

## Preparing to Weld

*In today's low-margin manufacturing, proper setup techniques can often make or break a job*

**T**he math is simple: The less time you take setting up a job, the more time can be spent welding. This equates to more inches of weld being laid per day, less wasted time and material, and a happier boss.

As welding processes continue to evolve, so do the tools used to get the material set into place to be welded.

At VeriForm Inc., Cambridge, Ont., the benefits of proper setup techniques far outweighed any monetary costs and learning curve issues associated with adding a new modular fixturing system to its welding process.

The system, a Demmeler table from Bluco Corp., is a modular fixturing concept that is suitable for the setup of short runs, prototypes, and multiple small jobs on one table, as well as the day-in, day-out work of a welder and even automated welding.

The system can use standard fixturing components, such as angles, stop bars, blocks, and clamps, as well as unique positioning and clamping bolts. The jig is then assembled on the table, a process that, depending on the complexity of the part, can take anywhere from just minutes to under one hour. Building a jig or fixture, on the other hand, can take many hours or even days. The time spent setting up jigs in the shop has been reduced by 50 to 80 percent, even for complex setups, according to VeriForm.

"Since we installed the table, welding has become a much bigger part of the business," explained Paul Rak, VeriForm's president.

Since 1997 VeriForm has been providing customers across North America with precision sheet metal and plate fabricating services. The company manufactures custom parts primarily for the

Typically, as setup time is reduced, more inches of weld can be laid.

mining, forestry, and machine building industries from its three plants totaling 34,000 sq. ft.

"We recently built five prototypes for an automation customer that consisted of 60 to 80 sheet metal and structural parts," said Rak. "These pieces were 5 ft. high, 4.5 ft. long, and 3.5 ft. wide, and we were able to create them all with no rejects. The table was able to hold the  $\pm 0.001$ -in. tolerance that we needed. You simply can't build a jig to that tolerance."

Turnaround time in manufacturing these days is much shorter, and lot sizes are much smaller. Purchase orders may be coming in more frequently, but the dollar amounts are less.

Because of this, companies need to be as flexible as possible.

With short runs come frequent part changeover, which can quickly become expensive if you're using dedicated fixtures. Lead-times will grow, and valuable shop real estate will be needed to store these fixtures.

With a modular system, a welder can set up the fixture when he needs it, run the job, and then reassemble the fixture for the next job.

"You definitely have to be flexible in today's economy," said Rak. "I don't mind my staff breaking down the table and setting it up for another job because it can happen quickly and we can reassemble it at a later time."

Before purchasing the fixturing table, the company's welders created their own jigs, a standard process in the welding industry. This was time-consuming and also used material that just ended up in the scrap bin after the job was done.

Now the company doesn't have to build as many custom fixtures, uses less steel for jigs and fixtures, and creates less scrap.

**Part Quality**

By ensuring a high-quality setup operation is being performed, the company has positioned itself to not only create higher-quality welds, but also to lay down more inches of weld in a day. VeriForm's CWB-certified welders are producing complex parts in complex fixturing with fewer welding problems and fewer downstream problems as well.

"Our welders enjoy using this system because of the ease of setup," said Rak. "It makes their work easier and eliminates errors. These tables are not cheap to install, but we literally no longer have any quality problems related to part dimensioning and tolerancing."

Rak also said that once his welders and design staff figure out how to set up a part correctly, the rest is easy, and management no longer needs to be involved. Minimal time and expense are now consumed for this initial manufacturing step.

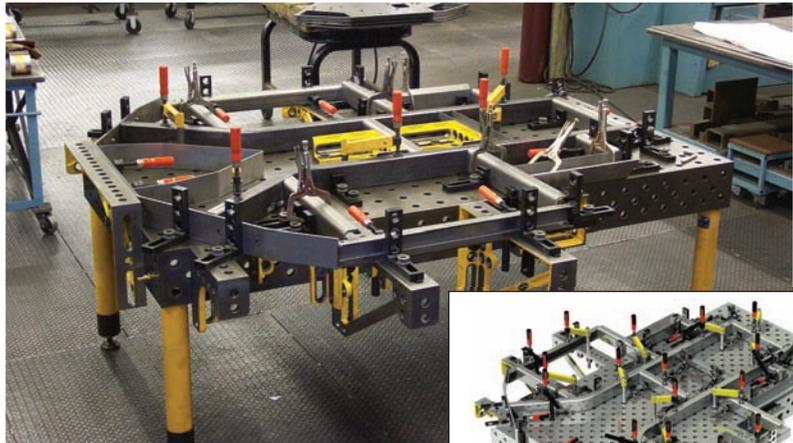
"This allows us to be more competitive for jobs, and we are able to get higher-end jobs where there is less competition," said Rak. "These are generally higher-value, more weld-intensive jobs with more inches of weld. Doing this type of work is what is going to allow us to be successful."

The modular nature of the Demmeler system also reduces the amount that a part can twist or bow during

welding because of how securely the piece can be clamped. The table also allows welders to use shims during the welding process to further reduce these forces.

QA can be done directly on the table itself, reducing bottlenecks and eliminating the need for transporting large weldments around the shop. ■

*For more information, visit [www.veriform.ca](http://www.veriform.ca) and [www.bluco.com](http://www.bluco.com).*



Bluco Corp. will design a fixture for a typical part to show customers what table accessories are needed for a specific job.



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 3500 Thayer Court Aurora, IL 60504  
[www.Bluco.com](http://www.Bluco.com) 800-535-0135