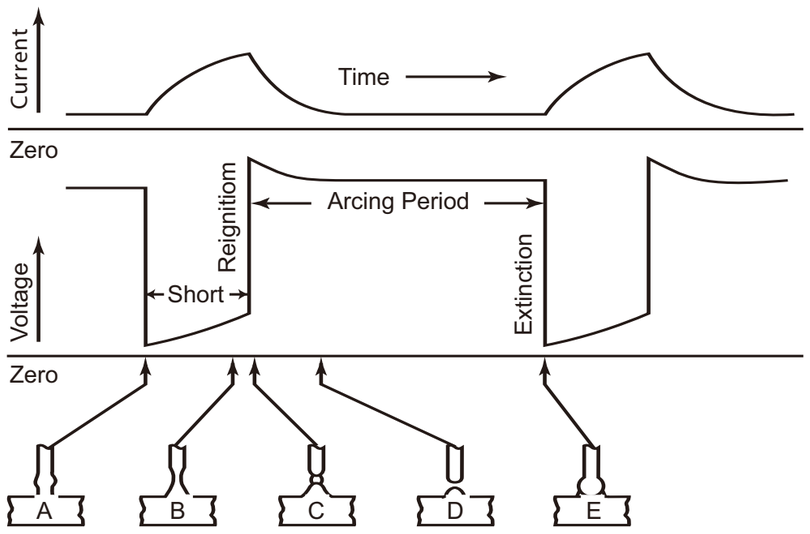
Advanced MIG/MAG

Advantages

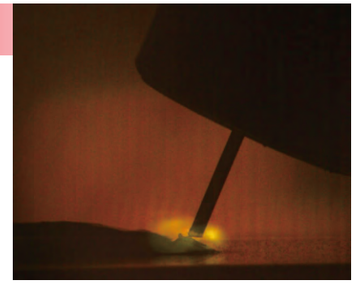
- All-position capability, including flat, horizontal, vertical-up, vertical-down and overhead.
- Handles poor fit-up extremely well, and is capable of root pass work on pipe applications.
- Lower heat input reduces weldment distortion.
- Higher operator appeal and ease of use.
- Higher electrode efficiencies, 93% or more.

Oscillograms and Sketches of Short Circuiting Transfer



A

The solid or metal-cored electrode makes physical contact with the molten puddle. The arc voltage approaches zero, and the current level increases. The rate of rise to the peak current is affected by the amount of applied inductance.



B

This point demonstrates the effect of electromagnetic forces that are applied uniformly around the electrode. The application of this force necks or pinches the electrode. The voltage very slowly begins to climb through the period before detachment, and the current continues to climb to a peak value.

C

This is the point where the molten droplet is forced from the tip of the electrode. The current reaches its maximum peak at this point. Jet forces are applied to the molten puddle and their action prevents the molten puddle from rebounding and reattaching itself to the electrode.

D

This is the tail-out region of the short-circuit waveform, and it is during this downward excursion toward the background current when the molten droplet reforms.

E

The electrode at this point is, once again, making contact with the molten puddle, preparing for the transfer of another droplet. The frequency of this varies between 20 and 200 times per second. The frequency of the short-circuit events is influenced by the amount of inductance and the type of shielding gas. Additions of argon increase the frequency of short-circuits and it reduces the size of the molten droplet.