

Applications for Plasma Cutting Technology

Industry: Manufacturing

Equipment: HT2000® and Command® THC



Fabricator Cuts Process Times 86%, Increases Business 15%

- **Bottlenecks previously forced the Chicago Metal Fabricators to outsource 40% of its burning.**
- **The company chose plasma as its primary cutting system, ruling out laser and oxyfuel.**
- **Overall cut speeds increased 600%.**
- **Secondary operations have been reduced to a minimum.**
- **Outsourcing has been nearly eliminated.**
- **Process times have been reduced by 86%.**
- **The ability to cut stainless steel has increased the company's business by 15%.**

The company and products

Chicago Metal Fabricators' website boasts that they can accomplish "any job you can throw our way ... whether it's welding, forming, cutting or punching." Chicago Metal Fabricators' welding and assembly services are housed in the right space for building large weldments or assemblies. A full range of welding processes, including automated submerged arc and robotic welding are available through the firm's AWS-certified welders.

The problem

Ninety-year-old Chicago Metal Fabricators had a problem as old as manufacturing – bottlenecks on the production floor. In a 260,000 square foot facility, that's a big problem. Despite having 85 employees and all the skills needed to burn, punch, machine, form, weld, and assemble jobs, the company was outsourcing 40% of its work because of its burnt-out oxyfuel burning station.

"We found ourselves unable to burn anything properly," said Chicago Metal Fabricators engineer Stephen Faley. "It was time to take a look at new equipment."

The solution

Systems integrator Advanced Automation helped Chicago Metal Fabricators upgrade its table with two Hypertherm HT2000 plasma torches configured with Hypertherm Command THC (torch height control) systems.

The HT2000 is a 200 amp plasma system capable of piercing and production cutting carbon steel plate from 18 gauge (1.2 mm) to 1" (25.4 mm) thick, and a maximum thickness of 2" (50.8 mm) when starting from the edge of the plate. The Command THC is a microprocessor-based height control system that controls piercing heights and torch-to-work distances during cutting.

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The table itself was upgraded with new drives, new hoses and a top-of-the-line controller. President Randy Hauser saw improvements in the first month of operation.

Benefits

"Burning is no longer a bottleneck for us," says President Hauser. "It's an asset. By doing a complete retrofit of our burning table, and especially by adding a plasma cutting system, we have been able to greatly reduce our cycle times. We've cut processing costs while significantly increasing our part quality and general productivity. In turn, we have become more competitive in the marketplace."

Engineer Faley is proud of the fact that, "Jobs that used to take 3 hours to burn are now completed in about 25 minutes." That's an 86% improvement in cycle times. "Overall cut speeds have increased about 600%. Additionally, pierce times have been reduced significantly. What used to take up to a minute to pierce using oxyfuel can now be pierced in seconds with plasma."

Secondary operations are much more efficient at Chicago Metal Fabricators, too: there is virtually no dross on cut edges, and increased cutting speeds reduce the heat affected zone, which in turn prevents warping. Without the camber and warping caused by oxyfuel burning, Chicago Metal Fabricators can weld parts more quickly and accurately.

Before installing Hypertherm plasma, Chicago Metal Fabricators had to turn away stainless steel cutting assignments. Now, stainless accounts for a 15% increase in business.

Hypertherm®

Hypertherm, Inc. USA
Hanover, NH 03755 USA
603-643-3441 Tel

Hypertherm (S) Pte Ltd. Singapore
417847, Republic of Singapore
65 6 841 2489 Tel

www.hypertherm.com

Hypertherm Europe B.V.
4704 SE Roosendaal, Nederland
31 165 59 69 07 Tel

Hypertherm Brasil Ltda.
Vila Isabel, RJ Brasil CEP 20560-120
55 21 2278 6162 Tel