

The reaction force decrease problem of load cell

From time to time, the load shown in the load cell, which is installed in earth anchor, is smaller than the load indicated on the pressure gauge of hydraulic jack for tension about 10 – 20%, and sometimes the value on the load cell could be larger than the latter.

For instance, if the value of load is calculated as 65 – 75 ton even if the actual load is 80 ton, it is said normally that the load cell is malfunctioned. In this case, it is possible to determine if the load cell is correct or not by carrying out the load cell performance test through accredited authority, but there is a possibility that it may not be disassembled.

Even if earth anchor system is perfectly installed, commonly decreased 5 – 10% comparing the impressed only for the extension of strand.

Looking the research result from International these, reaction force for earth anchor obtained load cell is progressively decreased through time is passing. These cause for decreased reaction are listed below. These cause generally explained affected complexly.

A cause of reaction force decrease

- 1) Creep situation in fixing part of earth anchor
- 2) Stress relaxation of anchor strand
- 3) Slip between fixing part and ground
- 4) Compressed original ground between fixing part and walls in the soil
- 5) Decreased frictional resistance for relaxation nailed wall
- 6) Stop Repositioning and recovering equilibrium state by time passing
- 7) Passive demolition situation in original ground
- 8) The orthogonal angle with the load cell's earth anchor is shortfall
- 9) Wedge and Wedge Plate for Fixing strength slip due to line contact, not surface contact due to poor accuracy

On the other hand, you meet situation that reaction force increased. That why reaction occurred, when excavation working, nailed wall in structure have so much earth pressure, and walls in the soil constraint deformation.