

3. Improvement of Accuracy of Drilling by a Drill Jumbo -Development of a Device for Fixing the Tip of a Guide Cell-

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One of the means of quick construction of a mountain tunnel is long-hole blasting with an advance longer than the standard length. Quick construction by long-hole blasting requires the guarantee of cut and blasting and the reduction of overbreak. The key to achieve the goals is the improvement of accuracy of drilling by a drill jumbo.

In this study, drilling tests were conducted using an ordinary drill jumbo, and it was shown that fixing the position of the guide cell during drilling, in the early stages of drilling in particular, was important to the improvement of accuracy of drilling by a drill jumbo. Then, a device was developed and manufactured to serve the purpose. Drilling tests were conducted using the device and it was verified that the device could control the displacement of the guide cell during drilling and improve the drilling accuracy.

This paper outlines the device developed for fixing a guide cell and describes the results of performance assessment for the device obtained in drilling tests.

Key words: quick construction, improvement of drilling accuracy, long-hole blasting,
fixing of the tip of the guide cell