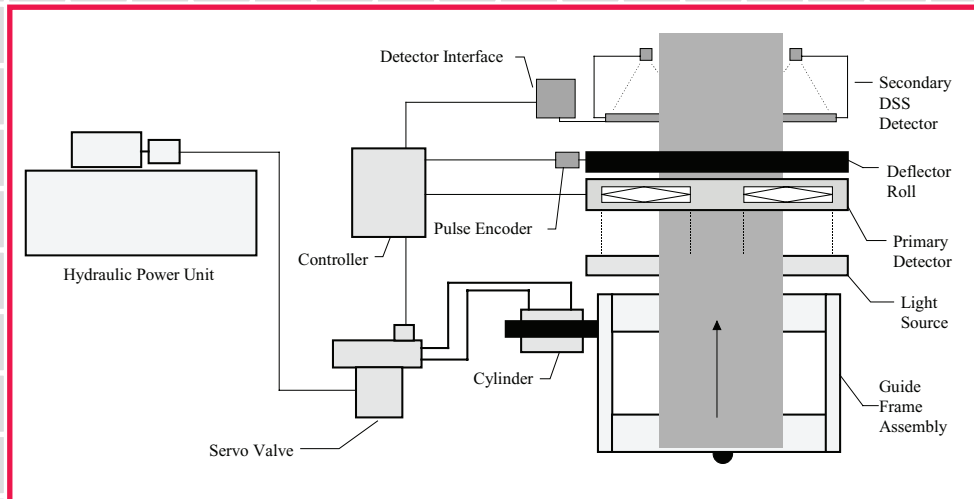


Guide Roll Center Guide Control System With Strip Camber Compensation Control



This camber compensation control system uses two (2) center guide detectors and consists of two control loops. The primary detector is located after the guide roll assembly. The secondary detector is located in a downstream location, where the actual process requires guiding accuracy.

In the primary control loop, the primary detector senses both edges of the incoming strip and provides an analog output proportional to the lateral position of the strip. This signal is processed by the electronic controller. The electronic controller compares the detector signal to the set (guide) point, any difference results in an output to the servo system which moves the guide roll, positioning the strip until the strip is centered in the detector's field of view.

In the secondary control loop, the secondary detector monitors the strip position downstream from the guide roll, usually before a critical process. In this situation, there is a time delay between the sensing of an error at the secondary detector and when a servo actuated correction at the guide roll reaches the secondary detector. To compensate for this delay, the electronic controller adjusts the primary control loop guide point based on the output of the secondary detector signal and in increments proportional to the line speed reference signal.

The secondary control loop replaces a manual process in which an operator would stand near the critical point in the process and watch the strip. As the operator saw the strip fall out of alignment, the operator would adjust a remote offset station, then wait to see how the strip reacted to the change. Through trial and error, the operator would eventually get the strip in lateral alignment. The electronic controller replaces this action by "watching" the strip with the secondary detector. It uses a line speed reference signal to determine how long to wait before adjusting the offset to the primary control loop. As with an operator adjusting an offset station, this system is not capable of responding to quickly changing, reversing errors.

An electrical or mechanical strip offset control is available, which allows a user to shift the secondary detector's control (guide) point to a newly desired control (guide) point.

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