

Nondestructive Testing in a Cold Roll Shop as Means for Damage Prevention

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Abstract. In cold rolling the condition of the rolls is one of the most important factors. Breaks and damages of the work rolls as well as of the backup rolls can lead to high economically losses. Since several years SZFG tests work and backup rolls automatically. Besides cracks on the surface in the case of backup rolls special types of defects can occur below the roll surface without any connection to the surface. These defects propagate below the surface leading to large areas of shelling. To find these defects only ultrasonic testing can be used. Some examples of these defects are shown.

Due to regulation of flatness steadily growing bending forces are applied to the work rolls being in contact with the cold strip. This led to a growing risk of high economically losses by breaking of the roll necks during the last years. The shape of the roll necks with sharp radii causes several regions being endangered of cracking. These regions were identified by a first testing campaign by MP and EC testing. After starting periodical tests of these sensitive regions rolls with beginning cracks could be identified easily and be repaired by grinding. Rolls with larger cracks can be selected before any damage occurs in the roll stands. In the cold roll shop of SZFG the break of rolls could be reduced in this way significantly.