Automatic Production Process and Quality Control of Large Bridge Component Factory

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Abstract

In order to meet the needs of rapid bridge construction and structural reliability, this paper studies the automatic production technology of bridge components from three aspects: production process, quality assurance and information management based on small and medium-span bridge components. In the production process, in addition to the necessary automatic pouring of components, high-temperature steam curing and secondary tensioning are used to achieve intelligent and rapid production of components. Quality Assurance ensures a reliable build by analyzing concrete maintenance needs and subsequent quality issues that may occur. Information management improves the production quality management control of assembly parts by establishing an automated production information framework for bridge components.

Keywords: bridge component factory; automatic production technology; process flow; key technical index; quality management and control.

1 Introduction

The factory production of components avoids the complex construction environment on the construction site, which significantly improves the precision and quality of components. Quality management digitizes construction projects through construction project information management.

The arrangement of the production line and the arrangement of the production plan are the primary issues in the automated prefabrication of large-scale bridge components. At present, at home and abroad, the research on the layout of the construction site has been relatively systematic. In the early stage of the research, the expert system and artificial intelligence methods were used, and the corresponding computer software was developed to assist with the layout of the construction site, introduced the prefabricated beam yard facilities for specific bridge projects in detail, and proposed the method and scheme of the prefabricated beam yard layout. Cheng Min-Yuan[1] et al. studied the reasonable stacking method of building materials based on the GIS platform and the reduction of the secondary transportation cost in the building material field.

In terms of production process, the informatization and intelligence of pre-stress tension can overcome the shortcomings of traditional

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