

**MIG Welding**

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**Tips to Improve your Welding – Wire Selection**

READING ELECTRIC, a leading supplier of electro-mechanical equipment, services, and problem solver for Industrial and Commercial customers for over 50 years provides technical information to the Region’s Residential, Commercial and Industrial Community. This Bulletin provides information on tips to improve your MIG Welding.

**MIG Welding**

Always read and follow the safety precautions and operational instructions in your owner's manual.

1. Keep a 1/4 to 3/8 inch stick-out (electrode extending from the tip of the contact tube.) Reference Diagram #1.

2. For thin metals, use a smaller diameter wire. For thicker metal use a larger wire and a larger machine. See machine recommendations for welding capacity. (Refer to Diagram #4 Welding Wire Thickness Chart.)

3. Use the correct wire type for the base metal being welded. Use stainless steel wires for stainless steel, aluminum wires for aluminum, and steel wires for steel.

4. Use the proper shielding gas. CO2 is good for penetrating welds on steel, but may be too hot for thin metal. Use 75% Argon/25% CO2 for thinner steels. Use only Argon for aluminum. You can use a triplex mix for stainless steels (Helium + Argon + CO2). (Refer to Diagram #2 Penetration Patterns for Steel.)

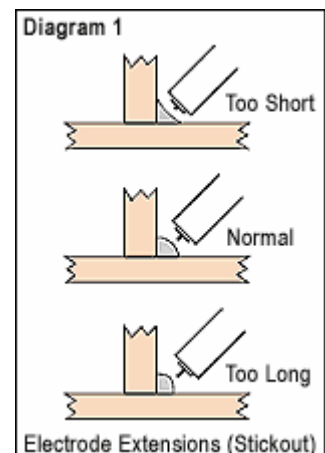
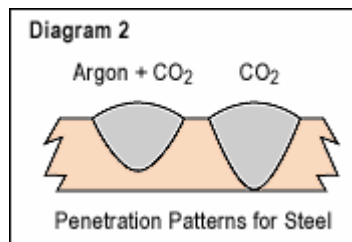
5. For steel, there are two common wire types. Use an AWS classification ER70S-3 for all purpose, economical welding. Use ER70S-6 wire when more deoxidizers are needed for welding on dirty or rusty steel.

[Information contributed by Miller Electric]

**Diagram 4: Welding Wire Thickness Chart**

MATERIAL THICKNESS	RECOMMENDED WIRE SIZES						
	MIG SOLID WIRE				GASLESS FLUX-CORED WIRE		
	.024"	.030"	.035"	.045"	.030"	.035"	.045"
24 Gauge (.025)	Red						
22 Gauge (.031)	Red	Red			Red		
20 Gauge (.037)	Red	Red			Red	Red	
18 Gauge (.050)	Red	Red	Red		Red	Red	
16 Gauge (.063)		Red	Red	Red	Red	Red	Red
14 Gauge (.078)			Red	Red	Red	Red	Red
1/8" (.125)				Red	Red	Red	Red
3/16" (.188)					Red	Red	Red
1/4" (.25)						Red	Red
5/16" (.313)							Red
3/8" (.375)							Red
1/2" (.5)							Red

Multi-pass welding or a beveled joint design may be required on material thickness 3/16" and greater depending on your welding machine's amperage capability.



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