



Contribution ID: 16

Type: Oral

Revolutionizing Triple Slitting Technology for Rebar 16mm in the rolling and groove process design: QATAR Steel & POMINI Long Rolling Mills technologies

Tuesday 7 October 2025 18:40 (20 minutes)

The demand for increased productivity, cost efficiency and reduce energy and environment impact in the steel rolling industry has driven the adoption of innovative technologies.

Triple slitting technology is a game-changing method in rolling processes, particularly for rebar sizes over 14 mm.

So, the intention of this paper is to explore the implementation of triple slitting technology which enables rolling mills to significantly enhance production rates while maintaining product quality and in addition also to address the challenges faced in conventional rolling methods and how triple slitting overcomes these limitations as a brown field project for the first time regarding Rebar size 16 mm by 3.

The study therefore aims to retrace in detail the achievement of the following primary objectives:

- introduce and analyze the efficiency of triple slitting technology for the 16mm rolling process by a notable increase in output through simultaneous slitting and by consistent product quality meeting industry standards, with minimal deviation in dimensional accuracy and mechanical properties,
- evaluate its impact on production capacity, cost-reduction, and operational efficiency enhanced overall mill performance with a reduction in downtime and improved throughput,
- compare triple slitting with conventional rolling methods in terms of output, quality, energy savings and CO2 reducing emissions due to optimized energy usage and improved material yield

The achievement of these goals is explained by:

- Technical Analysis: Examination of the rolling mill setup for implementing triple slitting technology, including roll pass design and equipment modifications
- Data Collection: Collection of production data (speed, tonnage, material yield) before and after adopting triple slitting
- Comparative Study: detailed comparison of key performance indicators, such as production rates, energy consumption, and material efficiency, between the conventional rolling process and the new triple slitting method
- Risk Assessment: Evaluation of challenges related to wear and tear, maintenance.

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Session Classification: Rolling Mill Technology & Process Optimization

Track Classification: Rolling of long and flat product