
Release	
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Predicting periodic defects – Avoiding dips in quality

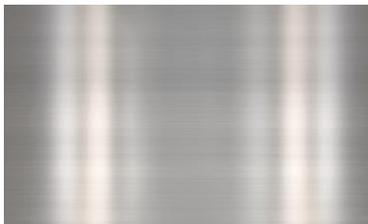
Periodic surface defects caused by defective rolls have a significant impact on the quality of strip steel. Every steel manufacturer dreams of being able to detect defects like this before they become visible to the human eye, so that they can change the rolls and avoid periodic defects in time. ISRA VISION PARSYTEC has developed a special method for detecting defects like this. The algorithm-based technology enables the finest roll imprints on the strip surface to be detected and the roll causing them to be identified with 100% reliability. As a result, predictive maintenance is possible and the defect roll can be replaced, before quality falls. Manufacturers are guaranteed consistently high quality and stable yields.

High plant speeds and difficult ambient conditions make automated quality control in the cold rolling process essential, but extremely difficult. Particularly customers from the automotive industry have very stringent requirements for the product. The innovative new development from ISRA PARSYTEC now means manufacturers have a powerful tool for quality assurance. It combines advanced image processing technology with powerful calculation units to identify periodic surface defects of all kinds – even those with extremely low contrast to the background, which could not previously be detected. This is made possible thanks to an innovative inspection channel designed specifically to reliably detect repeat defects. The system is based on the sophisticated use of the periodicity of recurring defects. Through a specially developed algorithm the normally extreme low contrast defects are optically strengthened and thereby detectable.

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Adding the original images makes the defects appear much stronger and suppresses random background noise. As a result, the tiniest defects, such as previously imperceptible roll imprints, become visible. The operator can reliably monitor all rolls on the clearly-structured graphical user interface and the Roll Guardian feature marks those that are causing problems in color. The compact dimensions mean the hardware can be integrated in the smallest of spaces. This state-of-the-art method means that there is no longer any need to inspect the strips manually and prevents more than 75% of all drops in quality. Downstream processes in the value chain, such as coating, are protected from defective materials. With potential savings activated immediately, the system pays for itself in just three months.



The extremely low contrast defect is not visible at this picture.



Preliminary result of the iterative algorithm. The roll-mark becomes slightly visible.



After the final application of the algorithm the periodic defect is clearly visible.

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