

The Long and Short of Laser Cutting



The Prima Power Maximo has all the advantages of a small, accurate, and fast machine in an unlimited work area. The Maximo is a large cutting system based on the field tested Platino 2D laser machine. Hundreds of Platino lasers are in use throughout the world. Maximo can provide all the advantages of that well known, accurate, and fast machine combined with a very large work area. This result is obtained with a simple but highly effective solution: a complete Platino machine – with its mechanical structure, laser generator, CNC, moving carriages, optical chain and focusing head – traveling on rails over a fixed working table, processing sheets of any length with the only limitation of the space available in the workshop.



HW Metal Products Inc., Tualatin, OR, has gone through many transitions since opening its doors in 1979. According to Jack Suter, president, from 1979 to 1995, HW Metal Products was just a forming shop. “When we first started all we did was bend steel...because that’s all we could do,” Suter reminisces with a smile. “Our primary customer base was initially truck trailer manufacturers. They needed the long press capacity for frames. We were renting 12,000 square feet of space and a press brake. Steel service centers would process the material for us cut to size... and we would just bend the steel.”

However, beginning in 1995, HW Metal Products made a number of equipment and operational changes that had a dramatic impact on the company’s growth. “In 1995, we did an analysis of the cost savings from buying directly from the mills rather than the steel service centers,” explains Suter. “We discovered that these savings would pay for plasma tables that we needed in order to buy from the mills because now we had to process the steel ourselves.”

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In the late 1990’s, HW Metal Products purchased a 10’ x 80’ high definition plasma table and two 12’ x 90’ plasma tables. In 2000, the company purchased a 60’ press brake (two 30’ 2500 ton press brakes), and added more welding and fabrication capacity.

Prima Power Maximo

By 2007, the management of HW Metals recognized that there was a demand to provide finished product cut quality to their customers that was not available on the plasma cutting equipment. “We needed to add laser technology to our shop,” explains Suter. In 2008, the company purchased the Prima Maximo 10’ x 60’, 4000 watt laser from Prima Power, formerly Prima Finn-Power.

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“We went with Prima because we wanted to buy a large laser with the ability to process our large parts,” continues Suter. “When we made the trip to Italy to sign off on the machine, we were still somewhat reluctant and worried about introducing a laser into our environment. We really didn’t know that much about lasers. We thought that there would be electrical, vibration, and contamination issues. However, we visited facilities similar to ours in Italy that had the Prima Maximo and that answered our questions about the issues we thought we might have with the laser.”



In 2008, Howard Wolfe, chairman & ceo, (left) and Jack Suter, president purchased the Prima Power Maximo 10' x 60', 4000 watt laser. The key selling feature of the Maximo was its traveling power system, which allowed HW Metal Products to do a quality part the full 60 feet of length.

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In addition to the movement axes of the Platino machine (the Z-axis for the vertical movement, the X- and Y1-axis for the longitudinal and transversal one), Maximo features a further Y2-axis, which allows the machine to move beyond its Y1-axis stroke, as far as the sheet metal to be processed requires.

The Maximo can be equipped with one or more piece supporting tables (length on customer's demand) and the relevant devices for fumes extraction and scraps collection. The piece remains fixed during the work process. It is the machine that moves to

reach the area to be machined.

This design gives the system a great flexibility, as it allows suiting the work area to the sheet metal to be processed:

- "local" work area: for sheets with moderate size (up to 3000 x 1250 mm) it is possible to use the high dynamic local X- and Y1-axis
- "long distance" work area: for long and very long sheets the X and Y2-axis are used, adding the Y1-axis when required for local cutting operations at high speed (e.g. holes and slots)
- "split" work area: the Y2-axis stroke can be also divided into two or more work areas; in one area, the sheets are loaded and unloaded while the machine is at work in one of the other areas. This eliminates idle times for sheets feeding and avoids the need of additional complex and costly devices (such as pallet exchange systems).

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The Maximo can be quickly and easily installed. There is no need for a complete foundation. Thanks to a peculiar patented solution for the main carriage guidance and isostatic support, only two plinths of the same length of the Y2-axis stroke are needed.

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Maximo takes advantage of all Platino's features, which make the machine highly reliable and easy to use even for the less experienced operator:

- the focal axis for the automatic and programmable adjustment of the focal position independently of the stand off, which allows cutting a variety of materials and thicknesses without manual interventions and keeps the process accurate in the entire work area
- the rapid lens changing system (from 5" to 7.5")
- the off-line 2D CAD/CAM and the "nesting" software package for quick, easy and cost-effective programming
- the fast-piercing unit for ferrous material of higher thicknesses

Traveling Power System

According to Suter, the key selling feature of the Maximo was its traveling power system, which allowed HW Metal Products to do a

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quality part the full 60 feet of length. "Our purchasing decision was based primarily on the fact that the Maximo could do 60' products and also do small parts. The Maximo reads the table in a grid system, and then operates in a small grid," says Suter. "We



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wanted to buy one laser for both small and large parts. The Maximo fit the bill, and was the best of both worlds. We can cut both small and long parts on the Maximo. The traveling power source allows the cut quality and speed to be the same at foot 60 as it is at foot one. All the competitors' machines we saw had stationery power units."

New markets

Although mainly a carbon steel shop, HW Metal Products uses the Maximo to cut aluminum (up to 3/8"), stainless (up to 1/2"), and carbon steel (up to 3/4"). "We didn't cut aluminum and stainless on our plasma tables," says Suter. "The Maximo's quality has been very good. It has allowed us to be involved in specific industries and parts that previously were unavailable to us because they required a laser-cut quality. During the course of the recession, there were a couple of months when the Maximo was our most used piece of equipment. It was work we would not have had if we didn't have the laser. Specifically, the Maximo laser helped us expand our business by 10%. Certain customers would not accept plasma cut holes, and the Maximo solves that problem. It also allows us to laser cut a part that previously had to be drilled or punched. The laser was required to keep up with the times."

Expansion

Today, HW Metal Products has expanded to 130,000 square feet, with 85 employees that work two shifts, seven days/week. While primarily a West coast business, specific customer products are shipped throughout the country. The company is one of the few job shops that can cut with standard plasma, high definition plasma, laser cut, and form a 60' piece without the part leaving its building. Its customer base has expanded to producing component parts for transportation equipment manufacturers and general fabrication, such as rail cars, truck bodies, trailers, barges, mobile cranes, light poles, transmission & cell towers, etc.

"There are two things that I think we offer that are significant," says Suter. "We have evolved into a combination of a steel processor and job shop. Our forte is that our equipment is larger and longer than others, so we can produce longer parts, which saves people labor. If you can do something in one piece rather than two, you are forming and cutting a single piece rather than two. Hence, you don't have to weld them together so there is a cost component, a static component, and a quality component. We can not only make parts in larger sections, but we produce them in high-strength, lighter-weight steel that is the calling card for transportation equipment. This reduces the weight of our customer's products."

Customer Service

HW Metal Products' philosophy is identify work that their customers are currently processing in-house, and find ways to eliminate the need for their customers to do second or third step operations, while using their labor resources on more productive functions. "The Maximo laser helps us in this area," concludes Suter. "Its full potential has yet to be realized by our company."