



## ESAB Heavy Industrial System Promotes Weld Quality And Productivity at Structural Steel Building Fabricator

- Stable welding arc solves porosity problems.
- Gouging connections, controls on feeder reduce travel.
- Programs and parameter limits maintain WPS compliance.

### Situation

A large structural steel fabricator in the building industry used competitive industrial systems for welding and back gouging I-beams made from 3/8- to 9/16-in. thick steel. Welders use .045-in. solid wire for spray transfer welding and 3/8- and 5/16-in. carbons for gouging. I-beams come off of a flange line and then clips, brackets and other components are welded in “the pit,” a sunken area in the heavy industrial production environment.

### Complication

The “underwhelming” performance of a competitive multi-process inverter included arc fluctuations, porosity and poor gouging performance. The fabricator could never determine if the inverter, feeder, MIG gun, power source or wire caused the issue, and neither could the supplier.

### Solution

Heavy industrial systems from ESAB featuring the Aristo 500ix multi-process inverter, the Robust Feed U6 enclosed wire feeder and Tweco Spray Master 450 MIG guns with 25-ft. cables.

### Results

The stable and consistent welding arc and constant voltage gouging capability from the ESAB heavy industrial system solved the fabricator’s issues with inconsistent performance, as well as offered several other productivity and quality benefits. As a result, the customer has purchased eight ESAB systems.



## BENEFIT #1

### Performance with Reliability

Due to COVID-19, ESAB provided the fabricator with an extended demo period on two systems for three months. After performing flawlessly in the harsh environment of “the pit,” the customer had total confidence in the system and has now acquired a total of eight systems.

The Aristo 500ix has thick metal side panels with double bent side panels and an IP23 rating, while the Robust Feed offers the industry’s only IP44 rating. They delivered a stable, consistent welding arc, solved the porosity issue and provided vastly improved gouging capabilities.

## BENEFIT #2

### Work Near the Weldment

By eliminating trips back to the power source, operators stay more productive and reduce potential hazards. The Aristo 500ix only has an On/Off switch and connection terminals. All settings are controlled from the Robust Feed U6, which can use interconnection cables up to 100 yards so that the operators can position the feeder close to the joint at hand.

A Tweco Spray Master 450 MIG gun with a 25-ft. cable provides even further reach. The Robust Feed’s PreciDrive wire feed system delivers precision feeding performance even when the gun is draped over the I-beams or the liner becomes worn.



The optional wheel kit mounts in the vertical orientation shown here or in a horizontal position for greater stability and to slide under weldments.

## BENEFIT #3

### Better Gouging

Robust Feed U6 control panel allows operators to select the gouging mode at the feeder, which also includes a 50 mm dinse connection on the back for the gouging torch. With many other systems, the operator would need to climb out of the pit to switch cables for gouging and welding.



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In addition, the Aristo/Robust Feed U6 combination uses a CV output for gouging. A CV output provides much smooth gouging performance because the system will adjust the output current to maintain a set voltage even as the distance between the carbon and workpiece varies.

## BENEFIT #4

### Easier WPS Conformance

Robust Feed U6 has a 10 programmable memory slots, so ESAB technicians set of four programs: one for spray transfer, one for pulsed MIG and one each for gouging with 3/8- and 5/16-in. carbons. The welding programs have parameter locks that allow the operator to fine tune voltage and wire feed speed, but only within the limits of the WPS.



With competitive units, operators had full access to make adjustments to voltage and wire feed speed. As a result, instead of taking the time necessary to climb out of the pit, they would often use sub-optimal settings. Now all the operator only has to focus on travel speed and gun technique, so WPS conformance is more assured.

## BENEFIT #5

### SAW Improvements

Because of the performance of the MIG welding system, the structural steel fabricator asked ESAB to help improve SAW on fillet welds on an I-beam, which used an old analog DC 1000-amp power source. ESAB recommended the Versotrac EWT 1000 heavy-duty welding tractor paired with a LAF 1001 power source, a twin-wire torch, 1/16-in. Spoolarc 29S and OK Flux 350.



Versotrac enables orienting the welding head for fillet or butt welds and the flexibility to quickly adapt to different beam configurations. The PEK controller communicates more welding & process data, improving traceability.

For more information on ESAB's heavy industrial system products, visit [esab.com](http://esab.com).

