



1



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## Rolling Operations

- Round Coil Product
  - SKV 7/32" – 1-3/8" (5.56mm - 35mm)
    - Every 1/64" and a few metric sizes
    - Coils 4400 lbs
  - CLV 7/32" – 1-19/32" (5.56mm - 40.4mm)
    - Every 1/64" and a few metric sizes
    - Coils 4600 lbs and 5600 lbs
- SBQ
  - CLV 3/4" – 3-1/4"
    - Bundle Weights Vary



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## Furnace

- Reheating Process
- Natural Gas Furnace
- Walking Beam billet movement
- Around an hour billet heat up time
- Discharge billet temp ~2000°F
- Zone and Billet Temp monitoring


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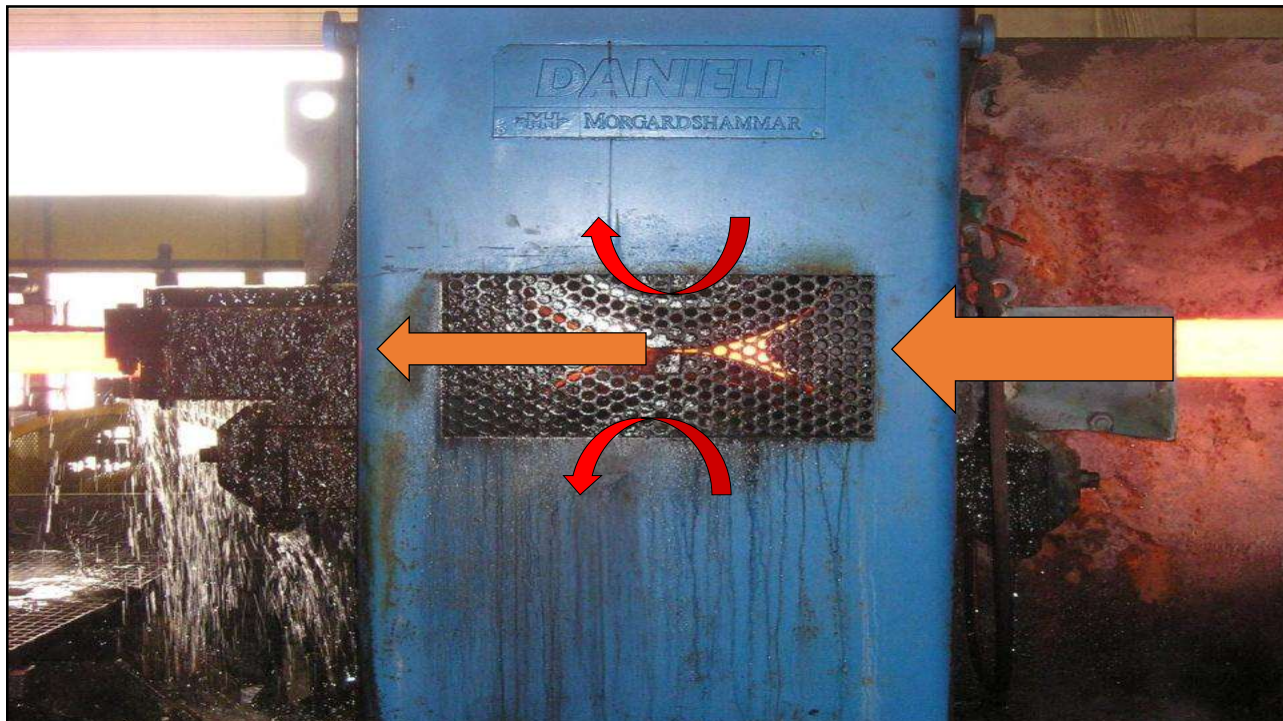


## Breakdowns/Roughers

- Rolling Begins...
- Water Descale after leaving furnace
- Initial billet reduction begins
- Breakdown/Roughers start reducing billets down to size.
- 5" Square down to 1.5" Round



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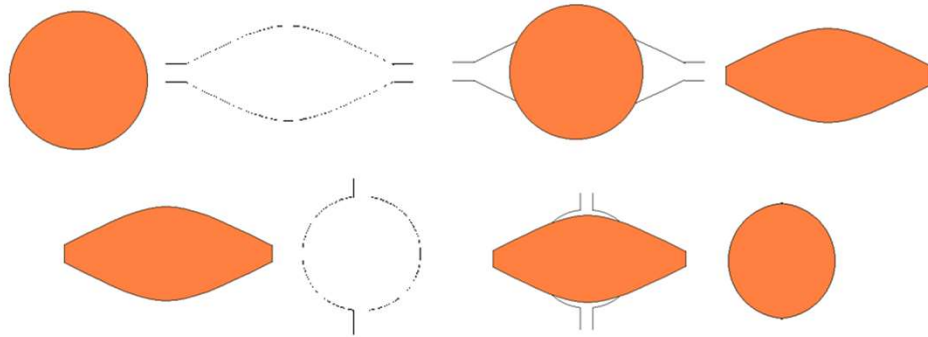


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## CSSR – 2 Roll Reduction

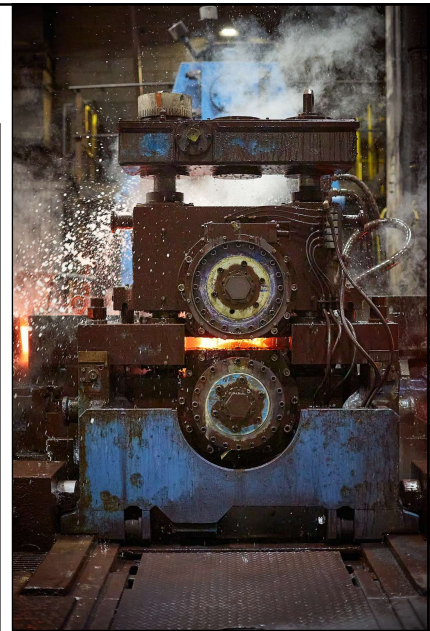
- Steel is forced between 2 rolls and reduces to the shape of the roll profile (round → oval → round).



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## Intermediate Mills

- Further Reductions...
- Secondary Reductions
- LAP gage monitors section size
- Up to 8 Stands
- Reduction from 1.5" down <1"



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## Finish Mill Size Configurations (Trains)

### • Finish Mill

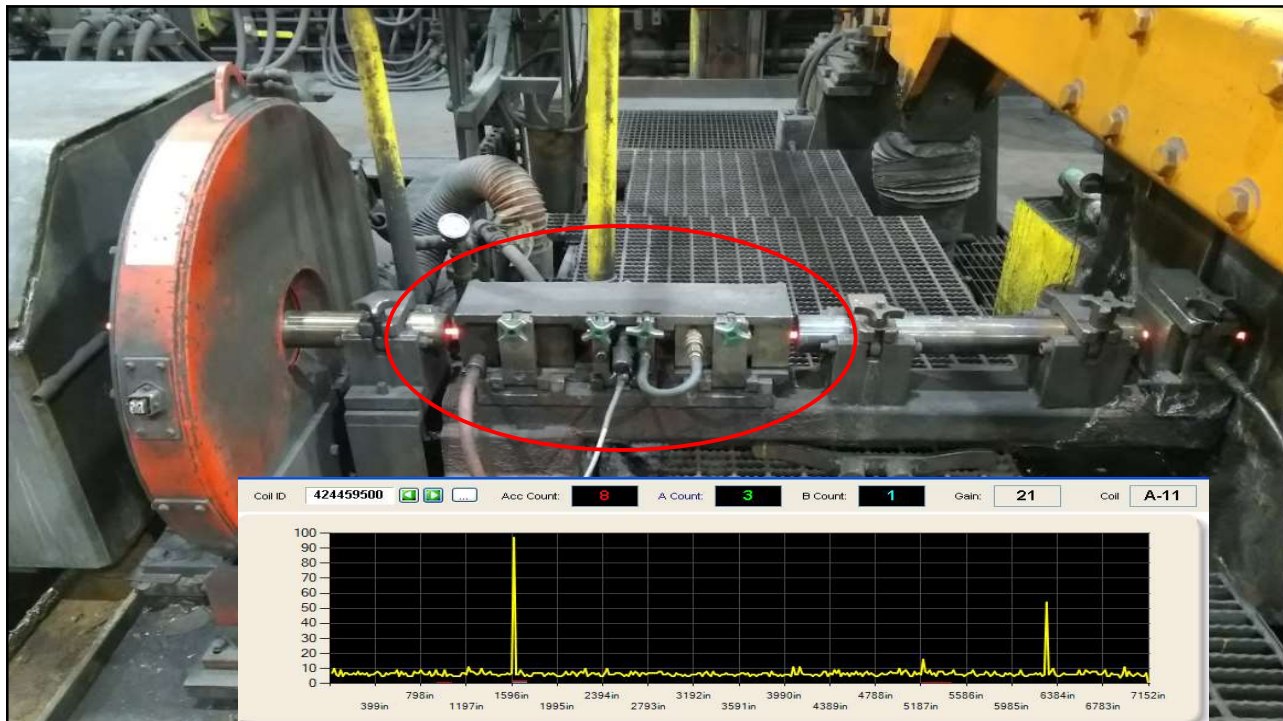
- Size 7/8" - 7/32" (22.23 - 5.56mm)
- Up to 10 Stands

### • Example of sizes on a train

- 11/16" - Finish Stand 20
- 35/64" - Finish Stand 22
- 7/16" - Finish Stand 24
- 11/32" - Finish Stand 26
- 9/32" - Finish Stand 28



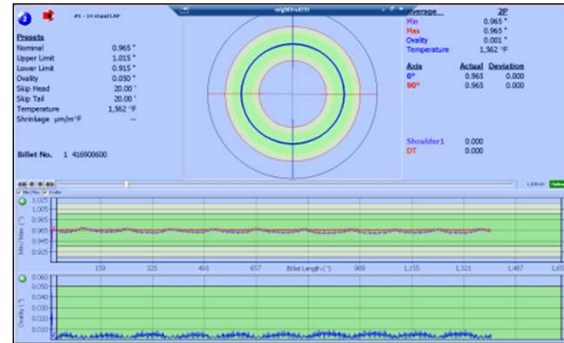
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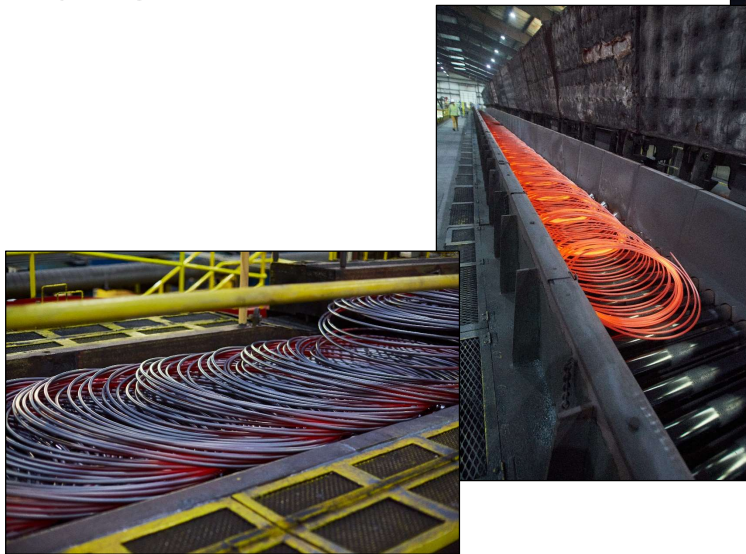
## LAP - Shadow Sizing Gage



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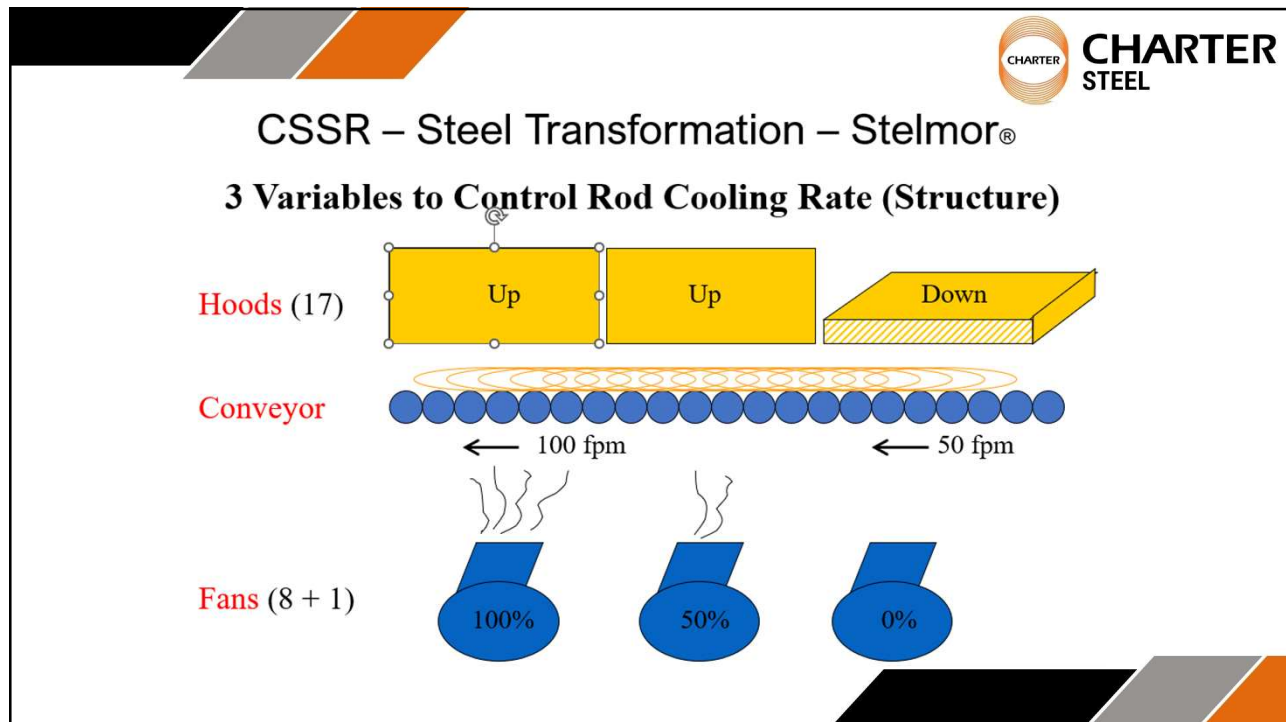

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## Laying Head/Stelmor



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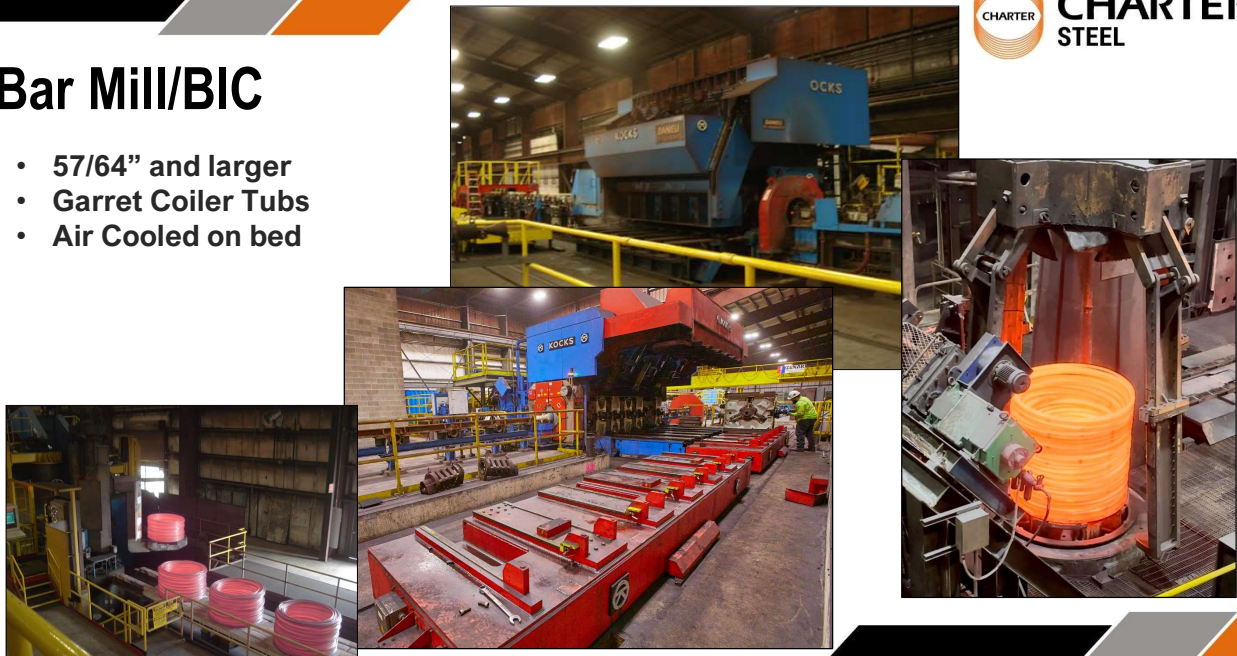


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## Bar Mill/BIC

- 57/64" and larger
- Garret Coiler Tubs
- Air Cooled on bed



The images show the industrial process of rolling and coiling large diameter bars. The top left photo shows a large blue mill with the brand name "ROCKS" visible. The bottom left photo shows a stack of coiled rods. The bottom right photo shows a close-up of a coiled rod being processed by a machine.

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## Bar Mill/BIC - AGV

- Moves coils from bar side to hook system
- Consistent coil handling to help reduce handling damage

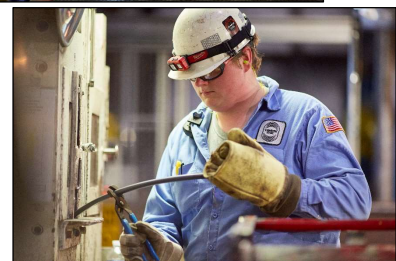
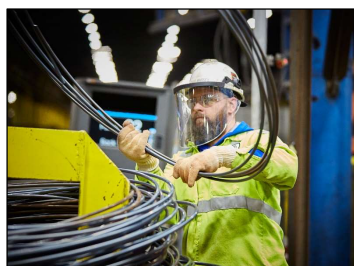


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## QC Inspection and Compaction

- **Size Verification**
- **Sample retention**
  - Tensile, R/A
  - Structure Checks
  - Size Check
  - Customer Required Sample
- **Coil Compaction**



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## Movement and Storage

- 2 Metal Rolling Tags
- Outside/Inside Storage
- Jeeps
  - Round Aluminum Poles
  - Aluminum Face Plates
  - Ground Protection

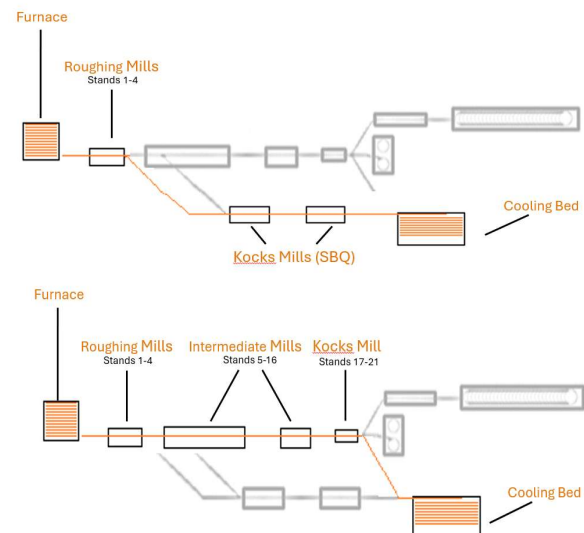
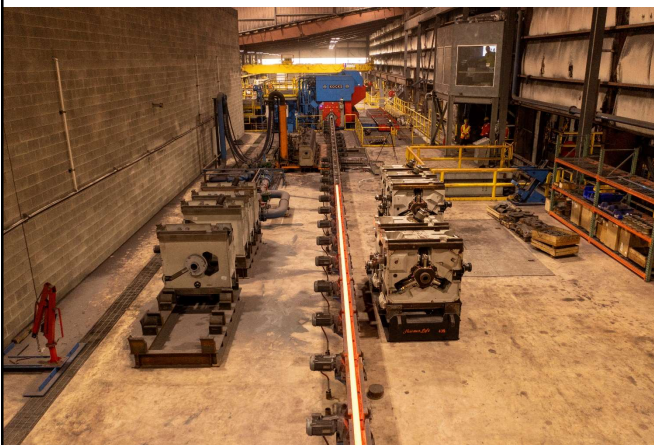


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## SBQ Outlet – RSB

3/4" – 3-1/4"



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## RSB0 + RSB1 + RSB2 Kocks SBQ Size Configurations (Cycles)

- 2.711"-3.250" – Yellow Cycle (4S, RSB1 Finish)
- 2.000"-2.648" – Orange Cycle (6S, RSB1 Finish)
- 1.516"-1.984" – Red Cycle (6S, RSB1 Feed, RSB2 Finish)
- 1.328"-1.500" – Purple Cycle (6S, RSB1 Feed, RSB2 Finish)
- 1.000"-1.313" – Green Cycle (MS, RSB0 Finish)
- 0.750"-0.984" – Blue Cycle (MS, RSB0 Finish)



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• Questions???



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