

1. Development of Automatic Casting System for Tunnel Lining Concrete - Verification of Usability Based on the Full-Scale Casting Experiments -

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The development of new construction methods in mountain tunnels has emerged. At the same time, such construction typically involves a series of repetitive tasks, leaving room for automation and other labor-saving measures.

Based on the previously-reported height control technology based on pressure gauges, we developed an automatic pouring system that incorporates control of concrete pump pressure and formwork vibrator operations. The results of full-scale construction experiments confirm that automatic control of pump pressure and formwork vibrators based on pouring height is possible from the start to the completion of the pouring process, contributing to labor-savings and ensuring construction quality after the formwork is removed.

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