

They didn't get many of the details right in this article.

The SmartConveyor was developed by Gilman not GM. GM was the first user.

And no servo motors were ever used on the SmartConveyor. They were custom built 3 phase induction motors.

## WHAT NEXT? SMART CONVEYORS

From the birthplace of the PLC — General Motors in Michigan — comes another innovation in intelligent electronic controls, the SmartConveyor. Developed in a joint program with Giddings and Lewis, the SmartConveyor uses multiple PLCs and servomotors. Unlike a conventional system where one prime mover drives all conveyor rollers simultaneously, the SmartConveyor uses one PLC and servomotor to control four rollers in a relatively small zone. When pallets move between zones, only those zones sensing pallets energize rollers.

Proximity switches sit at the entrance and exit of each zone, sensing pallet motion and position. When PLCs receive sensor data they either disconnect power from the servomotors or energize electronic clutches. Pallets then stop in preprogrammed zones, typically within 0.125 in. of their target. If higher accuracy positioning is needed for operations such as assembly, then shot pins also stop the conveyor.

SmartConveyors are more gentle on the goods that they transport. In conventional systems, it's not unusual for boxes and pallets to be ripped and broken when held by mechanical stops above the conveyor while the rollers continue spinning underneath. By contrast, clutches stop the servomotors in the SmartConveyor while still under power. The 1/40-hp torque motors can handle such abuse because they were designed specifically for GM by Bodine Electric to survive a locked-rotor position almost indefinitely.

Since the servomotors run only when they sense a load in a zone, the whole system consumes less energy than it would running all rollers simultaneously. Also, because the motors are self-protecting, there is little danger of burning them out from either stopping or jamming. Thus, they need less maintenance.

***GM's SmartConveyor uses one small servomotor to drive from one to four rollers, unlike conventional systems that use one prime mover to power the entire conveyor line. The four large rollers in the module in the foreground push the pallet around a corner without lifting it off the conveyor.***

