

Control Versatility Is Key To Successful Shop Operation

With a lifetime of machine tool experience, a Florida entrepreneur brought his "life lessons" to the shop floor and is now proving what it takes to succeed as a shop owner.

Having spent a career as a machine tool dealer, product specialist, and application engineer, Denis Oaksford learned many lessons about the equipment and the business. Founding A1A-CNC, Inc. (Largo, FL), he stressed the need for flexible, highly capable software controls for his equipment. His approach is paying off as his shop works its way to the top of the high-precision, high-accuracy list of operations in the competitive Florida market.

For A1A, named after Florida's famous highway, the majority of its work is in 2½-axis machining and turning for the packaging, food processing equipment, aerospace, electronic, and marine industries. This, he explains, involves a lot of aluminum alloys, plastics/composites, and stainless steels such as 304, 316, and 17-4.

"Having worked all my adult life around NC and CNC machine tools, I have seen several generations of controls," says Oaksford. "There are many things I look for in the packages we purchase."

Even before he gets to the software, he has some very strong opinions about what he looks for in the hardware and equipment for A1A. "I want a clean electric cabinet such as our Deckel Maho with the Siemens 810D and Shopmill on board. When you pull the cover off the wire ducts, the wiring is pulled straight. The ducts are not full of excess wire coils. Everything is labeled with tags you can read, even after they've been handled a lot. The terminations are neat, clean, tight, and organized." To him, this is an initial sign of a quality build.

He also looks at the CNC console or remote operator terminals for signs of top quality componentry. He explains that some builders he has seen "use the cheapest compo-



A1A-CNC, Inc. relies on versatile controls to produce a variety of aluminum alloy, plastic/composite, and stainless steel components.



nents available, and it shows in their package appearance." As an example of this, he notes, that he has seen manufacturers change from amber monitors to black and white, then back to amber, "because they got a better deal each time. Either way," he adds, "in five years of use, you end up with a burned-in monitor."

The quality of the hardware also affects the machine's performance. "Sometimes we do a lot of synchronized tapping, hundreds of holes in aluminum. I want to run a ½-20 at 1,300 rpm, all day long. Many popular machines can't run over 500 rpm without cooking the braking resistor." He notes that both his Deckel Maho and Cincinnati machines equipped with the Siemens Acramatic 2100 control will run at the desired speed consistently.

To get the optimum performance from a machine, "a great editor" is what is required, stresses Oaksford. "The canned cycles must be thorough and well thought out." As an example of this, he points to inch vs. metric measurements. "Many inferior controls we've seen leave the inch values in the metric screen, so you need to reset your entire tool and work offsets. I'm a G-programmer by nature and have never had great regard for the conversational controls," he says.

He observes that many CNC machines have their own ideas and limitations on how to use a tool. "For example, if I want to rapid on a circular path between drilling holes, I want to input absolute X and incremental Y values on the same line. Or, with the Shopmill, if I want G-code, I can insert or even write the whole program in G-code." The program permits programming in millimeters and feed in inches per minute. "You can enter tap feeds with a fraction," he explains. "For example, on a ½-13 thread, feed is input as F1/13. Most other controls require you to get your calculator, divide 1 by 13 and multiply that number times the rpm to get your feed rate. If you choose a different spindle speed, you need the calculator, again," says Oaksford.

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The controls used by AIA allow programming straight line moves with a radius at the intersection. "Although we have several CAD/CAM systems in-house, we only use them for code on 3-D parts. Many controls don't allow a large amount of such programming...or, if they do, it's limited to right angles," advises Oaksford. This, he explains, forces the user to solve triangles for the endpoints or arc centers. "Many of our customers' prints had to be dimensioned with arc endpoints specified, so shops with less capable controls on their machines could get it right."

For his operation, Oaksford also looks for controls with large storage capacity. "We can't figure out why so many builders charge thousands for a few megs, when every hard drive you see now is measured in gigs. This is important to us," says Oaksford. "But, because we serve so many different types of customers, it was important to find repeat programs with dispatch. With our controls, we can create folders for customers and have program names with text. He notes that the Siemens 2100 control allows 32 character names and stores them alphabetically for easy access.

Oaksford concludes, "If you keep all these aspects of control/software packages in mind when shopping for machines, the decisions get much easier. We stake our quality reputation on these controls and they do not disappoint."

Siemens Energy & Automation, Inc.

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