

CNC TOOL STORAGE SOLVED IN A DIFFERENT WAY

By Oliver Brett



Storing tools safely, while still being able to see all tools clearly and prevent accidental damage has always been a challenge for most machine shops.

Large machine shops can store their tools in large carousels that are available in today's CNC machines, but the capital expenditure required to accomplish that is prohibitive for most small- and medium-sized machine shops.

Along with tool storage, comes the most challenging aspect for any machine shop using CNC machines: set-up time.

Every minute a CNC machine is being set-up costs money. Machine shops that have low capacity tool magazines in their machines, but have a large number of tools will find that tool handling becomes a time consuming part of every machine set-up.

Staff at Apollo Machinery were looking to solve some of those problems by acquiring compact CNC tool storage for their increasing tool inventory, as well as software that could keep track of all their tools, tool lengths, consumables and upload offsets to their Haas and Daewoo CNC machining centers.

Located in Delta, B.C., Apollo Machinery is a machine shop that specializes in hydraulic manifold manufacturing and production runs are generally short.

"The short production runs meant that the constant set-up was an issue," explained Peter Faust, owner and president of Apollo Machinery.

Realizing that no such storage or software systems existed on the market, they set out to design a system for themselves and the Tool Wall system was the end result.

"Knowing that we had invented something new, we applied for a patent in North America," added Faust.

The core of Tool Wall is the storage wall itself, offered in two versions: Basic and Dual. Tool Wall Basic will store up to 160 each of 40 taper or 60 each

of 50 taper tools. Tool Wall Dual will store up to 320 each of 40 taper or 120 each of 50 taper tools. Both versions have extremely compact footprints, making them ideal for small- to medium-sized machine shops where floor space is at a premium.

To store tools in Tool Wall, all tools must be installed in a 40 or 50 taper tool holder with a retention stud. Tool Wall is retention stud specific with the retention stud engaging a slot in the Tool Wall receptacle to secure the tool and holder in the Tool Wall. If more than one type of machine is used in a shop, Tool Wall offers the benefit of never worrying that tools will be mixed up between machines as tools from one type of machine will not install correctly in a Tool Wall for another type of machine because the retention studs are different.

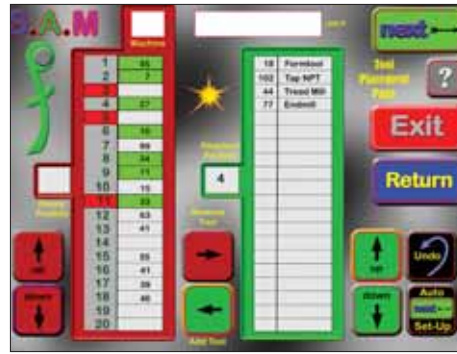
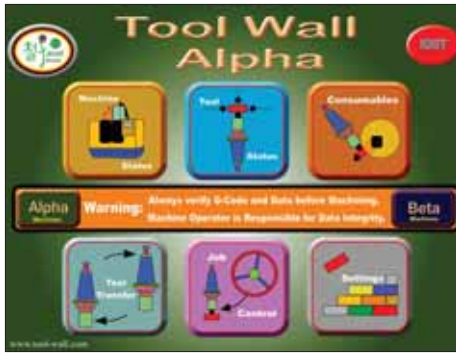
For machine shops that have CNC machines with large capacity tool carousals, unloading all their tools at once for maintenance or other reasons can be difficult, as storing all their valuable tools can become a logistics problem.

With Tool Wall, the tool storage capacity is large enough that the tool pocket number of the carousel can be matched up to the Tool Wall receptacle number, making removal and replacement of all the tools straightforward. This can also aid in the sharing of the large tool investment between machines.

Complementing the Tool Wall storage is a software package that will set a standard for CNC machine set-up. The current standard for setting up CNC machines is that there is no standard.

"There is no standard for the job and tool set-up of CNC machines. Every company has developed a standard of their own," explained Faust

Small machine shops also can't necessarily afford the expensive in-machine measuring systems required to reduce set-up times. With that in mind, the staff at Apollo Machinery started development of the software with the main goal being a desire



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to eliminate time-consuming tool length measurement using the CNC machining centers, and also to reduce the amount of tool handling into and out of the CNC machines.

A beta version of the software, working in conjunction with an external tool pre-setter, has been running for sometime at Apollo Machinery, and has achieved and surpassed those initial goals. Drastic reductions in set-up times have been observed and with the software tracking which tools are in the machine, the tool handling has also been significantly reduced.

The upcoming consumer version of the software will provide small- and medium-sized machine shops

the ability to compete with the larger shops that can afford the expensive in-machine measuring systems as well as the CNC machines with large carousels and the high tooling cost required to fill the large carousels. The software will have the ability to manage information such as tool manufacturer, tool type, carbide part numbers, tool and carbide vendors, machine status, tool length, tool diameter, speeds, feeds and offsets.

Most small- and medium-sized machine shops often only have one journeyman machinist that looks after the programs and oversees the set-ups and tool selection.

“An added benefit of the system is that the company doesn’t rely anymore on one person that can do the set-up, reducing the risk to the company should that person leave the company and take his or her knowledge with them,” said Faust.

Tool Wall’s much anticipated Synchronized Automation Management or SAM assists the CNC operator by scanning the G-code and rewriting it to match the tooling in the pockets of the CNC machine. Tool length offsets are automatically loaded into the CNC machine when the program is run. For machines with tool-in-waiting, SAM can automatically assign tool pockets close together based on their sequence in the program. This helps eliminate any pauses during machining while the next tool is being selected into waiting.

The Tool Wall software is designed to be used with a touch screen computer that will survive the often difficult environments that exist in machine shops and can be mounted directly to Tool Wall.

A tool pre-setter mounted below the touch screen completes the package, making the newly introduced Tool Wall system the best solution for tool storage and CNC machine set-up on the market today.

Oliver Brett is general manager of Apollo Machinery.

For more information visit www.tool-wall.com. ■

