

Finding Cost-Effective Solutions



Front row (l-r): Hugo Zepeda, Engineering Tech.; Pat O'Brien, Material Manager; Todd Miller, Machinist. Back row (l-r): Eddie Weatherspoon, Machinist; Mark Netherland, President.

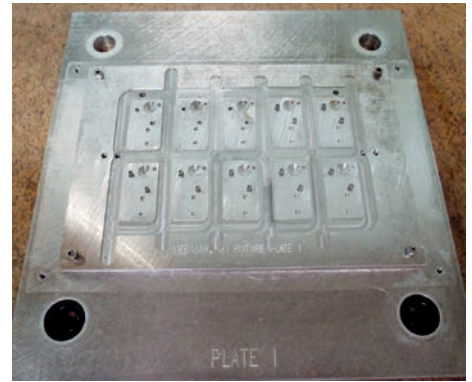
Martek Automation, an ISO 9000 compliant company, designs and develops automated assembly, material handling and processing equipment for the microelectronics and hybrid device industries. The company's ongoing goal is to give its customers maximum control and flexibility over their processes and provide cost effective solutions for their process needs.

In order to meet these goals, Martek found the need to increase productivity while dealing with capacity issues. There was also a need to lower its overall cost structure to compete with offshore competition. To meet these needs, the Martek team looked into obtaining a new CNC machining center.

"We had a machining center at one time," said Mark Netherland, President, Martek Automation. "Being a small company, I needed a person who was well versed in G-code and CAM and willing to program and set up and run the machine. This person was extremely difficult to find because I either had to hire a programmer, who eventually left because it was not what he wanted to do, or try and train a set up person to program, which never worked out. Productivity suffered as a result, so we sold the machining center and farmed out the work. Given this background, I ruled out the option of hiring another G-code/CAM programmer to increase our productivity."

Instead, Martek chose to invest in an LPM ProtoTRAK PMX CNC from Southwestern Industries. "We had other equipment from Southwestern Industries, a ProtoTRAK knee mill retrofit and a TRAK bed mill, and our current employees were familiar with the ProtoTRAK CNC conversational lan-

guage," said Mr. Netherland. "The LPM ProtoTRAK PMX CNC is similar to the ProtoTRAK CNCs found on Southwestern Industries' mills and lathes in that it is both powerful and easy to learn and use. The PMX is different from other ProtoTRAK CNCs in that it accommodates an automatic tool changer with a quick set up and change-over system."



A Martek fixture bolted onto an LPM fixture plate containing ball lock linings facilitates quick and easy set-ups.

Martek found the latter to be especially appealing as Southwestern Industries designed the system by incorporating Jergens ball locks into the LPM worktable. The table contains bushings at precise locations known to the PMX that act as receivers for Jergens ball lock clamps and allow the operator to quickly locate and lock down fixture plates.

Standard fixture plates with ball lock liners are also available with the LPM. Martek adapted these to accommodate its fixtures, which enabled the company to do following:

- Eliminate the need to do fixture offsets,
- Set up parts on fixture plates off the machine,
- Reduce planning for repeat jobs,
- Secure fixturing in seconds and,
- Position fixtures and parts accurately.

Finally, Martek decided to acquire the LPM because

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Eddie Weatherspoon reviewing his program on the ProtoTRAK PMX control.

As Seen in November 2012



MANUFACTURING NEWS



Martek's magazine handlers are designed to remove unprocessed devices from loaded magazines and onto a manufacturing line or into a processing cell and feed processed parts back into empty magazines.

- Max. rapid speed (XYZ): 800 x 800 x 700 IPM
- Tool capacity: 16
- HP continuous: 10.

Martek primarily machines aluminum and plastic parts with a small mix of stainless steel. The LPM is typically used for jobs that are repeat orders for either Martek's own standard products or customer build to print contracts.

"Once we program and create a fixture for these jobs then our productivity increases dramatically on the future builds," said Mr. Netherland. "The ball lock feature makes setting up the job a snap and we have very little down time. Compared to our previous methods of machining these parts, we have seen set up times reduced by as much as 50%. The finished product is comparable if not better than product machined by previous methods."

Founded in 1991, Martek provides engineering, machine shop and software capabilities, as well as electro-mechanical assembly services. The company serves both the semi conductor and medical device manufacturing industries in an international market. Standard product lines include:

- Magazine handlers designed to remove unprocessed devices

there was no need for an expensive 5-axis machine with features that would never be used.

"The solution has worked better than we expected," said Mr. Netherland. "Our productivity has increased as has our flexibility. The latter increased because the LPM is easy to learn and use, so our shop product flow-through is not dependent upon one highly skilled and knowledgeable person. Product quality and surface finish equals or exceeds previous levels."

Features of the LPM include:

- Overall L x W x H: 13.9' x 7.37' x 9'
- Table size: 35-3/8" x 19-5/8"
- Travels (XYZ): 31" x 18.5" x 21"

from loaded magazines and onto a manufacturing line or into a processing cell and feed processed parts back into empty magazines,

- Work/inspection flexible modular workstations that can be used for multiple purposes and can be integrated with Martek's magazine handlers,

- Stand alone in-line conveyor modules that can be configured for multiple applications including but not limited to integration with pre-heat and post-cool tooling, vision inspection, visual inspection, bar code readers and dispense systems,



Stand alone in-line conveyor modules by Martek can be configured for multiple applications including but not limited to integration with pre-heat and post-cool tooling, vision inspection, visual inspection, bar code readers and dispense systems.



Parts machined on the LPM go into higher-level assemblies on the 1110U and 1110D magazine handling equipment production line.

- Heater stages and LIFO/FIFO buffers,
- X/Y positioning systems,
- Machined carriers that can be thermally cycled without changing flatness or accuracy,
- Pre-heat/post-cool modules configured for heating or cooling micro-electronic/hybrid packages and,
- Automated material handling systems.

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