

Automatic Roll Defect Management in Hot Strip Mills

Giovanni Bavestrelli

Pomini Tenova

giovanni.bavestrelli@it.tenovagroup.com

ABSTRACT

It is common practice to inspect hot mill rolls with eddy current and ultrasound systems during grinding operations to detect mechanical and thermal defects before sending the rolls to the mill, to avoid accidents and affect production. When a defect is found, it is normally treated by grinding the roll and removing stock material, until the defect goes below a set threshold. Mechanical and thermal defects are normally treated in the same way, and the same thresholds apply. Differentiating the treatment of thermal defects from mechanical defects, and thus using different defect thresholds in the first stands of a multi stand hot strip mill, provides big savings by reducing excessive stock removal for thermal defects. Pomini Tenova and ArcelorMittal Dofasco jointly developed a software system that runs on a Pomini grinding machine fitted with a Pomini Inspektor System, automatically distinguishes thermal defects from mechanical defects and accordingly recommends the optimal stock removal to apply in order to reduce the defect below the appropriate threshold. On the grinder, this system is able to assess the roll, decide the amount of stock to remove, grind the roll, and accept the roll when it is ready, thus taking all the necessary decisions previously left to skilled operators. The system, developed by Pomini Tenova with ArcelorMittal Dofasco, is based on a patent by ArcelorMittal Dofasco and is the subject of a patent by Pomini Tenova.

Keywords

Roll defect, grinding, thermal crack