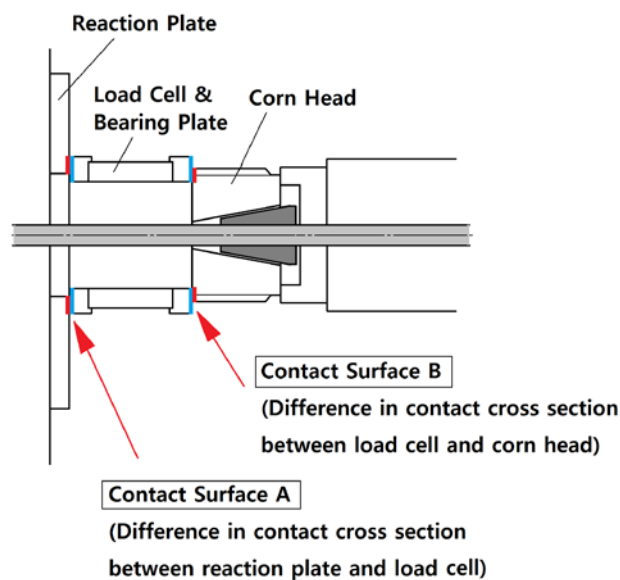


Proposal of installation method of load cell for earth anchor measurement

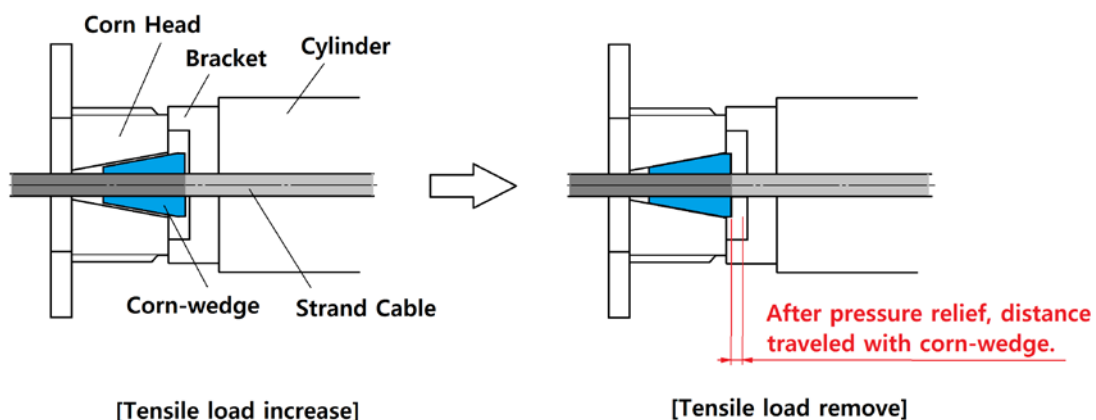
Slope reinforcement works for road and tunnel sites use strand or tieback anchor to secure the bearing capacity by tensioning to the design axial force. Load cells are installed in representative locations to monitor changes in axial force acting on earth anchors or tieback anchors.

If the axial force of the load cell used in the slope construction site is measured less than the tensile load and the deviation is shown up to 15 tons, the cause is judged as the following two reasons.

1) The inner diameter of the reaction plate and the inner diameter of the load cell do not match (contact surface A). In addition, since the outer diameter of the load cell and the outer diameter of the cone head do not match each other (contact surface B), the load applied from the cylinder cannot be accurately transmitted to the load cell, so the load applied from the puller is not measured accurately.



2) As shown in the figure, when tension is applied by the design axial force by puller and the pressure is removed, the corn wedge that fixes the strand moves as it is fixed to the corn head. This phenomenon appears as a decrease in load.



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In order to solve the above causes and install the load cell correctly according to the design force, the following method is suggested.

1) If the load cell and the contact area are different from each other, the load variation can be changed into the distribution load by inserting a thick steel plate of 20t or more between the contact surfaces A and B. Axial forces acting on strand cable or anchor can be accurately distributed all area of the load cell and transmitted to the cell.

The inner diameter of the steel plate should be 5mm smaller than the inner diameter of the load cell and the outer diameter should be 5mm larger than the outer diameter of the load cell.

2) You will need to require the manufacturer of the strand cable and tieback anchor how to minimize cone slip.