

Activities of Japan Prestressed Concrete Contractors Association

Les initiatives de l'Association japonaise de la construction en béton précontraint



Enhancing resilience through reliable maintenance of arterial road networks using prestressed concrete technology

Large-scale renewal projects of expressways (e.g., deck slab replacement)

Deteriorated structural members causing functional decline are repaired promptly to ensure that expressway bridges remain functional as part of arterial transportation routes, not only under normal conditions, but also during emergencies, such as disasters.



Standard deck slab replacement method

Deck slab replacement using mobile cranes



Construction with minimum traffic restriction

Half-slab replacement with one lane in service



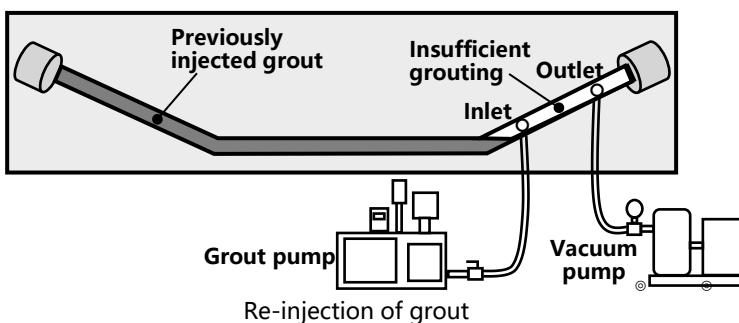
Construction under the constraints (e.g., high-voltage lines)

Deck slab replacement using deck slab erection equipment

- Long-term durability is achieved by replacing the damaged RC deck slabs of steel bridges with PC deck slabs, which offer superior durability.
- Using precast members reduces traffic restriction periods.
- Optimal construction methods are selected according to the conditions of the bridge to be repaired, such as traffic volume, the number of lanes, detour route selection, and obstacles.

PC grout re-injection

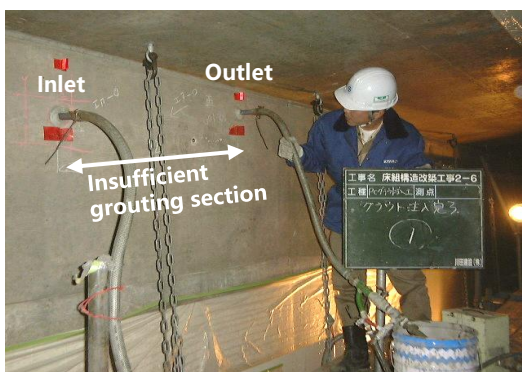
Bridges constructed in the past may contain prestressed concrete sections with insufficient grout. As a preventive maintenance measure, grout is injected into these insufficient section to prevent the corrosion and rupture of the prestressing tendons.



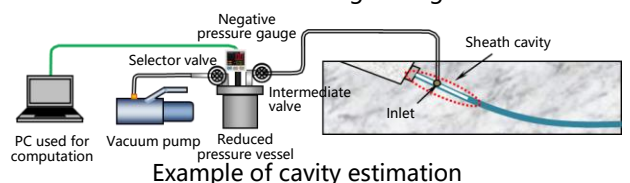
Re-injection of grout



Prestressing tendon at insufficient grouting location



Re-injection of grout



Example of cavity estimation

- Investigation of prestressing tendon locations by nondestructive testing
- Estimation of insufficient grouted section and cavity volume
- Drilling an inlet and an outlet at the ends of the insufficient grouted section so as not to damage the prestressing tendon.
- Prestressed concrete grout is re-injected by the gravity flow method, the vacuum pump assisted method, or the pressure grouting method.
- The inlet and outlet regions is repaired with mortar.

