

Plasma Arc Cutting

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Plasma Arc versus Oxyfuel

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 is the second in a series providing informational tips on Plasma Arc Cutting.

Plasma Arc advantages over Oxyfuel: Plasma Arc cuts faster; does not require a pre-heat cycle; produces a small and more precise kerf width (the width of the cut); and has a smaller heat-affected zone, which prevents the surrounding area from warping or damaging most types of surface coatings.

The Plasma Arc process also cuts any type of electrically conductive metal (the Oxyfuel process cannot cut stainless steel or aluminum). Plasma Arc cutting in general is a cleaner, less expensive and more convenient method of metal cutting because clean, dry air is used for most plasma cutting applications.



Basic costs involved in Plasma Arc vs. Oxyfuel: Oxyfuel will need the complete torch set-up costing around \$250. The oxygen and acetylene bottle will cost around \$250. The tips that have to be replaced over time will go for about \$5. Re-filling gas bottles is about \$30 each. Note this only to cut steel.

Plasma will require an initial cost \$1100 to \$2000 depending on the size of the machine. An air compressor is required to provide air and the cost of tips and electrodes will be \$11 for the pair.

In general, Oxyfuel is going to be less expensive at the start, but as time goes on the purchase of gas and the limitations will make it more expensive in the long run. Plasma has the initial cost of the machine but after that it is mostly tips and electrodes. In the long run, Plasma is going to be cheaper and more practical for cutting any metal that is electrically conductive.

Other Considerations: Portability may also factor. Plasma Arc machines weigh between 18 lbs and 55 lbs., and normally can switch between 110V and 220V. Note you must have a compressed air supply available.

Another benefit when doing thin gauge metal work, Plasma Arc will keep warping and/or burning of painted surfaces to a minimum. With plasma, the arc is so hot and tight the heat does not have time to spread out and affect the metal.

[Information contributed by Miller Electric]

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