

Olympic Steel Brings Home the Gold with ProNest[®]

OLYMPIC STEEL



Photos courtesy of Olympic Steel

Company Profile

Metals service center **Olympic Steel** (NASDAQ ZEUS), headquartered in Cleveland, Ohio, is a value-added provider of flat rolled steel. Olympic Steel operates 15 facilities across the United States; including locations in Ohio, Minnesota, Iowa, Georgia, and Pennsylvania. Founded in 1954, the company attributes its success to developing long-lasting relationships with its employees, suppliers, and customers, while maintaining a focus on providing personal service and consistent quality.

A big part of meeting customer needs at Olympic Steel is cut-to-shape processing, which is performed on more than 30 laser, gas, and plasma cutting machines manufactured by companies including Trumpf, Tanaka, Cincinnati, Bystronic, LVD, MG, Controlled Automation, ESAB, and Farley.

Laser Processing Capabilities Resonate With Customers

The laser cut-to-shape processing business segment has made a significant contribution to Olympic's growth and profitability in recent years. Relatively high capital equipment costs for laser technology demand optimized productivity to achieve the necessary return on investment (ROI). CAM programming plays a leading role in delivering that ROI. As laser capabilities were added, Olympic soon found itself using numerous OEM and third-party CAM software programs; including a very old and dated version of ProNest from MTC Software. This scenario meant that CAM programmers had to be trained to operate some or all of these programs, and that the company faced mounting, recurring software update and maintenance costs. It was not long before a strategic decision was made to seek out and implement a more global corporate approach to CAM programming that would help Olympic Steel to achieve its productivity goals.

The Decision to Update and Upgrade ProNest

Olympic Steel began searching for an enhanced CAM nesting software solution in earnest. Initial results were disappointing as one potential vendor attempted unsuccessfully, for an entire month, to create a working software trial of their program. However, after contacting MTC Software to find a CAM software

Did You Know . . .

MTC Software can provide one nesting program that will work with most cutting machines and CNC controls; new and old alike.

Interesting Facts . . .

- ▶ *Our employees understand the cutting processes you work with*
- ▶ *Our auto-nesting saves time and material, typically outperforming attempts to manually nest the same job*
- ▶ *Our ProNest software works seamlessly with all leading brands of laser, including Trumpf, Bystronic, Cincinnati, Tanaka, LVD, Mitsubishi, and others*
- ▶ *Our products are so easy to learn that we can install the software and train a new customer online, the same day*

solution that would meet their needs, Olympic installed a trial version of MTC Software's ProNest 8. After experiencing its power and ease of use, Olympic made the decision to upgrade to ProNest 8 for the majority of their CNC sheet and plate cutting operations, nationwide.

Commenting on the use of ProNest at Olympic Steel, **Cory DeWitte, CNC Planning Specialist** states, "We started with ProNest Version 4.3 and now we use Version 8. This has been a path to increased productivity throughout recent months. We have found ProNest to be an ideal marriage of manual and automatic nesting. **The program is just so easy to use.** Personally, I like that with ProNest I can have two or three instances of the program open at any time so I am able to set up one big nesting job and start it running, meanwhile I can begin work on another job. This really increases my productivity. I just can't say enough about the software. ProNest is just solid!"

Integration with MRP Helps Automate the Nesting System

"There are so many ProNest features I really find fantastic and that we use; particularly for our lasers. **We process a high volume of material at Olympic Steel—more than 36,000 tons per year at the Plymouth, MN location alone.** To manage our workload, we use ProNest's Part and Sheet Nest List feature on a daily basis, which allows ProNest to readily interact with our company's internal MRP system. Typically, our programmers are provided a large file containing all of our work orders twice per day. With ProNest, all relevant CAD files for the related work orders are loaded in seconds, along with the specific parameters for each part (leads, feedrates, quantity, material type and thickness, grain constraint, customer, etc)." During this process ProNest automatically performs CAD file revision checking to ensure that the latest versions are used to update the jobs and avoid scrap. "Next, we are able to go directly to automatic nesting of the parts, where shapes are efficiently nested on the correct material and thickness. Part nesting priorities can even be automated based on delivery dates, overriding the default nesting approach and allowing us to get rush jobs across the machines and to customers even more quickly than normal, when necessary."

Nesting Speed and Utilization Pays Off as Material Costs Continue to Rise

Mr. Dewitte continues, "Speaking of ProNest's automatic nesting, it has really come a long way. Speed enhancements and increased material utilization have been significant for

us. **The ProNest Version 8 nesting logic is so much better that what we had before.** When I was using my previous software I was nesting for three laser machines and it took an entire day. ProNest now allows me to program eight machines per day, so **it has more than doubled our programming productivity. Also, we virtually always achieve a minimum of seventy percent nest utilization, even with the most challenging part geometries."**



Head Down Cutting Sends Productivity Upward

"ProNest's enhanced Collision Avoidance feature has been huge for us, especially for use on some of the older lasers where raising and lowering heads is slower. **We can now traverse with the cutting head down vs. a full retract between every pierce and that has translated to a savings of just over an hour of production time per day, per laser, which is awesome!** Collision Avoidance has, on average, eliminated ninety five percent of the head raises we had been doing in an effort to run our machines without crashing the cutting head. We now see significantly reduced wear and tear on the laser machines; which reduces our costs." Collision Avoidance includes automatic internal profile sequencing and an intelligent auto-move leads feature, which is designed to reduce traverse time and improve productivity. Dewitte continues, "For quality reasons, customers are moving away from allowing us to use tabs to prevent tip up scenarios during the cutting process. With Collision Avoidance we can now eliminate tabs by automatically optimizing lead-in placement and internal/external sequencing to avoid instances in which a head crash may occur. ProNest will

automatically decide whether full raise or an avoidance move (traversing around a tip up scenario) is required. This also can be controlled manually by the programmer.”

Turning the Corner on Part Quality and Productivity

“We used to use CAD to manually apply a radius to all intersections in our CAD files. On average, we would spend five to ten minutes per part manually drawing and inserting a small radius at sharp corners. We have found that by applying a small radius on all intersections, corners maintain a better cut quality due to the heat build up from the pause in motion before changing direction and the tail of the beam not being able to catch up at the bottom side of the plate. Before using corner radii, when our parts had a sharp corner, the cut quality suffered. The only other solution to remedy this issue was to reduce our cutting feedrate, which just wasn’t feasible. A radius on all sharp corners gives us better quality parts while maintaining the maximum cutting feedrate, allowing Olympic Steel to stay competitive with price and supply our customers the quality they expect. With material costs rising, we simply cannot afford to let quality issues on corners lead to scrapped parts.”

“Since upgrading to ProNest 8, we have used the **automatic corner radius feature, which has eliminated time-consuming CAD work, and given us complete peace of mind knowing that every corner was taken care of.** It has also led to reduced production time (as a result of faster cut speeds on corners) and cost savings, as the older lasers have less wear on both the ball screw and rack and pinion drive systems, since the drives are no longer making a hard stop on the part corners.”



Common Lines Solve Common Problems

ProNest’s Common Line Cutting (CLC) feature allows two or more parts to be cut with a common line. This feature automatically compensates for kerf to ensure geometric accuracy. Mr. Dewitte states, “Our requirements for a CLC cut path, which take into account movement from heat and stresses within the material, must provide part repeatability, which we get from ProNest.” ProNest can automatically tool path a group of CLC parts to ensure that movement is limited by allowing the plate to hold parts in place during cutting. **“ProNest’s CLC feature has decreased our production time anywhere from twelve to as much as forty percent.** We have also seen an increase in material utilization by nesting parts using kerf spacing versus traditional part separations. Recently we implemented ProNest’s Advanced CLC which has enhanced our capabilities even further.” ProNest’s Advanced CLC module allows the user to totally control the cut path, CLC both similar and dissimilar parts by bumping or hovering over a part, CLC parts with the plate edge, and apply safety cuts to create a safer cut path to help avoid torch collisions with tipped up parts. “To reduce production costs, we now CLC as many jobs as we can.”

“Skeleton Cut Up is another feature Olympic uses on a regular basis. We actually use the feature to meet the company’s internal maximum man-lift limit of 40lbs (18kg). After each nest is cut the laser automatically segments the skeleton in to smaller sections, which we can define. This helps prevent

operator injury plus we get more money for our scrap when we cut it in to small pieces.”

Support and Commitment

MTC Software is committed to the continual improvement of its products and to providing exhaustive customer support. Mr. Dewitte concludes, “The support we have received makes our membership in the Software Subscription program well worth it. I really

feel involved in the development of the software as the people at MTC listen to what I have to say. It is truly exciting to get a new software release and see an enhancement that I suggested.” By enrolling in the Software Subscription program, users are able to access technical support and online training when they need it. “As a member of the program, when a new release is available, I am able to contact MTC to schedule a one-on-one online training session to learn how to use the new features. Also, their technical support staff is very responsive and always there to offer advice. Those guys have plenty of experience and are ready to help out when I need a hand. ProNest has really been top-notch and I strongly recommend the product to anyone with a CNC cutting application”.



TECHNICAL BRIEF

For More Information

Learn about MTC Software programming solutions that can help your company improve productivity and part quality, plus increase profitability.

Visit our website at www.mtc-software.com or call your local office.



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ProNest® Advantage

ProNest is used to support numerous CNC cutting processes. Using ProNest as a single programming solution means you do not have to sacrifice any software features to achieve the best productivity and quality. In fact, we often hear from our customers that ProNest is not only easier to learn and use than OEM-developed programming software, but that it also offers a richer, more comprehensive feature-set. Here are just a few examples of the benefits you can achieve when using ProNest with some commonly used cutting processes:

LASER

- Use **Subrouting** of parts/profiles to both make the CNC code easier to read and to reduce the overall file size
- Use **Corner Radius** technology to identify corners on an imported part drawing and automatically replace them with small arcs; helping to optimize the NC code so that during cutting, the machine can maintain higher speeds on corners while achieving better part quality through improved part geometry

PLASMA

- Use variable **Feedrate and Kerf Parameters** plus torch **Under/Over Travel** to reduce hole taper and lead-out inconsistencies

- Use **Auto Height Control Lockout** to prevent the torch from diving and crashing when the “slug” falls out from the interior cut

WATERJET

- Use the **Quality** designation as a means to assign different feedrates to the entities of a part and control the resulting edge quality
- Use **Dynamic Piercing** to maximize piercing efficiency by rapidly moving the nozzle in a cyclical motion during piercing so that jet “rebound” does not get in the way of the incoming water stream

OXYFUEL

- Use **Heat Dissipation Cut Sequencing** to reduce plate warpage during cutting by automatically sequencing parts in different zones of the plate
- Use **Advanced Edge-Piercing** features and one of the available **Lock Lead-In** formats to reduce cycle times and improve part geometry

COMBINATION MACHINES

- Use **Repositioning** functionality to process plates that are larger than the maximum X-axis work area, using a single pass
- Use **Plate Load/Unload** support to control automatic material handling and maximize productivity