

Lean welding comes full circle

Boom makes working on large weldments easier

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Andersen Industries is experienced with working with large fabrications, such as custom trailers, and eventually sought a method to make it easier to help welders move equipment and accompanying lines. The result was a boom designed specifically for welding.



Figure 1

When the double-articulated arm of the WeldPro 360 boom is extended, it can cover a diameter of 56 feet, while also being able to come back toward the interior of the welding area near the boom base.

Welding on big projects can lead to big headaches.

For instance, if a welder is working on a trailer project, he typically isn't going to be stuck in one place all shift long. He's going to be welding over several feet and maybe even moving to the other side of the trailer.

That might require an extension cord for the power source and a long connection for the gas metal arc welding (GMAW) gun. Of course, having the cords extended over the shop floor is a tripping hazard, and a big problem can

occur if a lift truck happens to run over the welding gun connection.

The controls likely won't be by the active welding area either. If a change needs to be made to the power settings, the welder has to stop, walk to the power source, make the necessary adjustments, walk to the trailer, and hope the settings are what's needed to make the joint correctly. It's not a quick adjustment.

Andersen Industries Inc., Adelanto, Calif., noticed these inadequacies as its welders worked on large projects. The company, founded as a welding repair shop in 1966 that worked jobs such as corrugated pipe fittings and heavy equipment repair, is now a fabricator with two distinctive manufacturing divisions: trailer manufacturing and precision metal fabrication/OEM manufacturing. On the trailer side of the business, the fabrication jobs involve several types of products, such as flatbed, dump, tilt, and gooseneck trailers, the latter of which might be 40 feet long. The general fabrication business also has large work, such as containers, generator enclosures, and stationary or mobile command centers for emergency personnel. These big jobs make up a large part of the manufacturing work that hits the company's 100,000-square-foot facility on an annual basis.

"We have seen a lot and done a lot," said Wayne Andersen, vice president, Andersen Industries.

After years of watching its welders struggle with exposed wires and connections and wrestle with poorly located power sources, the company wanted to make a change. It wanted to clear the shop floor and make it quick and easy for welders to move from one spot to another on these large weldments. It needed a boom to elevate its welding efforts.

"We looked for something like this for several years because we didn't want to build it," Andersen said.

The search proved fruitless. The booms on the market simply didn't cover the space they needed or didn't seem durable enough to stand up to the rigors of working on heavy-duty weldments.

As any fabricator might elect to do at that point, Andersen Industries decided to get to work. It made its own boom.



Figure 2

The welding boom's reach allows long work areas to be set up on both sides of the boom, maximizing Andersen

Industries' manufacturing floor space.

Getting Full Welding Coverage

Almost two years ago, Andersen Industries put its third-generation boom to work on the shop floor. Whereas previous generations of the product had a simple arm that extended out to provide coverage within a circular area, this new generation of booms wouldn't have the dead zones that often were found when using the fixed-arm systems. The WeldPro 360 GMAW boom had a pivot in the upper arm that gave the device a much broader area of coverage (see **Figure 1**).

"There are other booms that go out, but you can't fold them back in. So you are out there [on the outer radius of the boom]," Andersen said. "By being able to fold back in the line, we can get right back to the base."

This design eliminates the dead zone that exists with welding booms with no articulation in the arm. Typically, a doughnut-shaped area around the welding boom base is a no-go zone for welding booms because the GMAW guns can't reach back to the middle from the outer edge.

The WeldPro 360 can rotate a full 360 degrees and can cover about 2,463 sq. ft. in that work envelope. It has an under-boom clearance of 126 inches.

The design makes the boom suitable for working around large and awkward-shaped projects (see **Figure 2**). The welder only has to pull the boom into place by guiding it with the handle on the weld process controls. The welding power source, wire in a drum or reel, and gas cylinder are mounted on the rotating portion of the boom. (If the shielding gas supply comes from a remote bulk container, a connection can be run to the boom.) A 15-ft. GMAW gun is attached at the operator pendant. The only thing found on the ground is the grounding cable that connects to the workpiece.

The boom has an enclosed wire supply conduit that keeps the wire protected from the outside environment as it is fed from the source to the wire feeder. Utility outlets also can be found on the boom for air- and electric-powered hand tools.

The weld process controls are close to the welder in the form of an operator pendant (see **Figure 3**). The welder doesn't have to walk back to the power source because the controls are always just over the shoulder.

Removing the Fumes

This third generation of the welding boom now has an optional integrated fume extraction system. The unit is mounted on the boom and moves as the operator positions the operator pendant and GMAW gun, which is where the fume removal takes place.

Andersen said this option emerged because it was just one more item to take off the welder's responsibility list as he worked around large projects.

"The welder that is conscious of it will put the hood up, set everything down, and move the fume extraction device to the new work area. It takes time, but at least he has protection," he said.



Figure 3

When the welder moves the welding boom into place, the operator pendant with the weld process controls moves with it.

“The other guy that is in a hurry won’t do that. The fume extraction will stay where it was, and he will go about welding in the new spot.”

When this chore is removed, the welder can make the safe choice without expending extra effort to move the portable fume extraction equipment into place. In addition, arc-on time is likely to increase because the welder isn’t spending time preparing to weld, but actually welding.

Andersen said that the welding boom has solved production inefficiencies for his shop, and he believes it will do the same for others. The company may have to expand beyond its 25 current employees to keep up with the expected boom in work.

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