



WeldComputer

The Technology Leader in Resistance Welding

Case Study

**McCorvey Increases Energy
Efficiency and Achieves
74% Power Factor Improvement
with WeldComputer Controls**

McCorvey Increases Energy Efficiency and Achieves 74% Power Factor Improvement with WeldComputer Controls

THE COMPANY

Founded in 1925, McCorvey Sheet Metal Works is a family-owned leader in HVAC sheet metal ductwork detailing, fabrication, and installation throughout the United States, with primary operations based in Houston, TX and Orlando, FL. The company's core values emphasize operational strength through reinvestment in its workforce, comprehensive training, and the use of advanced machinery and technology to enhance both production efficiency and safety.

McCorvey serves a diverse array of sectors, including healthcare, research laboratories, sports venues, data centers, and more. Over the years, it has established a reputation for quality, integrity, and expertise, evidenced by a history of high-profile projects. The company has received numerous accolades, including the Associated Builders and Contractors STEP Safety Awards and recognition as a Top Workplace by the Houston Chronicle, underscoring its commitment to client satisfaction and successful project execution.

THE CHALLENGE

During an operations meeting, the team at McCorvey Sheet Metals discussed the various power problems affecting their building, one of which related to the high power consumption of their seam welders.



Using traditional controls, the power efficiency dropped significantly whenever the welder was activated. "Before the WeldComputer, every time you stepped on the pedal it drew 250 amps and our power efficiency would drop to 60%. If two welders were running at the same time it would be at 50%", Ronnie Harris, Manager at the McCorvey Houston location, told WeldComputer experts.

McCorvey's current single phase AC machines were causing significant power inefficiencies, flickering on the power lines, and unbalanced loads across the three-phase power lines supplying their factory. This not only affected the welders but was adversely impacting the other equipment in the factory as well.

"[Running a welder] used to blink our lights badly. In our operation, I didn't know how much [the draw on our power grid] was affecting other machines," said Harris. It also meant that McCorvey couldn't run any seam welders on their generators either. "If we're on a generator and we hit just one welder, things just went nuts because the generators don't like it; we couldn't weld with them."

That discussion led the McCorvey team to begin researching solutions for their power issues. "I told the team I didn't understand why there's not a way that we could use all three welders at once," Harris recounted. "Surely, there's got to be a way."

THE SOLUTION

After a vice president found WeldComputer through a Google search, the McCorvey team reached out to set up a meeting. Upon hearing about the problems faced by the McCorvey operation, the WeldComputer team suggested that Ronnie and his team implement the WeldComputer control which would help them solve their power issues.

The secret to WeldComputer's ability to achieve these results is its Wave Synthesis technology. The control synthesizes the current waveform needed to optimally drive the existing welding transformer in the machine, isolates the low power factor of the welder from the factory power lines, and distributes the load over all three power line phases. The result is it converts the efficiency of the weld machine power utilization to more than 90%, and makes the welding process virtually immune from power line fluctuations.

Ronnie and the McCorvey team were not convinced to purchase the system directly without seeing it perform in their operation firsthand. The WeldComputer team worked with McCorvey to test an evaluation unit for WeldComputer to prove the new control could solve the power problems without the financial commitment for a new control.

Setting up the evaluation control was easier than the McCorvey team expected. "Just about everything arrived pre-wired, streamlining the prep work. We just needed to connect the L1, L2, L3 power lines to the breaker, attach the weld transformer wires to the unit's tabs, jump some wires from the foot pedal and weld valve, hook up the water, then flip the power switch to see the control making welds on our machine", Ronnie said.

"The WeldComputer team guided us every step of the way through this process. Then they logged into the system remotely to set up our weld schedule so we could test out the system in actual production. I was able to see everything that was taking place as if they were standing next to me."

THE DATA

As soon as the McCorvey team operated the machine, Ronnie noticed an increase in their power stability, improved power factor readings, and superior welding performance.

"I didn't believe the magic. I thought they were selling snake oil, and I had to see it to believe it," said Harris. "The WeldComputer control is something that's going to help [McCorvey] every day and is expected to substantially reduce our electric bill."

"We used to weld to 260 amps on this one machine. After we plugged the [evaluation] unit in, the first thing I noticed was we maintained a Power Factor efficiency level of 85-90% without any drops," Harris explained.

He then checked the power draw and was equally as surprised to see an impressive 75% reduction in the current draw on the power lines, operating the same machine. "Our amperage draw was undetectable. I had to double check to make sure we were welding. I stood there looking at the meter baffled, 'Why isn't the needle moving when

we're welding?' It was theoretically impossible. We had our electrician take a look to confirm we went from welding at a RMS amperage of 260 down to just 65 amps!"

THE RESULTS

The installation of the WeldComputer control yielded remarkable results for McCorvey:

IMPROVED POWER EFFICIENCY

Day-to-day operations saw a substantial reduction in electric bills due to improved power efficiency. The WeldComputer control effectively eliminated surges on the power grid that typically occurred when welds were initiated. Using the WeldComputer control, McCorvey was able to prevent these fluctuations while enhancing the ability to weld with 80% more energy efficiency, and significantly reduce the factory power demand.

Using a WeldComputer also allowed for simultaneous operation of multiple seam welders without causing power imbalances. "Now, we can run all our seam welders simultaneously without any issues. It has been a game-changer for our operations," claimed Harris.

WELD USING GENERATOR POWER

Addressing the power surge issue enabled McCorvey to weld while their generators were operational. "Previously, we couldn't weld with our generators because our machines would take our three-phase servers out of balance," Harris clarified. "Recently, during a hurricane, we lost power, but thanks to one machine equipped with a WeldComputer [control], we were able to operate a seam welder throughout our time on the carrier. I instructed the team not to attempt to run any other machines; that machine [with the WeldComputer] is the only one [I trust]."

SUPERIOR WELDING PERFORMANCE

Additionally, the team observed a notable enhancement in welding performance, characterized by smoother starts and more consistent heat. Harris elaborated on this improvement, stating, "the actual quality of the welds is better because everything's balanced." As a result, the welds not only exhibit greater uniformity but also demonstrate increased durability and strength, ultimately leading to more reliable outcomes in their projects. This progress marks a notable leap ahead for the team, allowing them to meet higher standards and achieve better results in their work.

FUTURE PARTNERSHIP

The McCorvey team has come to recognize WeldComputer as an essential technology partner in their journey toward success. After witnessing the impressive results produced by the initial implementation of the WeldComputer technology, the team realized its potential to significantly enhance their operations. This immediate impact not only boosted their efficiency but also provided them with valuable insights into their welding processes.

Consequently, McCorvey made the strategic decision to add six WeldComputer units to their operation to further streamline their workflow and capitalize on the benefits they had already experienced. This partnership marks a significant step forward in McCorvey's commitment to innovation and excellence in their field.