



New Developments in Plasma Cutting Software Simplify Low-Cost Production

In today's tight-budget economy, in which lenders' caution can curtail a company's production plans, it is imperative that businesses do everything possible to save time, money, and resources. As new projects and products require modifications, or when prototypes require one-off manufacturing, producers sometimes need to keep their operations under wraps to avoid competitors acquiring competitive intelligence.

From this perspective, an easily affordable plasma cutting machine may be just what the doctor ordered, to provide short-run or limited production of time- and competition-sensitive components.

Acquiring a relatively lightweight CNC plasma cutting machine with a small footprint on the production floor enables manufacturers to easily produce the kinds of parts needed for specialty prototypes, repair work, or replacement items. Ships, offshore equipment, and remotely located manufacturing facilities are examples of the kinds of work that may require a smaller, easy-to-use system that might be considered non-industrial in nature. But smaller machines are now packing enough punch to perform heavier tasks, from cutting the occasional specialty part, to mass producing parts, to serving as a high-tech tool for artistic uses.

Economic considerations are uppermost in every manufacturer's mind today, and typical industrial CNC plasma cutting machines are often many times the price of those in a newer class of lighter, more affordable systems. Budget-oriented manufacturers

can acquire a versatile and powerful CNC plasma cutting machine that can cut highly specialized shapes and reproduce virtually any metal part with relative ease. Many manufacturers will be surprised to learn that they can acquire a CNC plasma cutting machine for under \$15,000, and have it up and running in less than a day.

The opportunity to own such a machine enables manufacturers to increase production capability and gain new abilities to make highly customized parts. These systems, easy to learn, to operate, and to maintain, will keep operations up and running through critical production schedules and are within the reach of most fabricators. A farmer or rancher who needs to build or repair machinery or design and create implements to keep his operation moving can now become proficient in cutting just about any metal parts required, instead of waiting for a component to arrive from a supplier. Other uses of smaller-scale CNS plasma cutters might include the need to build or repair parts on a marine vessel at sea. A small, light, and simple-to-operate CNC plasma cutting machine would be ideal for these applications.

Manufacturers with tasks of these kinds will be glad to learn that there are just such machines on the market today. One manufacturer of equipment that meets precisely such needs is PlasmaCAM, located in Colorado City, Colorado, a few miles south of Pueblo. Their product, a 4'x4' CNC plasma cutting table called the DHC² (for digital height controlled), ships complete in one box, weighing in at roughly 380 pounds, and can be assembled in about four hours. Instructional DVDs the company has been developing for several years guide the assembly procedure and teach users how become operational within a matter of days.

Technical support questions raised by users have been incorporated into the DVDs. Experienced users of CAD or other illustration software can get the hang of creating shapes and cutting metals within a few hours. To get the entire PlasmaCAM cutting table up and running requires only a Windows-based PC or laptop computer, a plasma torch system, and PlasmaCAM's proprietary software for converting designs into cutting paths. The software adds pierce paths, and with a few calculations based on the metal's thickness and curvature, the design complexity of the finished product, manufactures can estimate production times and costs in systematic, predictable ways.

PlasmaCAM's software, which combines drawing and controlling programs, is developed at the company's headquarters. A set of artistic design templates created by the company are available as well, though artists' drawings can be scanned and

imported into the PlasmaCAM software to generate precise and detailed cutting paths, which simply cannot be reproduced by hand.

Most users will probably want to build or install side covers or an enclosure to accommodate a mechanism to remove fumes from the underside of the cutting table, and place an exhaust fan beside the table. These extra items provide a very nice cutting cell from which to burn out parts, of whatever shape you choose, in the steel of your choice. Thicknesses for cutting can range from very thin sheet metal, perhaps 24ga, up to an inch, depending upon the power of the plasma torch you select.

When cutting thinner steels, fine edge features become more difficult to achieve, and as thickness increases, the relative perpendicularity of the edge to the surface can show some taper unless users choose to invest in a high-definition plasma torch—which will minimize this effect from the cutting process. Since plasma cutting is a thermal process, using the heat from the plasma arc to melt the work surface, some users will add an assisting gas during the cutting process to remove melted metal from the area, as well as to increase the cutting speed when oxygen is used to aid in cutting steel.

Options are increasing as manufacturers look for ways to cut designs far beyond what the traditional “torch in the shop” can do, or as they need to replace the hand tools they’ve used in the past to produce specialized shapes, one-off parts, or prototype components. The days of taking fabrication problems to the “Big Shop” across town may be over. Manufacturers and artists can be much more independent and self-sufficient by making a relatively small investment in a CNC plasma cutting machine.

To learn more about PlasmaCAM's products, visit their website at:

www.plasmacam.com

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