

# Doing More With Less

Up-to-date coil handling means doing more without expanding the footprint

BY ANDREW BROOKS

## THE PROBLEM

Add new coil handling capabilities within the existing space

## THE SOLUTION

An automated coil handler with a compact footprint



Sebastijan Zupanec says he's seen cost and time savings with the new Coe Press system. Image: Andrew Brooks



The SpaceMaster coil handling system in Nahanni Steel Product's facility has opened up opportunities with new customers and new product lines, says the company's general manager, Sebastijan Zupanec.

Convention says you need room to do a good job. And when your customers start asking for extras—new processes, new materials, a wider range of specifications—the natural reaction is to expand so you can add more equipment to meet the new demand. But what do you do when extra space just isn't available?

Nahanni Steel Products Inc. of Brampton, ON, faced that problem as the automotive market it serves began to switch to new, thinner, high strength metals. The company's existing coil handling equipment was fine with traditional materials, but the newer stock was increasingly beyond its capacities.

Nahanni has 70 employees and manufactures components primarily for the automotive industry, but also for other sectors, in Ontario and across Canada. It has also recently branched out with its own

proprietary line of residential metal roofing products.

For its Tier 1 automotive customers, Nahanni provides metal stampings, assemblies and welding. The work is varied, says general manager Sebastijan Zupanec. "We do a lot of internal and external brackets for things like exhaust system hangers, diffusers, reinforcing brackets, engine mounts, struts, pulleys, heat shields, some computer brackets, column brackets. Pretty much anything metal you might find on a vehicle."

Nahanni's main value add is its broad range of competencies. "What we offer is a multitude of processes and our skill at managing them," Zupanec says. "It comes down to the skills of the individuals here, the process capabilities, how we react to change, how we minimize downtime. We've always prided ourselves on quality and reaction time."

The company has 11 presses in total. Of these, six are conventional crank presses and the remainder are PTC link motion presses. The crank presses operate at pressures ranging from 40 to 400 tons, and the link presses take it from there, ranging between 400 and 800 tons.

The 8,000 sq m (85,000 sq ft) Brampton plant is Nahanni's sole facility. The site layout means that expansion isn't an option, so adding capabilities means fitting an increasingly diverse range of processes into existing space. "We're quite limited as to space," Zupanec says. "We can't expand

our coil lines to 40 or 50 feet; we wanted the same performance benefits of a new high end conventional line but one that could fit into our existing 20 ft span."

That's why the automotive demand for lighter, stronger materials posed such a challenge.

"More and more, steels are going thinner and tougher, with higher tensile strengths, and the yields are getting crazy," Zupanec says. The higher tensile strength poses an added challenge for work such as transmission parts, because the material tends to rebound after it's been stamped or cut. The solution—

work the steel to compensate for the rebound so it yields a flat finished product—was beyond the abilities of existing equipment.

"We were seeing a rising trend in quoting jobs involving advanced high strength steel [AHSS]," Zupanec says. "We had challenges maintaining quality and meeting productivity when trying to process the AHSS using our older equipment." This included difficulty maintaining or even achieving tight flatness tolerances from the straightening equipment. The coil lines were running too slowly, with more breakdowns

## THE EQUIPMENT



Prior to acquiring the SpaceMaster, Nahanni was operating within the bottom 60 per cent of the thickness range of the new coil handling system, and in the same percentage ballpark when it came to the yield strengths, general manager Sebastijan Zupanec says. "The yield strength now is 90 ksi, so we were closer to 50 or 60 ksi on the older lines. And we were typically running around 0.150, 0.160 in. thickness. They rarely got over 0.2 in. And we couldn't come close to some of the yield strengths that it can manipulate."

The SpaceMaster presents flat material to the tooling. Zupanec says "threading is safe, fast and easy, and there are no more straightening issues—the coils stay tensioned

properly." Adjustments within a coil run are reduced or eliminated, and the system's throughput speeds actually exceed Nahanni's current press capabilities.

"This system meets our current needs, but it also meets our future needs," Zupanec says. "The idea now is to replace our other coil handling machines."

- 7 m (22 ft) footprint
- Handles 9 071 kg (20,000 lb) x 813 mm (36 in.) coil reel (1,828 mm/72 in. outside diameter)
- Bosch Rexroth controls on the feeder/straightener with eight rolls (four over four)
- Capable of production speeds in excess of 60 strokes/min at 12 in. progression
- Production speeds of 45 strokes per minute
- Cold and hot rolled steel, advanced high strength steel, stainless steel, aluminum with thickness range of 9 to 8.3 mm (0.35 to .325 in.)
- Servo-driven feeder-straightener with 102 mm (4.0 in.) diameter straightening rolls, 160 mm (6.3 in.) diameter pinch and feed rolls, bank-type adjustment of upper rolls
- Powered pull-off pinch rolls driven by AC variable speed drive and motor
- Pivoting lower roll
- Hold down with motorized endwheel
- Powered coil guides: tapered roll design, independent hydraulic actuation of each roll
- Pivoting peeler-debender

thanks to increased stress on the equipment. And safety was a concern whenever operators had to thread new AHSS coils.

### BIG SOLUTION, SMALL PACKAGE

Nahanni looked to Coe Press Equipment in Michigan for a solution. Coe's SpaceMaster Series 4 compact coil line accommodates thick and thinner gauge, high strength materials within a small footprint. It works to the high capacities and production speeds that have become the norm in the industry, and enables the operator to deal with defects such as crossbow material more easily.

A team from Nahanni visited Coe to see the system and to grill Coe's experts on what it could do. A purchase order followed, and the system was installed at Nahanni last September, with Coe providing close support. "I believe we're the first in Canada using this design of Coe line for automotive work," Zupanec says. "Right now we use it exclusively for that, but nothing's stopping us from using it for any other product line."

The SpaceMaster has been installed on a 600-ton Press Technology Corp. (PTC) BL2-600. The SpaceMaster 4 handles automotive precision progressive and blanking dies, where flatness is a major concern, and also precision progressive dies. Zupanec says he's seen savings in cost and time, thanks to reduced job setup times and reduced handling on the harder and thicker materials. "Also, although it was an 'indirect' objective, our true objective was



A big advantage of the new Coe Press SpaceMaster is decreased manual intervention.

to increase our ability to deal with 'problem' materials," he says. "That's opened up opportunities with new customers and product lines."

One main advantage of the new system is decreased manual intervention. "On the older systems we have here, the handling is manual to a point," Zupanec says. "But the manual aspect introduces too much downtime, too much operator involvement. Every time there's a change or a problem you have to shut down, go in, move, change, adjust."

Nahanni can even use the SpaceMaster for simple quality assurance and problem diagnostics. When a problem arises on one of the older lines, Zupanec says that

operators can run the material through the SpaceMaster simply to determine whether or not the problem is with the material itself. If the material checks out, they know that it's not in the coil feed line and can focus on tooling.

"By taking the Coe line on board we've taken away one big question mark," Zupanec says. "Is the steel coming in the right shape before we put it through the tool? And the answer is yes. Now we can manipulate it, change it, flatten it, choose what we do to it (to a point). That's a big, big asset." SMT

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