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Vision Technology-Based Surface Quality Optimization for Continuous Hot-Dip Galvanizing Process

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During the continuous hot-dip galvanizing process, numerous parameters directly correlate with the surface quality of steel plates. Among these factors, the emission management of floating oxides on the zinc bath surface within the snout represents a critical operational parameter for maintaining continuous production efficiency. To address this challenge, various steel manufacturing companies have invested substantial efforts in equipment-based solutions. However, the conventional operational methodology, which relies on manual operator observation, fails to effectively suppress the incorporation of floating oxides into the steel plates, resulting in compromised surface quality within the snout. This research and development aims to optimize the surface quality management of steel plates within the snout by developing an intelligent technology that integrates computer vision algorithms with automated facility control systems and implementing this solution in industrial applications.

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