

Continuous concrete pouring system using extending/retraction-type hose to improve quality and save resources while placing lining concrete in tunnels

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In Japan, placement of lining concrete is done simultaneously with tunnel excavation work. To do so, space must be secured for tunneling vehicles to pass through the travelling form while lining concrete. As shown in Fig. 1, steel concrete pipes placed within the form shall be switched over to the next casting height by man power.

This method increases drop height from concrete pouring pit right after pipe switching. This causes risks of material separation of concrete or engaging excess air in it. Any delay in the switching operation could cause a risk of cold joints since the placing would not be finished in time. Also, a great deal of labor is required to move the heavy steel piping within the narrow construction space.

As shown in Fig. 2 and Photo 1, the new system enables continuous concrete placement without switching steel pipes by pulling up the concrete placement hoses on the left and right sides to the next placing height automatically. With this method, concrete is poured at the minimum drop height, which prevents material separation and excess air entrapment, eliminates excessive pouring time, and reduces the strenuous workload switch pipes.

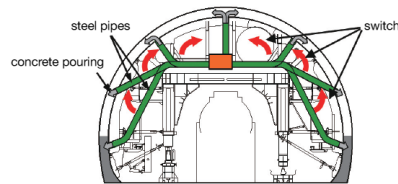


Fig. 1 Conventional method

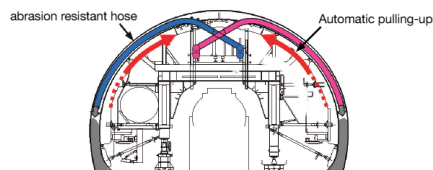


Fig. 2 New method



Photo 1 Panoramic view of continuous concrete pouring system using extending/retraction-type hose