CASE STORY · M-STEEL® · HAAVISTO

THE SECRET TO HIGHER PRODUCTIVITY

Until now, it was unthinkable for many metalworking shops to boost productivity through automation. Robots were expensive and hardened steels often delivered uneven tolerances, poor chip formation and high vibration levels. Operators had to be on standby 24/7. For Jarkko Haavisto, Managing Director at Juhani Haavisto Oy, this all changed with M-Steel, which enables unmanned production and productivity gains of up to 30 % – day and night!

Mention the word "automation" and you think of longer series production of similar parts. But automation can also be used for shorter series production to free up skilled staff to handle other machining operations. This, at least, was the reasoning by Juhani Haavisto Oy, a custom engineering subcontractor that supplies parts to the Nordic pulp and paper, mining and process industries.

Modern shaft production
Founded in 1987 in the town of Kotka, Finland, Juhani Haavisto Oy today has 72 employees with annual sales of €10.5 million. The family owned company is always looking for ways to streamline and modernize its highly varied production. For the shafts it was producing, it decided to establish a new manufacturing cell to optimize productivity using unmanned production.

Clever Finnish ingenuity
In the past, according to Managing Director Jarkko Haavisto, production of shafts had required three steps and had been fraught with problems relating to straightness, vibration, high carbide insert tool wear and long chips. The idea was now to use a bit of clever Finnish ingenuity to save money and time by combining a robot, standard CNC machine and superior material – in just one step.

But which material would be best?

"You can hear the difference when using bar made from M-Steel – quiet, efficient and making money." Jarkko Haavisto, Managing Director, Juhani Haavisto Oy

Cost savings through automation

A test was made of M-Steel-treated 42CrMo4 + QT Ø100 mm bar (1091 mm length) against three other European producers. The steels were comparable in composition and mechanical properties according to EN10083-3. While the cutting speed could be increased by 20 % for all steels, the M-Steel-treated bar had far fewer problems with straightness, vibrations and chip performance – and the tool life was extended by five times (Page 5). Out of all tested materials only M-Steel could be considered for automated production. "The cost savings for us is quite dramatic," adds Haavisto, who shared a calculation he made (below).

Total cost savings through automation with M-Steel (including investment for 1 robot)

OLD SETUP	Three steps in machining, always manned operation, ordinary steel		
		TIME	COST PER PIECE
Machine costs	€ 20 /h	1.2 h	€ 24
Labor costs	€ 25 /h	1.2 h	€ 30
Tools	€ 10 /h	1.2 h	€ 12
Materials	€ 1 /kg	68 kg	€ 68
			€ 134

NEW SETUP	Done in one, automated operation, M-Steel		
		TIME	COST PER PIECE
Machine costs	€ 30 /h	0.75 h	€ 24.50
Labor costs	€ 25 /h	0.1 h	€ 2.50
Tools	€ 2 /h	0.75 h	€ 1.50
Materials	€ 1.1 /kg	68 kg	€ 74.80
			€ 101.30

M-Steel

About manufacturing, cutting processes are a considerable cost factor. M-Steel from Ovako lowers these expenses by enabling high cutting speeds and a non-interrupted production process, with a cutting speed of up to 30 % over conventional steels.

The benefits are:

- Enables automation and faster machining
- M-Steel treatment can be applied to most steel grades
- 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

Juhani Haavisto Oy facts and figures

- Juhani Haavisto Oy was established in 1987 in Kotka, Finland
- Family-owned company with 72 employees
- Its modern engineering workshop specialized in subcontracting
- Haavisto business idea is to offer, especially to the needs of industry, high-quality parts of machines and entire machines which are ready to be installed
- To ensure quality in production Haavisto use Control 9000 production control system
- Quality certificate ISO 9002 and ISO 14001 standards
- More information on juhanihaavisto.fi

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