22-28	100-175	
	0.045	1.2	22-28	120-210	
	1/16"	1.6	24-30	160-300	

