

Every summer the community of German Village in Columbus, Ohio, holds a house and garden tour, allowing people to visit many of the old historic homes in that region. While on one of these visits, I (J.C.L.) toured a house with an exquisite garden containing an L-shaped lap pool. Upon closer inspection of the pool, I discovered it was of welded stainless steel construction. But there was something peculiar about the pool. Periodically along the length of the pool, there would be two parallel “brown” lines. The owner of the house happened to be present at the time of my inspection and expressed some frustration that his beautiful stainless steel pool had these unsightly brown lines. He mentioned that the contractor had been back on two different occasions to “buff out” these lines, but within a matter of weeks they would return, What was going on?

So, what was the unfortunate homeowner to do? Because permanent metallurgical damage in the form of sensitization was the root cause of the problem, there are no remedial options short of replacing the pool with a low-carbon grade of stainless steel (304L or 316L) or more resistant alloy altogether. In other situations, it may be possible to reverse the damage by a solutionizing heat treatment. This, of course, is not appropriate for an in-ground 50-m-long lap pool.

-Welding Metallurgy and Weldability of Stainless Steels p.223

CLEANING STAINLESS STEEL AFTER THE WELDING



Working successfully with stainless steel is something to be proud of. The final product is showing off your high level of craftsmanship. And if you're a company, it's showing you've got good weldors and good procedures in place.

The scary part about stainless is the timing of when problems show up: after they've been installed and are in use. And because both parties have spent a lot of money on the final product, there will be no happy ending.

One of the biggest challenges to welding stainless steel is to avoid contamination in the weld pool. There are things in a welding area that want to swim in the welding pool. You need to make sure they don't get in the pool.

Once you've completed your welding, the weld heat tint needs to be removed so the full corrosion resistance is restored.

There are a number of solutions for dealing with passivating the stainless area. The newest solution is using a cleaning solution with AC or DC charged brush (or pad).

For those not familiar with the electrolytic cleaning system, it's an electrically charged pad or brush with a cleaning solution. The cleaning removes the oxides and passivates the heat affected zone.

Here are the reasons why you need to consider using this new cleaning system.

1. Easy Start and Quick Clean Up



Grinding or a wire brush for cleaning requires time and effort. Plus skill. You need to take caution not to imbed iron filings in the stainless or take too much material off.

If pickling paste is used, it has to be applied. Left to cure. Then removed. Depending on the level of toxicity, there can be further work in disposing of the residue.

The welding cleaning system is Plug it In. Turn it On. Apply. Done. Turn it Off.

2. Make Your Safety People Happy

Wherever chemicals are involved, appropriate safeguards must be in place. If there's an accident, people need to know how to react.

There are no scary chemicals involved with electrolytic cleaning.

3. You don't need to justify the Expense



This is a specialized tool for a specific job. Its design is to do it better than any other method or tool.

Stainless steel is an expensive material. Little mistakes are costly. The crime doesn't match the punishment.

You want the job to look like professionals were working. That's why you take on stainless steel jobs, you are professionals.

4. It's Not Expensive



One of the ways of calculating the cost of a product is to compare it to a substitute.

Measure it against the other methods for cleaning. Include the time to do the job, the cost of the labor, the risk of the job not being done correctly and the amount of supervision required.

You bring the weld cleaning machine to the job – not the job to the machine. It can be taken to the job site and plugged into 120V.

5. Machines are Improving



Remember the 1st generation of mobile phones. You made a phone call with a “brick”. Can you imagine someone telling you today, they don’t want a mobile phone because they’re heavy, awkward and expensive? You’d be wondering when was the last time they saw a mobile phone.

The 1st generation of weld cleaners has passed – and they’re still out there doing a good job. But times are changing. Options are being added. Machines are coming in different sizes.

The machines don’t come in one size. There are smaller and larger capacity machines.

Some of the machines dispense the cleaning solution through the handle. You pull a trigger to start the pump to dispense the solution. You’re not forever reaching over to dip your pad in the solution. And then dripping fluid back to the work area.



Some of the newer machines give you the option to etch your logo or mark parts right into the stainless.

Some machines can do MIG and TIG.

Some machines can clean and polish.

Some machines can clean aluminum.

Some machines are capable of using brushes and/or pads.

Conclusion

If you don’t know what a weld cleaning system for stainless steel is, then ask for a demo. Before the demo is over, you’ll be trying to figure out what size your first machine will be.

If you already have one or saw one in the past, it’s time to find out if there’s anything new that will help you even more. Heavy users should definitely be doing this – it’s possible there’s a new machine that can do more – and can do it quicker.

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