

PERFORMANCE OPTIMIZATIONS AND QUALITY IMPROVEMENTS FOR CONVEYOR FURNACES



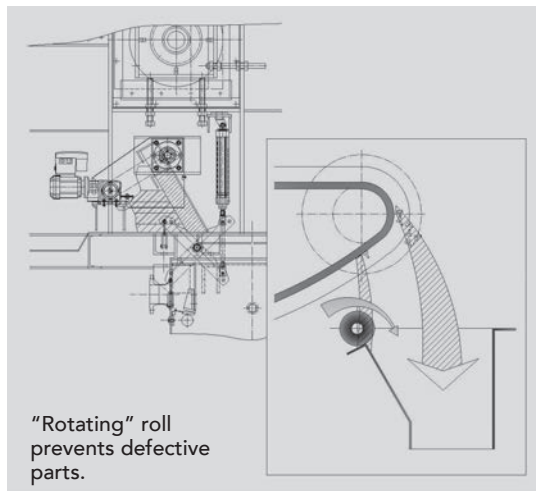
Performance optimization
+ process reliability by discharge
chute optimization, belt tension
and bulk height monitoring, and
improved inspection glasses

Discharge chute optimization

- The heat treatment horror scenario: **Soft, improperly hardened parts.**
- The critical point of parts transport through the furnace plant: the discharge chute between the furnace belt and the quenching bath.
- The temperature of the parts must not fall below a critical level; parts should first be selectively quenched in a quenching medium, for example, oil.
- Parts "stuck" on the discharge chute edge will cool down.
- This means: **Unhardened parts mixing with good parts!**

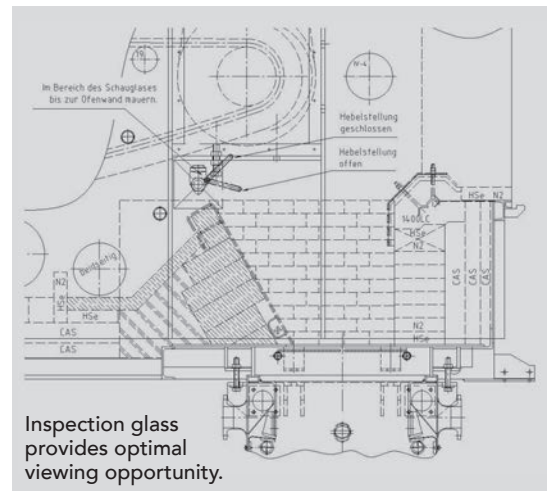
The AICHELIN solution: Rotating roll in the discharge chute

- Replacement of the rigid edge of the discharge chute below the belt deflection with a **rotating roll.**
- The parts are pushed in the direction of the discharge chute and no longer catch on the edge.
- The roll is driven by a gear motor mounted on the furnace housing.
- The speed is set by way of a frequency converter.



Improved inspection glass for monitoring the discharge chute

- **New inspection glass installed** on the left and right side of the chute.
 - Easier to recognize stuck parts.
 - Parts are pushed away from the discharge chute in the collection area below the furnace belt.



Customer benefits

- Improvement of process and quality.
- Reduction of soft parts and mixing of defective parts with good parts.
- Parts can be removed with a rod.
- Overfilling easy to detect in the return side area of the belt.

Our unique selling point

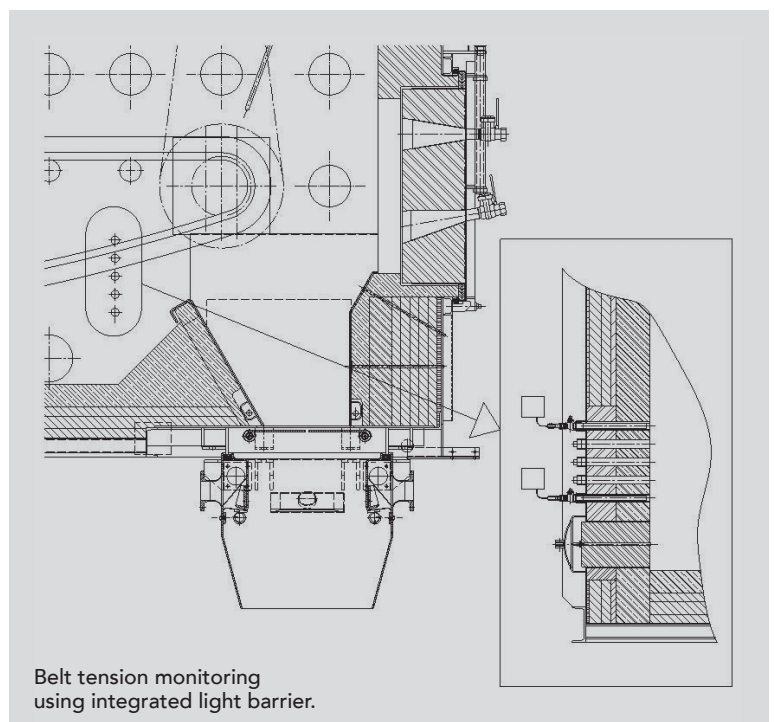
- This AICHELIN product (rotating roll) is patent protected and optimally adapted to your specific conveyor furnace plant.
- Perfect integration into your AICHELIN conveyor furnace plant by the original manufacturer.

Optimized belt tension monitoring

- **Damage to the furnace belt or disruption to the transport of parts:**
 - Belt too taut: high tensile forces and premature destruction of the belt.
 - Belt sag too great: Damage to the belt and drive system, problems transporting parts.
- Considerable repair and downtime expenses result from damage to the cast plate conveyors.
- Correct belt tension extends the conveyor belt lifetime.

The AICHELIN solution: Automatic belt tension detection

- Installation of a **query (light barrier system)** on the return side of the transport belt below the rear tail pulley.
- Detection of belt sag.
- Message sent to the controller when the sag exceeds a limit value or the tension is too high.



Customer benefits

- Reduction of repair and downtime expenses.
- Optimal and improved parts transport.

Our unique selling point

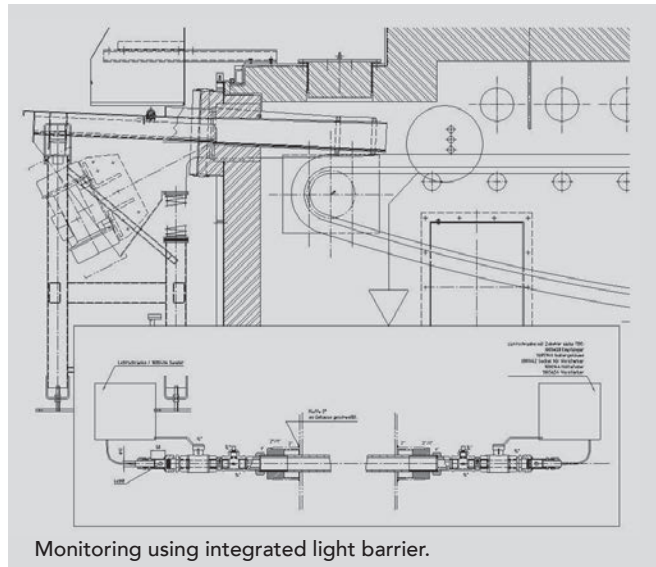
- Only AICHELIN offers this solution and provides a perfect adaptation to your existing AICHELIN conveyor furnace plant.

Dumping height monitoring

- **Uneven heating of parts** as a result of irregularities loading the conveyor furnace.
- Uneven hardening distribution possible.
- Soft, improperly hardened parts in extreme cases.

The AICHELIN solution: Automatic monitoring using light barrier

- Installation of a **light barrier system** after the loading chute in the inlet area directly over the furnace belt.
- The respective light barrier reports impending overloads.
- Varying heights as well as part-dependent (recipe-controlled) activation possible by request.



Customer benefits

- Improvement of process and quality.
- Reduction of ejection.
- Automatic recognition of clustering of the heat treatment goods; message sent to the operating company.
- Discharge of critical parts after heat treatment.

Our unique selling point

- Perfect integration into your AICHELIN conveyor furnace plant including control adaptation.

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