

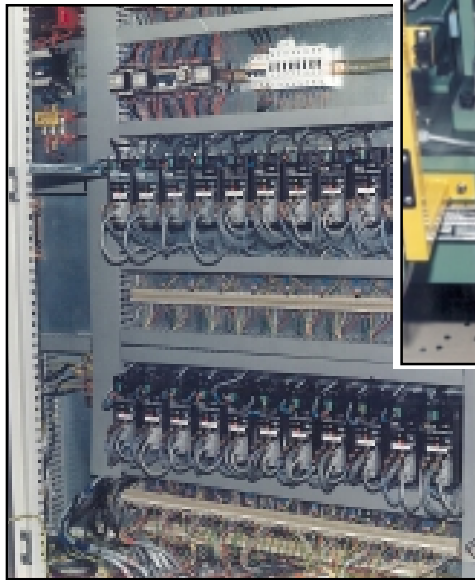
# Servos Do Their Part In Making Rollform Mill More Flexible

**A CNC rollform mill, with variable punching and sheet bending capability, replaced the stepping motor, controller, power board, and encoder with a servo in each of the system's 22 axes.**

When Bronx Engineering subsidiary Metform began designing an improved rollform mill that would be capable of variable punching and sheet bending in a single line, its first approach was to use stepper motors for the punch head and rollform axes. In addition to the stepper motor, this arrangement also called for using a controller, a power board, gearbox, and encoder in each axis.

Motion specialist, Aerotech, Inc. (Pittsburgh, PA), suggested using a servo alternative for the application that would be comparable in price, while being less demanding in its panel space requirements. In a field dominated by dedicated and inflexible machines, the upgraded Metform mill is remarkable in its ability to adapt to the needs of a variety of end products. Its other prominent features include high-speed material processing and quiet operation, even at the punch heads.

The mill handles strips of sheet, from 4" to 24" in gauges to 3.5 mm, at variable speeds and punching configurations. All the necessary settings for punching and forming in all 22 axes are achieved using a combination of 5 Nm (Newton-meter) and 11 Nm brushless servomotors, each controlled by an Aerotech BA "Intellidrive" amplifier. The master control



The 22 panel-mounted amplifiers for the rollformer's servomotors



A view of several rollform axes and their servomotors

signals (position and speed) are provided by a CNC (computer numerical control) designed and built by Metform.

The machine builder's engineering manager, Steve Cant, expresses his satisfaction with the implementation. "The Aerotech servo system has given us exceptional control," he says, "and the

very small size of the Intellidrive amplifiers means we have been able to contain all 22 drives in just two rows within the control cabinet." Overall, there are 60% fewer components compared to a similar stepper-motor based system.

The Auto Adjust 2000 rollformer runs up to 50 meters per minute and can be reset from one forming pattern to another in as little as 90 seconds. However, this is not the largest or fastest machine that Metform has built. Some, involving 50 axes of servo motion, will run at 100 meters per minute. The coils of raw material run through machines of this size at such a rate that a twin coil loader is needed to feed the machine while it is running, minimizing downtime and maintaining the machine's output.

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