

## Stress Analysis of High Pressure Slide Gate Bonnet of a Dam using Curved Beam

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### ABSTRACT

The consistent growth of industry and improvement in living standards continue to create new demands on the water supply. As such, the key component of a dam is the gate used to control and adjust the water level. Slide gates are typically used to operate a small-sized gate, and although their operating resistance is large, they have a simple structure and are relatively inexpensive. However, the demands for a slide gate are expected to increase in response to the development of agricultural irrigation, plus, with the appearance of high-pressure slide gates, the role of the bonnet has been highlighted. Yet, until now the corner part of the bonnet has not been considered during the design process, meaning that the current design standard for the bonnet in a slide gate is inadequate. Accordingly, the current paper proposes a new design, including a curved beam, and analysis for the bonnet corner part of a slide gate. Numerical tests show that the theoretical analysis results coincide well with established commercial packages (NISA II / Display III).

**Keywords:** Curved Beam, slide gate and bonnet