

# QRC3

## Hands-on Rolling of Angles

Quad has been presenting and continuously improving specialized Operator Roller training since 1985. Hands-on courses use the math and science involved in rolling explained in real terms that can be understood and used by Operators. Actual rolling on Quad's Training Mill Stand reinforces theory with reality to help participants improve productivity at your mill.



### Training Affects Your Bottom Line

Operator training is an important component to helping your operators get the most out of each shift. Operator training translates directly into increased production and profit. Quad's operator training program is designed to combine technical knowledge with management and troubleshooting skills in a hands-on rolling mill environment.

### What Participants have said about our Training Program:

- *We were able to try things and see for ourselves (Roller, Nucor Steel)*
- *The "hands-on" aspect of the class was excellent (Roller, Gerdau Ameristeel)*
- *Instructor made it easy to understand & took extra time to explain things in more detail when needed (Roller, Mittal Steel)*
- *I have a better appreciation of what guides can do and can't do (Operator, Gerdau Ameristeel)*
- *I have a better understanding of angle rolling problems (Mill Adjuster, Nucor)*

### Course Objectives:

To help the participants develop a more in depth understanding of the fundamental principals of rolling Angles. To address the various pass design methods from an operator's point of view and develop an understanding of how to set and adjust passes to make a quality product.



75 Scarsdale Road, Toronto, ON, Canada M3B 2R2  
Tel: 416-391-3755 Fax: 416-391-3645  
www.QuadEng.com

# QRC3

## Hands-on Rolling of Angles

*Over 70% of North American Mini Mills have used Quad for Training*

### **Benefits:**

Hands on rolling experience, allowing participants to “see for themselves”. Improved productivity due to increased technical knowledge and understanding of how pass design and setup sheets work. Experience is passed on to your operators through interaction with personnel from other plants.

### **Course Outline:**

#### **Angle Pass Design:**

Angle pass design sequences and applications include butterfly and open pass methods. The method used to determine the number of shaping passes needed is reviewed and applied. The benefits of using multiple leader passes for different leg thickness of angles.

#### **Butterfly Angle Pass Sequence:**

The finished angle and leader passes are designed from first principles. Work sessions are used to reinforce the understanding of these important concepts. A rolling schedule is developed for both thin and thick leg angles. All aspects of producing a product setup sheet including gap settings and adjusting for mill spring are included.

#### **Butterfly Angle Rolling:**

The pass sequence developed in the classroom is applied on Quad’s 8” lab mill using lead billets. The participants set the mill, set the guides and roll the bar. The bar is analyzed and measured after each pass and compared to the setup sheet plan. Any corrective action is applied to the next pass setting. Defects created are discussed and corrective action applied as required. Multiple billets are rolled so lessons learned can be applied and the results observed.

#### **Open Angle Pass Sequence:**

A rolling schedule is developed for open leg angles. All aspects of producing a product setup sheet including gap settings and adjusting for mill spring are included. The use of verticals to control the leg length is applied.

#### **Open Angle Rolling:**

The pass sequences are applied on Quad’s 8” lab mill using lead billets.

#### **Who Should Attend:**

Mill Managers, Shift Supervisors, Rollers, Assistant Rollers, Pulpit Operators, Engineers, Quality Control.



75 Scarsdale Road, Toronto, ON, Canada M3B 2R2  
Tel: 416-391-3755 Fax: 416-391-3645  
[www.QuadEng.com](http://www.QuadEng.com)