

Give it the gas

By Kimberley Gilles, associate editor

Armor Holdings Inc. (www.armorholdings.com) was losing production time and jeopardizing safety because of an inefficient industrial gas supply system at its West Chester, Ohio, facility, where armored HumVees are prepared for the military. Each operator of the plant's 22 MIG welding stations was responsible for replacing empty argon and CO₂ cylinders. Removing, retrieving and hooking up the tanks resulted in 20 min. to 40 min. of downtime per booth, and required welders to move highly pressurized tanks through the manufacturing facility.

Armor Holdings stopped losing production time when it accepted a plan proposed by Wright Brothers Inc. (www.wrightbros.com), an independent gas supplier. That plan enabled Armor Holdings to expand its plant twice in two years and prepare it for future expansions.

Wright Brothers' plan called for eliminating the banks of high pressure cylinders through the installation of a microbulk gas system. This system would permit Armor Holdings to add welding stations and to supply gas to the welding robot and plasma cutter, and eliminate the movement of cylinders through the facility. The installation of the system was timed for the end-of-the-year holidays to minimize downtime. Also, the installation time was minimized by using the old pipe system where possible.

The addition of a gas blender would enable Armor Holdings to test its argon-O₂ shielding gas ratio by turning a dial. The results were what Wright Brothers

Before: Manufacturer of armored Hummers must increase output of welding and cutting stations to meet needs of U.S. troops.

After: Installs micro-bulk gas system that contributes to a 7-fold increase in vehicle output.



Wright Brothers' microbulk gas system.

promised: "Since we started down the path of using bulk type systems we have seen a major difference in our welding quality and consistency," says Keith Kilpatrick, Armor Holdings' director of manufacturing engineering. The new system worked so well that when Armor Holdings acquired the building behind its West Chester facility, the manufacturer called Wright Brothers to install a new microbulk system. Armor Holdings dedicated the old facility to assembly and dedicated the newly acquired one to operations such as welding and cutting. The plant engineer laid out 36 welding booths and added three robots and a laser cutter, then asked Wright Brothers to work out the details for gas supply.

One of Wright Brothers' concerns was to maintain the purity of the gas because the use of the old pipe system had created gas purity issues with the plasma machines. To ensure the installation would not create such problems, Wright Brothers

installed copper lines, made sure the pipe system was leak proof and cleaned and capped all connection points. All valves in the system were oxygen-cleaned, and all connections were soldered with silver under a nitrogen purge.

A microbulk system was used again to allow welding and cutting gases to be stored outside the facility, except for a 6-pack of gas cylinders on a cart that is used for maintenance. The system provides high pressure oxygen and nitrogen to the laser, low pressure gas to the plasma units, 100 percent argon to the aluminum welding booths, and an 80 percent argon/20 percent CO₂ mix to the MIG welding stations. The result of all the changes and additions is that production capacity rose from 80 Hummers per month to 550 per month.

Armor Holdings also installed a 29 ft. by 25 ft. concrete pad with a ramp built to handle the all-terrain tow-motor used to position gas tanks. The pad is large enough to handle the bulk tanks that the company will need as demand continues to rise. ■