

MILLING CUTTERS + LASERS + PUNCH GRINDING

CANADIAN MACHINERY AND

metal WORKING

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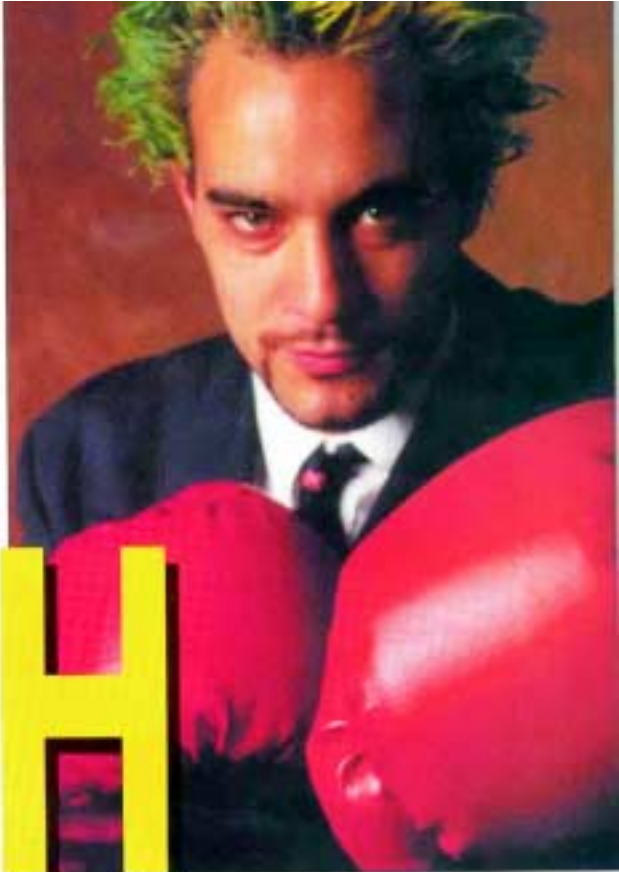
BEEN SHOPPING?

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The one-two

PUNCH



Customers' demands for a high mix of punch dies — delivered yesterday — challenged this toolmaker to add something to the same old grind.

Many shops wince at soaring customer demands for faster-than just-in-time (JIT) support. Many wistfully recall (or think they do) days of more leisurely and reasonable leadtimes. However, according to one shop, focusing on what was is illusory — and, perhaps, strategically dangerous.

Stefan Lorbach began his career as a tool and die maker in 1959. Between then and now, he's seen a great deal of change. It's like going from "the earth to the moon," he says. During the 1970s, he notes, it might take three to four months to make a die. Today the same die is done in a few weeks.

"When I opened Stema Punch & Die in 1986," he says, "it was a one-man operation supplying tool and die shops and metal stampings. Deliveries were three to four weeks. Now if I tell customers that I need seven days for a job, they want it quicker."

But this is precisely why he started the business. And even though much has changed since 1986 — jobs have gotten tougher, more challenging, and technology has constantly advanced — what hasn't changed is the demand and expectation by customers for ever-faster job turnaround.

"In some respects," Lorbach says, "we were ahead of the

game in servicing the customer. We've done JIT since day one, before it was called JIT. Now everyone expects that level of service — and more."

A DIVERSITY OF TECHNOLOGY

Stema employs 25 in Cambridge, Ont. The company operates some 60 machine tools, such as CNC and manual wire and sinker EDM machines, CNC and manual surface, centerless, cylindrical and punch grinders, CNC turning and vertical machining centers, CMMs, optical comparators and more.

Due to the nature of the business, Lorbach must forego the luxury of building to inventory. Every punch produced is unique — diameter, length, points, profiles, surface finishes. The only thing approaching routine in the chaotic schedule is the prepping of punch blanks. These are made up in advance, but beyond this routine operation, everything else about Stema is custom and on the fly.

"You might think we'd be able to run some jobs as a batch, a family," Lorbach says. "But that's rarely the case. The mix is just too high. We may do two ovals, followed by six round, followed by four square or rectangular punches. And if it's not the mix, then it's the delivery requirements that make running batches next to impossible."



Even when a volume opportunity, say 50 to 100 pieces, does occur, it still must be produced just-in-time. In a 50-piece order, Lorbach says, there may be ten of one type punch, eight of another, four of another — all of differing lengths, diameters and profiles. So, the idea of running production, as appealing as it may be to most shops, just does not translate well into the Stema operation.

Machine-to-operator ratio is 2:1, often 3:1 or more, which Lorbach says is critical to flexibility and cost containment. "Our employees often run two or three machines at once," he says, "and this affords us the flexibility to work with a schedule that is almost entirely unpredictable."

CNC punch grinder. "I knew Studer made good machines, but I didn't think they offered a punch grinder in North America. As fortune would have it, just when we were looking, UGT introduced the S32cnc. We went and looked at the machine, spent two days grinding punches, and bought it — the first S32cnc in North America."

The S32 provides Stema with another degree of flexibility, Lorbach says that he uses the machine exclusively on very hard material, M2 tool steel. Punch blanks, ranging from 0.125 in. to 3 in. in diameter and 2 in. to 6 in. in length, are roughed and finished on the Studer.

"In some cases," Lorbach says, "we'll have to do secondary operations, but these are cases where we have to EDM additional profiles or threads, or produce keyholes. But about 80 per cent to 90 per cent of the punches are roughed and finished, ready to go, on the Studer."

Lorbach also settled on the Studer because of its ability to hit and to hold close tolerances. He reports that most of his punches require ± 0.0005 in. on the outside diameter (OD). However, some very special punches require an OD tolerance of ± 0.0003 in.

"We can get ± 0.0001 in. on the Studer," Lorbach says, "and we not only can handle 1-in. ground profiles, which is pretty standard, but we can easily tackle 2.50-in. to 3-in. profiles for custom punches, which, again, gives us an additional competitive advantage."

Programming the grinder has also added to flexibility and increased throughput. The machine control can store the process parameters for a large number of routine jobs, making changeover from job to job as easy as calling up a part number on the Fanuc 16i touchscreen and letting the machine adjust itself. Tricky parts or new, complex ones can be readily addressed through built-in routines that can be adapted to the specific need, and then stored for the next time the part comes along.



Stefan Lorbach of Stema Punch and Die in Cambridge, Ont. "The only way I can attempt to hold the line on price is to take the costs out of my process."

EYE ON HORIZON

Beyond keeping his focus on what is admittedly a crazy production rhythm, Lorbach is constantly engaged in monitoring technology changes that may allow him to do something more efficiently.

Business got to the point that Stema needed a third

GRINDING



Customers today are increasingly unwilling to hold inventory; they want to invest in only what they need, when they need it and expect suppliers to deliver to their schedules.

SAVING CRUCIAL TIME

Sometimes considerable time can be saved by simply looking closely at an established process. He notes, for example, that some of the punches coming off the Studer, in particular square or oblong punches, will require matching die buttons produced by wire EDM. In these cases, programming the part often required entering as many as 86 different instructions, a process which took considerable time — twice as much time, in fact, as that required to make the part.

"We were producing the part in six minutes," Lorbach says, "but it was taking us 12 minutes to program the EDM. So we called in our software guy, gave him some profiles, and asked him to rethink the process. What he came up with was not only fewer key strokes and instructions, but also a significant reduction in time. We now can program the same operations in one-and-a-half minutes — from 12 minutes to 90 seconds."

He explains that customers today are increasingly unwilling to hold inventory; they want to invest in only what they need, when they need it and expect suppliers to deliver according to their schedules. But suppliers like Stema can ill afford to build to inventory in anticipation of orders that might be coming. So they have to build on the fly and commit to just-in-time service. If not, customers will find suppliers that will (or at least try to) meet their demands.

"This is not an easy business and it's constantly changing," Lorbach says. "People don't want to spend money. Two or three years ago a customer might order 12 pieces at a time. Now that's down to three or four, and they order three or four times more frequently. Which puts a burden on us to constantly find ways to be more flexible, fast and efficient. And this drives us to find new ways of doing things."

"The only way I can attempt to hold the line on price is to find a way to take costs out of my processes," Lorbach says. "This is why finding better tools and techniques and eliminating steps and simplifying operations are so important." *CMM*

With files from United Grinding Technology.



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