

MIG Welding

September 25, 2008

Welding Tips – Wire & Gas 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 Wire and Gas Selection.

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

1. 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. See Diagram # 6.
2. For best control of your weld bead, keep the wire directed at the leading edge of the weld pool.
3. When welding out of position (vertical, horizontal, or overhead welding), keep the weld pool small for best weld bead control, and use the smallest wire diameter size you can.
4. Be sure to match your contact tube, gun liner, and drive rolls to the wire size you are using.
5. Clean the gun liner and drive rolls occasionally, and keep the gun nozzle clean of spatter. Replace the contact tip if blocked or feeding poorly.
6. Keep the gun as straight as possible when welding, to avoid poor wire feeding.
7. Use both hands to steady the gun when you weld. Do this whenever possible. (This also applies to Stick and TIG welding, and plasma cutting.)
8. Keep wire feeder hub tension and drive roll pressure just tight enough to feed wire, but don't overtighten.
9. Keep wire in a clean, dry place when not welding, to avoid picking up contaminants that lead to poor welds.
10. Use DCEP (reverse polarity) on the power source.

[Information contributed by Miller Electric]

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Diagram 6: Welding Wire

Solid Carbon-Steel ER70S-6	<ul style="list-style-type: none"> • Must be used with CO₂ or 75% Argon/25% (C-25) shielding gas • CO₂ gas is economical and deeper penetration • 75% Argon/25%CO₂ has less spatter and better bead appearance • Indoor use with no wind • For auto body, manufacturing fabrication • Welds thinner materials (22 gauge) than flux cored wires
Flux Cored/ Carbon-Steel E71TGX	<ul style="list-style-type: none"> • No shielding gas required • Excellent for outdoor windy conditions • For dirty, rusty, painted materials • Hotter than solid wires, welds to 18 gauge materials and thicker
Aluminum ER5356	<ul style="list-style-type: none"> • Must be used with Argon shielding gas • Recommended to be used with spool guns for best results • 5356 harder for stronger welds and easier feeding
Stainless Steel ER308L	<ul style="list-style-type: none"> • Must be used with Trimix (Helium/ Argon/CO₂) or spray shielding gas • For 301, 302, 304, 305, and 308 stainless base metals