

2. **Developing an Automated Drilling Hole Device for Anchors** **- Part 2 : Application to Sewerage Facilities -**

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For post-installed shear reinforcements, additional wall installations, drilling holes for reinforcing bars is typically done manually with a rock drill or electric hammer drill. However, this approach involves many drilling operations, repetitive vibration, physical strain, and harmful dust scattering. In response, two types of Automated Drilling Hole Devices have been developed to handle drilling processes in retrofitting work involving existing concrete structures. These devices, which, respectively, address large and small diameter holes, are capable of automatically drilling holes in accordance preset drilling plans (number of holes, drilling position, drilling depth), and can also record construction performance data while preventing dust dispersion. To prevent rebar damage, once the device detects contact with an existing rebar, it halts the process and moves to the next hole position. These devices can be expected to improve efficiency and reduce labor requirements.

The developed devices were applied to seismic reinforcement work for the discharge culvert of a sewage treatment facility, and performed drilling automatically, accurately, and in accordance with drilling plans, and effectively prevented dust scattering.

Keywords: renewal projects, reinforcement work, drilling work, labor savings, automation