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## *Rethinking Throughput for 700+ Customers*

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# Rethinking throughput for 700-plus customers

*New approach brings 10-to-1 productivity gain for precision parts maker*

**A** Spokane, WA, producer of precision electronic parts wasn't foiled by some of the challenges it was facing — overseeing 45,000 designs cut from various materials, reducing cycle and changeover time, and serving over 700 distributors and OEMs around the world.

Company representatives got together, brainstormed, and went shopping. What they discovered brought an astounding 10-to-1 gain in productivity.

Secondary operations had been a major stumbling block for Lyn-Tron Inc. The answer laid in making completed parts on a single machine that was flexible, fast to set up, and quick to change over. So CEO Don Lynn and Dominic Borland, vice president of manufacturing, sought some solutions.

Borland and production manager Mike Quinn went to Hydromat Inc.'s St. Louis headquarters to look at standard hydraulic-driven machines.

"We were doing custom part jobs on CNC machines in big quantities, and after investigating the Hydromat machines, we thought we could do some of those large custom runs on one," Borland says.

But something happened. Borland couldn't keep his eyes off the EPIC R/T machine. He was curious about the Embedded Motion Control (EMC) technology that features a special plug-and-play control architecture embedded into each tool spindle unit.

EMC was a relatively new technology when first encountered by Borland and his team. Its plug-and-play programmable valves are integrated, or embedded, into each tool spindle unit, offering fully independent functionality for each axis motion. Thus, the more complex CNC control components are eliminated.

Should a tool spindle be relocated on the machine,



**Lloyd Comer, supervisor of the rotary transfer department, ratchets up another changeover on the EPIC R/T 12.**

the only change needed is to program the unit's tool passes and revolutions per minute. When tool units are changed, there is no need to reconfigure the machine's CNC.

### **The price of evolution**

The only question facing Lyn-Tron — and it was a sizeable one — was cost.

"It's the most expensive machine we have ever purchased," Lynn admits. "I sent them (Borland and Quinn) out there to look at this one machine, and they come back wanting a different machine ... and a lot more money. But you know what? They were right."

The EPIC R/T CNC-controlled rotary transfer machine has a price tag



comparable to the non-CNC Hydromat machines, according to Hydromat.

Lynn and Borland worked with Bill Nuetzel, Hydromat regional sales manager, and staff to select a machine, which turned out to be the Hydromat EPIC R/T 25-12. Its modular system design allows for up to 12 horizontal and six vertical tool spindle units, mounted around a precision-ground Hirth ring. Table accuracy with station-to-station repeatability is within 0.0002".

With a 25.4mm capacity, the machine accepts bar stock or blanks up to 102mm in length. A stationary workpiece can undergo machining such as drilling, cross drilling, boring, turning, milling, external and internal re-cessing, threading, tapping, or broaching.

"It is a fabulous machine," Borland says. "We do a change-over every 30 minutes and setups every two to three hours. Currently, the custom jobs we have account for about 25 percent of our work. We want to expand more into the custom area."

Borland says that if Lyn-Tron were to manufacture 2.5 million parts of the same item, running day in and day out, then the hydraulic Legacy machine would have been sufficient. But he knew that the processes would be going from aluminum, to brass, to stainless steel, from one part configuration to another. Quantities would range from 1,000 to 10,000 pieces.

Borland says the flexibility of the EPIC R/T machine was needed.

"We run a single part from a family in a quantity as small as 1,000 pieces," he says.

And how many setups and changeovers will they do in a typical month on the Hydromat?

"You'd be surprised," Lynn says with a laugh. "We would probably average 35 a month. We may do a couple of changes in a day."

## A learning curve

When the machine was installed at Lyn-Tron, it was to

produce a custom part. After awhile, Lyn-Tron shifted some of its existing work off the CNC machines that were running cycles anywhere from 25 to 35

seconds. On the EPIC, in shorter runs, cycle time was 3.5 to 5.5 seconds.

"They immediately saw a 10-to-1 productivity gain and thought, 'Man, this is pretty nice,'" Nuetzel recalls.

Today, Lyn-Tron has over 275 different parts programmed to run on the EPIC, and man-hours have dropped in the other CNC machine areas, all adding to the bottom line. The company uses 30 multispindle lathes, 11 Swiss CNC lathes, seven rotary transfer machines, and eight Brown and Sharpe machines.

Borland says Lyn-Tron usually runs a series of parts within a family, often by part type rather than material type. If the next part is close to being the same as the previous run, operators will wash down the machine, reload it with different material, change speeds and feeds in the EPIC program, and start running again.

"We may have some parts that are in a series for a particular customer," Lynn says. "They will have five or six parts that are similar, and we can just back those up and run a 1,000 of this, 3,000 of that, and 5,000 of another. It's worked out real well. Once they get the job going, it's just check the parts and that's it."

## Durability, efficiency

Borland says he is impressed with Hydromat's durability.

"You can buy a cheap multispindle lathe, but you better add a few thousand dollars to the equation for replacement parts over the next few years, and that's not counting loss-of-production due to downtime," he says. "If you figure you're going to run 70 percent (efficiency) on a multispindle lathe, compared to 85-90 percent on a Hydromat, you have to figure that into the equation as well."

Expanding on his theory as to why the Hydromat gives him a 15- to 20-percent advantage, he says, "The machine is so rigid, the tooling really lasts on it, so once the first article goes



**Comer concentrates on setting up the EPIC R/T 12. EPIC's program will let the technician know when it's time to change a tool.**



**Dominic Borland, vice president of manufacturing, and Don Lynn, CEO, took on the task to find how to eliminate secondary operations and to make parts complete on a single machine.**

# machining strategies

in, they (technicians) don't have too many problems."

Borland says the EMC technology adds to his up-time.

"If we are running stainless, the guys know how long a tap lasts, so we put the parameters into the EPIC's program, and it will let the technician know when it's time to change the tool," he says. "Then we just keep running. We don't get that on any of the other machines that we have."

Lynn says the Hydromat's true value lies in its efficiency. He says there are a lot of costs with a multi-spindle machine that have to be calculated when comparing it to a rotary transfer machine. And Lyn-Tron is getting a greater up-time and less need for maintenance.

"That's the big picture we're talking about," Lynn says.

## Soon, twice as nice

Having seen the EPIC machine's capacity, Lyn-Tron already has another machine on the way.

"We get a lot of prints for custom jobs that are similar to our products, so we are looking for that custom 'transfer type' of work on a daily basis," Lynn says. "We have a couple thousand of those type of



Setup technician Bob Hammond applies some torque to complete a change-over.

customers throughout the world."

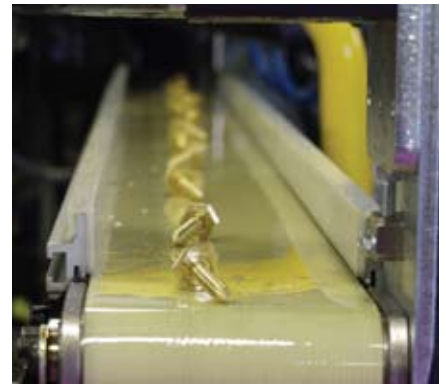
With an extensive part catalog, regional representatives, and about 700 distributors and OEMs around the world, Lyn-Tron is well diversified.

"We don't have any customer that is any more than 10 percent of our business," says Lynn. "We have a lot of customers who only do a few hundred dollars a year with us. They'll call in a couple of times a year and buy \$100 worth of parts off the shelves."

In short, Lyn-Tron's efforts not to put all of its eggs in one basket ensures a constant workflow and avoids downtimes.

"I've seen that happen at other companies," says Borland. "They lose one big client and they're laying people off. We're not dependent on any one client for our survival."

Not surprisingly, Lyn-Tron's business



Completed parts rapidly drop on the conveyor.

Lyn-Tron shifted some of its existing work off the CNC machines where a cycle was anywhere from 25 to 35 seconds. On the EPIC, in shorter runs, it was running at 3.5 to 5.5 seconds.

is growing, but with a smaller organization.

"We're producing a much larger dollar volume per employee than we did before," says Borland. "That's our goal every year: raise our volume without raising the number of employees we have. We do that through technology. Lean and mean!"

Don Lynn reaches back to the philosophy that has served him and his company well since 1973, when it began.

"On some of our first CNC machines, a part may have run in 22 seconds," he says. "The next generation of CNC machines would run it in 16 seconds, then 12 seconds, and so on."

"Now we have the Hydromat EPIC and we've taken parts that we were running in 20 to 30 seconds and we run them in 4 to 6 seconds. That's progress."



This reverse angle shows the parts conveyor for the EPIC R/T.



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