

2. Development of the RC Segment without Secondary Lining for the Small Diameter Tunnel

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Usually, a small diameter shield tunnel of inside diameter 3000mm and under (within the minimum, diameter 2000mm) is built with " segment made of the steel + secondary lining concrete ". This time, we developed the RC segment without secondary lining due to flat inner side without bolt box (4 equally divided axial insertion type Honeycomb-segment) for the small diameter shield tunnel. Joint is being made the pin joint, which is unnecessary for the bolt connection instead of the usual joint. We verified the practical use and strength of this segment from the results of the full-scale joint bending test. Moreover, we developed individual carriage and assembling method corresponding to the hexagon-shaped of this segment about the shield machine equipment. It is based on this result this segment realization prospect.

Key words : small diameter tunnel, RC segment, without secondary lining, pin joint