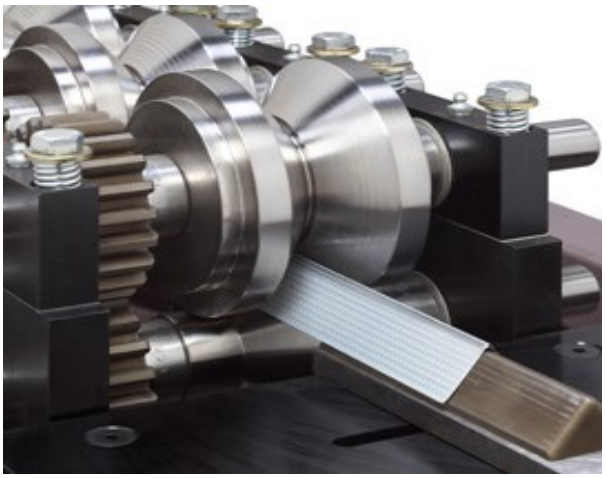
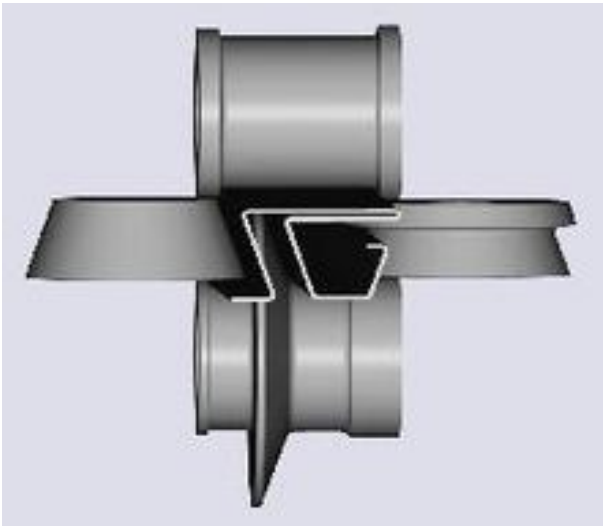
SERVOCONTROLS

APPLICATION NOTE

MOTION CONTROLLER IN ROLL FORMING





Wheel Rim Roll Forming

Customer: OEM's **Under NDA**
Year of Commissioning of first system: Feb 2010
Total systems commissioned : 6
Position control accuracy: 0.005 mm

Roll forming is a continuous bending operation in which a long strip of sheet metal (typically coiled steel) is passed through sets of rolls mounted on consecutive stands, each set performing only an incremental part of the bend, until the desired cross-section profile is obtained. Roll forming is ideal for producing constant-profile parts with long lengths and in large quantities.

The roll forming process requires the precise setting of gap between two profiled rolls. In olden days the gap setting were done manually where the process consumes more time to precisely set the gap which intern increase the setup time and decreasing machine productivity. The new generation machines use Hydraulic Servo Actuators with inbuilt position feedbacks and Servo valves. The Servo actuators are controlled by motion controllers where the gap setting and control process is carried out just by click of a button.

The motion controller plays an important role in increasing the machine productivity. As productivity demands increase, more and more applications and processes require more sophisticated closed loop controllers. The new generation multi axes RMC150E motion controller from Delta Computer Systems was selected for this application. The RMC150E controller is a programmable motion controller where the machine operation sequences can be easily lined up.

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The Servo Actuator consists of inbuilt high resolution (up to 0.5 microns) Temposonic position sensor. The High response Servo valve is used to drive the Servo Actuator. The operator sets the roll gap set point through the HMI. The RMC150E motion controller continuously reads position information (2000 reads / sec) from inbuilt position sensor for precise monitoring and control of servo actuator position. The motion controller drives the hydraulic servo actuator by sending analog signals to a Servo valves capable of making precise adjustments of flow controlling cylinder /roll position.

The main reasons for using RMC150E closed-loop motion controller is flexibility, accuracy, speed and the ability to maintain precision with changing conditions (Loads)

Delta's RMC150E

Motion Controller

Temposonic

Position Sensor

Servo valve

Scope of Supply

- Real Time Closed Loop RMC150E Motion Controller
- MTS Magnetostrictive position sensor
- High response servo valve
- Manifold Blocks.
- Human Machine Interface (HMI)

Advantages of New system

- **Speed and stability**

The RMC150E controller offers quick execution of loop time which ensures fast line up of roll positions and stability of roll positions in changing conditions (Loads).

- **Increased machine throughput**

With the use of RMC150E motion controller the machine throughput increased by reducing set up time and reduced the operator efforts in machine setup.

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