

CASE STORY · M-STEEL® · HELLSTENS MEKANISKA AB

MACHINING THROUGH THE NIGHT

A family-owned components manufacturer in southern Sweden wanted to increase the production of its bushings, a critical bearing component for an agricultural equipment customer. By changing the source material from standard steel to M-Steel®, the company was able to run its machines during the night without supervision and achieve its production objectives.

In the small hours of the night, the CNC (Computer Numerical Control) machines at Hellstens Mekaniska AB in Väderstad are buzzing with activity. Under electric lights, these machines are producing high quality bushings machined from Ovako M-Steel round bars. And there's not a single supervisor on the 1,100-square meter factory floor. Everyone's home.

"M-Steel is a good and tough material but easy to cut," says CEO Rickard Hellsten. "It allows us to have a safe and optimal production when operating during the night. We get a better product because of good chip control and tighter surface tolerances."

He adds: "Good chip control means the chips are small, you get much good tool wear and the part is clean when it comes out of the machine."

Once completed, these bushings are delivered to a leading agricultural equipment manufacturer where they are installed in seed drills to facilitate the lifting and lowering of the seed plant-

ing mechanism. Due to extreme conditions and constant wear and tear, the bushings must be durable, resilient, and resistant to dirt and extreme temperatures. "We've been supplying this part to our customer for years and we've rarely had a problem with it," says Hellsten.

Since the 1990s, this innovative little company has been manufacturing components like bushings using standard steel grade S355J2. As an untreated steel, S355J2 generated a lot of large chips during machining that gummed up the CNC operations and contributed to excessive tool wear. This contributed to unplanned production stoppages and cost increases.

However, in 2010, Rickard and his father, Johnny, decided to try out M-Steel and see if it would enable them to cut costs and



CEO Rickard Hellsten

boost productivity by adding night-time runs. They were told the M-Steel would be more consistent than standard steel from batch to batch, which would improve the machining process and reduce tool wear. The tryout confirmed these claims. "If you put a good product in, you get a good product out," explains Hellsten.

Making the change from standard to M-Steel was easy. Hellsten spent some hours fine-tuning the CNC machines and the result, he said, was evident almost immediately. According to him, quality is not just about the consistency of the material and cutting characteristics (less wear on the tools and fewer cuttings), but also the peace of mind the steel ensures. When he and his staff leave the machines at the end of the day they know they don't have to worry.

He adds: "If during the night the drill breaks because of the material and the machine keeps running it's a big problem. You come in the morning and you have to stop the machine and see which pieces are missing a hole, reset them or throw them away. It can be expensive. With M-Steel we have almost eliminated that risk."

Today, the company can produce three pallets of M-Steel bushings, for about 270 pieces per pallet, without a tool change. Standard steel required a change after every pallet – a third of the capacity. In total, Hellstens produces 40,000 bushings a year.

Although the price of M-Steel is a little higher than standard S355J2 steel, the gains are obvious, explains Hellsten. "It's hard to quantify the exact cost savings because the production runs without a problem. But we have cut production time by about 20 percent and increased tool life from 80 pieces to 150 pieces."

Ovako delivers some 50 tons of M-Steel round bars per year to Hellstens, the bulk of which is used for the production of bushings. The steel arrives on pallets of round bars 1.2 meters in length. These bars, he says, are notable for the high surface and ovality tolerances and their straightness.

Producing these 240 mm bushings takes about 70 seconds. The process starts with a series of increasingly precise surface turning and milling, followed by drilling and turning a 125 mm deep hole through the core of the piece. Perpendicular drilling holes to allow for grease injection are also drilled and tapped (making threads inside the perpendicular holes). Finally, the piece is cut from the straight bar and delivered by a spindle to a box.

In the morning, when Hellstens' operators show up at work, there is a pile of freshly produced bushings, ready for customer delivery.

Key advantages of M-Steel®

The consistent quality of M-Steel lowers manufacturing and cutting costs by enabling higher cutting speeds (up to more than 30 % over conventional steels) and reduces tool wear and workflow interruptions.

Key benefits:

- M-Steel treatment can be applied to most steel grades
- Automation and faster machining
- Complies with standards yet adds superior machining properties
- Unmatched quality consistency

Ovako facts and figures

- A leading producer of engineering steel for customers in the bearing, transportation and engineering industries
- Products: low-alloy steels and carbon steels in the form of bars, tubes, rings and pre-components
- Locations: Ovako has ten production plants and a number of sales companies in Europe and the USA
- Net sales 2017: EUR 921 million
- Employees: 3,040

About Hellstens Mekaniska AB

- A family run components manufacturer based in Väderstad, Sweden
- A components sub-supplier for products in the construction, agriculture and automotive fields.
- Founded by Johnny Hellsten in 1983.
- Employees: 12
- 2016 turnover: 30 million SEK

