

# On-Site Flat Rolling Theory for the Mill Operator

The **profitability of any company** and the vitality of the industry are dependent on developing and maintaining a skilled work force. This will allow Mills to remain competitive, assure continued growth and achieve long-term improvements. Effective training, "Gets operators believing it can be done."



One of the most **cost-effective investments** that can be made is helping your operators get more production out of your existing equipment and processes. Training can focus your operators to help them achieve this objective

Quad Engineering delivers **Customized Training** for Operators. Mill Operation and rolling theory is discussed, then applied to the actual products you roll using your mill setup sheets. This allows the Operators to

apply what they have learned to the mill environment they work in every day.

The on-site course is typically delivered to all the Rolling Crews. By applying the course topics to the actual mill operation, a list of ideas and action items are created by the participants. A summary report outlining the **project opportunities** & discussions of all the crews is included. Operating improvements that can be implemented in the mill to improve production, yield and quality are typically discovered during the class sessions.

## What Operators have told us:

- "Tips and suggestions will help us roll more. Transformed theory into practical applications"
- "Each person was able to ask questions and get answers that they understood"
- "It made me realize other people's efforts in getting a mill to work well"
- "I was very happy with the instructors and method because I learned a lot from them, and they know their stuff"

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*Operators that understand why things happen during rolling can make better decisions resulting in fewer mistakes.*

## What We Discuss in Class:

Quad's on-site classes are customized to suit your mill layout and operation. Based on the type of equipment (Steckel Mill, Continuous Hot Strip Mill, Plate Mill) in the plant, topics can be chosen as required:

- Types of Mill Layouts – advantages and limitations
- Dimensional Tolerances
- Sequence of Operations
- The Metallurgy of Hot Rolling for the Operator
- Steel types, Classifications and Qualities
- Controlled Rolling & Thermo-mechanical Processing
- Flat Rolling Fundamentals – Friction, Roll Bite Geometry, Rolling Parameters
- Basic Rolling Theory using Quad's Computerized Rolling Simulator
- Automatic Gauge Control
- Gauge Variation and Thickness Measurement
- Roll Gap Setup & Gauge Error Calculations
- Strip Profile and Flatness Control
- Width Control & Edge Quality
- Post-rolling Treatments – Accelerated cooling, Normalizing, Q&T
- Surface Quality
- CoilPlate and Discrete Plate Finishing Operations

Classes can be delivered to all crews and support staff over a number of sessions over a period of time. This helps keep the classes to a manageable duration that better fits into the crew schedule. Shorter class length delivered over a number of months (or years) ensure better information retention and a commitment to continuous learning.