

DigiGap™

Precision Thickness Control

AMI Automation is a global leader in automation and control solutions. We specialize in designing, manufacturing, and implementing innovative technologies to enhance process efficiency across industries such as steel, mining, cement, pulp & paper, and power generation.

DigiGap™

DigiGap™ Automatic Gauge Control (AGC) utilizes feedback from one or more thickness gauges and speed sensors to precisely control strip thickness by regulating roll gap, roll force, and mill speed. Optimum thickness control is achieved through strategically positioned sensors and multiple coordinated control loops. Gauge control in the early stands is generally more effective than in later stands.

Automatic Gauge Control Strategies



Feedback AGC (Existing Stand 1 Gauge Meter)

When the gauge following the stand detects an off-gauge strip, the deviation is processed through an appropriate transfer function to determine the required gap reference. The regulator compensates for transport lag between the roll bite and the gauge, ensuring accurate thickness control.

Feedforward AGC to Stand Roll Bite

Measures incoming strip deviations before the roll bite and applies corrective action in advance. Thickness variations can be compensated through roll gap adjustments, upstream stand speed, or both.

Mass Flow AGC

Calculates the required gap reference by combining strip thickness deviation with entry and exit speeds, ensuring consistent mass flow and improved thickness control throughout the rolling process.

Precision Strip Tracking

Automatically adjusts strip tracking sample length according to mill speed, providing highly accurate feedforward AGC performance.

Key Features

- ▶ Operational Limits protect the system by maintaining operation within predefined position and force limits.
- ▶ Strip Hardness Compensation automatically adjusts AGC gain based on strip hardness to improve thickness accuracy.
- ▶ Maximizes rolling reductions and rolling speeds to increase mill productivity.
- ▶ Assists operators with optimized mill setup, including pass reductions, strip tension, and speed settings.
- ▶ Balances Roll Separating Force between passes for improved strip flatness and reduced mill adjustments.
- ▶ Automatically re-optimizes the rolling schedule whenever production conditions change.
- ▶ Automatically sets thickness gauges, mill speed, and tension while allowing operator trim when required.
- ▶ Maximizes reduction on every pass while respecting available mill power and Roll Separating Force, minimizing the risk of roll skidding.

DigiGap™ combines advanced Automatic Gauge Control strategies with intelligent process optimization to deliver superior strip thickness accuracy, improved product quality, and increased rolling mill productivity. By integrating multiple control methodologies, adaptive compensation, and automated setup optimization, DigiGap™ helps operators maximize mill performance, reduce process variability, and ensure consistent results throughout every production pass.

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