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FEATURE

## Station Master

GM engine plant's conveyor system runs on schedule, not continuously

By: Ralph Kiesel

**L**ike the Energizer bunny, the typical roller conveyor keeps going, and going, and going. But now there's the SmartConveyor, a Giddings & Lewis innovation that ends unnecessary motion and noise.

"It's so quiet, and it moves the engines along smoothly," says Marty Goble, superintendent of manufacturing engineering at General Motors' engine plant in Flint, Mich. "You hardly know it's running."

Judging from Goble's enthusiasm for the SmartConveyor, GM got exactly what it wanted.

GM asked Giddings & Lewis of Janesville, Wis., for a conveyor system that didn't need constant maintenance, "something simple that we could easily maintain and have good up-time on," Goble says.

The first SmartConveyor was installed in the V-8 engine plant in 1993, and is used to build car engines, Goble says. Plant employees are installing a second SmartConveyor.

Unlike roller conveyors, which use a large motor and driveline to power a 10- to 20-foot section, the SmartConveyor uses a small electric motor to drive each roller.

"Your first look at it, you'd think that it's not robust enough," Goble says. But the SmartConveyor easily moves the 200-pound pallets that hold V-8 engines weighing more than 400 pounds each, he says.

### List of advantages

Most conveyors run continuously, even when the pallets are stopped in position. But the SmartConveyor's programmable controllers activate sections of rollers only when needed. That cuts power use by up to 75 percent.

With the SmartConveyor, pallets no longer are halted by striking mechanical stops.

"They come to a smooth stop, says Goble. "No more pallets banging into stops, bouncing back and forth." The high-maintenance mechanical stops have been eliminated. Pallets are stopped by motors running in reverse.

JOE WILSENS



SmartConveyor's motors help transport an engine in GM's Flint, Mich., plant.

Pallets can be stopped within an eighth of an inch, says Paul Terpstra, senior applications engineer at Giddings & Lewis.

"The maintenance on a standard conveyor is quite extensive when you have 800 to 1,000 pounds always slamming into a stop," Terpstra says. "Also, compare the noise level. You would recognize that SmartConveyor is significantly quieter."

While stopping nearly on a dime is good enough for work stations manned by humans, a more precise stop often is required at work stations occupied by robots. That's when shot pins — two dowels that fit into bushings in the pallet — are engaged, locking the pallet into a precise location, Terpstra says.

The SmartConveyor also has rotate/translate modules, sections that move pallets off the main assembly line into areas for testing or repairs. With these modules, engines are rotated in any direction without being lifted off the assembly line, Goble says.

"You can locate these rotate stations anywhere you need them," Goble says. The SmartConveyor comes in 68-inch sections, and can be used in any configuration, providing enormous flexibility, he added.

It offers a faster-than-standard pallet speed — more than 100 feet per minute — and sections can be run at different speeds.

### Dress stage, for now

GM uses the SmartConveyor for the "dress" stage of engine construction, when outer components are installed on base components, he says. He envisions the SmartConveyor being used for the entire engine-building process.

The reliability to date has been outstanding, Goble says.

"Nothing goes wrong," he says. "We got all those little motors, and I think we've only had to change one since the line was installed. Even if a belt breaks, the conveyor continues to move the pallets along."

Repairs are made after a shift, rather than disrupting production, Goble says.

"We have virtually no equipment downtime on SmartConveyor," Goble says.

He believes there is a savings from lower power use and less maintenance. That means more efficient production of V-8 engines for the Camaro, Firebird, Caprice, Roadmaster, Fleetwood and Corvette, he says.

GM's first SmartConveyor is about 400 feet long. The second line will be about 600 feet and will be used to build engines slated for 1996 C/K trucks. It is expected to be operating by October, he says.

The system is so flexible that the Flint plant has rearranged up to 15 sections of the SmartConveyor during one weekend, Terpstra says. Giddings & Lewis has since refined the SmartConveyor so all of its controllers are located under the conveyor, rather than taking up floor space along the side, Terpstra says.

### A paradigm shift

Goble expects other manufacturers — not only those in the automotive industry — to take a close look at the SmartConveyor.

Michael Lewis, manager of marketing communications and services for Giddings & Lewis, says, "It's really a paradigm shift; you look at something for years and then someday someone just looks at it differently. GM approached us wanting something different and one thing led to another," Lewis says.

Typical automotive applications for the SmartConveyor are engine and transmission building and testing, plus other powertrain and chassis assemblies, he says. Non-automotive applications include construction of large appliances, pumps, and heating, ventilation, and air conditioning systems, says Lewis.

While the initial investment of the SmartConveyor per 100 feet is sometimes slightly higher than the standard roller conveyor, the extra cost is recouped in a short period through reduced maintenance and power consumption, according to the company.

Giddings & Lewis, with 1994 sales of \$620 million, is a leading supplier of automated assembly systems. □

*Ralph Kisiel is an Automotive News staff reporter in Detroit.*

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