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How to reduce MIG shielding gas usage

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Average welder reportedly wastes 4.5 to 9 tons of CO₂ per year



tests.

“This excess is not only wasteful but causes poor weld quality,” Utrachi says. “Research performed to see if increased flow could improve weld quality in a 4 MPH wind supported this 50 CFH maximum flow recommendation. The results showed with a standard 5/8 inch diameter MIG torch nozzle, a 45 CFH shielding gas flow rate produced less internal porosity than 65 CFH. Unfortunately many welders think; ‘if some shielding gas is good more must be better.’”

The solution: If flowmeters are being used on cylinder or pipeline gas supply a locking system is available that allows the maximum flow rate to be set and locked.

THIRD REASON FOR WASTE: LEAKS

WA Technology studies indicate that initial gas surge and excess flow settings are often more of a problem than leaks. However, leaks do lead to waste and affect weld quality, Utrachi says. When gas is leaking out of a pipeline, hose or fitting, moisture laden air is leaking back through the passage that caused the leak. A 1/16 inch hole (or equivalent size leaks in fittings and hoses) flows 175 CFH. In a year that is 1.5 million cubic feet of gas. If that is CO₂ shielding gas that is 88 tons per year wasted.

The solution: Utrachi suggests assigning a lead welder or welding foreman to plot gas use versus wire use on an ongoing basis. Working with purchasing, they can plot a three-month moving average of purchases of gas versus wire and identify significant changes. They can also use a simple inexpensive portable flowmeter and measure gas flow that will help detect leaks. Gas flow entering a wire feeder can be compared to gas exiting the MIG torch and system leaks in “O” rings or gas fittings defined and fixed. A simple leak detection solution provides instant visible evidence of even small leaks.

BOTTOM LINE:

Shielding gas waste can be reduced with simple inexpensive solutions, Utrachi says. WA Technology has a Web site that presents more shielding gas cost saving information. See www.NetWelding.com.

Manufacturers can slash their welding gas consumption by identifying and correcting three major reasons for the excess gas use, according to Jerry Utrachi, president of WA Technology.

WA Technology identified the following factors that waste welding gases and cause needless expense for manufacturers:

FIRST REASON: GAS SURGE

The surge of excess shielding gas occurring at every weld start is a major contributor to the gas waste. Each time the torch switch is pulled, up to six times the physical gas hose volume (from gas supply to the wire feeder or welder) is wasted. In addition to the gas waste, this gas surge creates a turbulent shield that pulls air into the weld zone. This moisture-laden air causes inferior quality weld starts with excess weld start spatter and often internal weld porosity.

The solution: The use of a patented gas saver system reduces the gas surge by 80% while still quickly providing some extra gas at a limited flow rate to purge the torch nozzle and weld start area.

SECOND REASON: EXCESS FLOW SETTINGS

Gas flowmeters are often seen with the flow ball pinned to the top of the flow tube. When that is the case, excessive gas is being used — at flow rates of 150 cubic feet per hour, according to WA Technology