Y-jack, exclusively distributed by Excellent Equipment Co, Ltd

Bi-Directional Testing on Piles

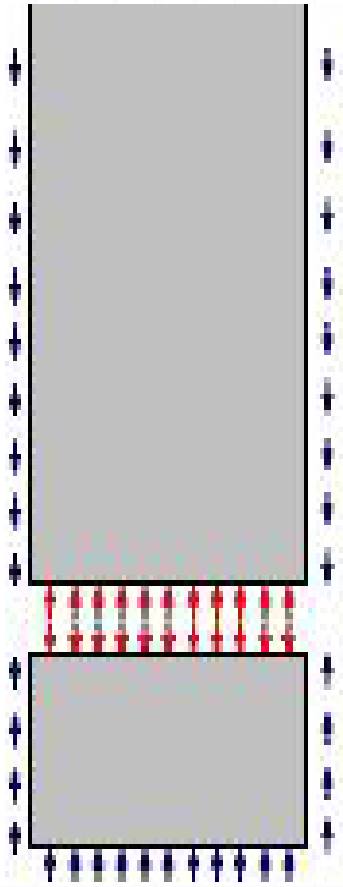
(BD Pile Bearing Testing)

using

Y-jack Super Press Jack Technology

What is BD Testing

A sacrificial jacking system is cast within the pile body. Upon application of load, the pile is separated into two sections and load is applied to both sections simultaneously and reacting against each other in two directions; upward against upper skin friction and downward against base end bearing and lower skin friction. BD testing do not require reaction beams, anchor piles or Kendledge.



BD History

Tomer Method

- Patented technology in Europe (1978)
- Less popular worldwide

Osterberg Method (O-jack)

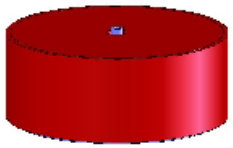
- Patented technology in USA (1989)
- Popular worldwide but expensive

Yu Method (Y-jack)

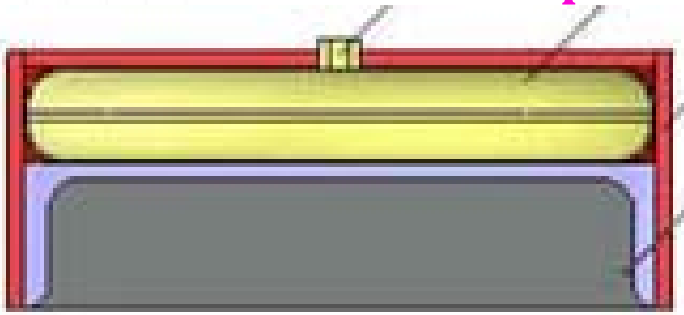
- Super press jack technology
- Patented technology (2007)
- Very popular due to many advantages

What is Y-jack

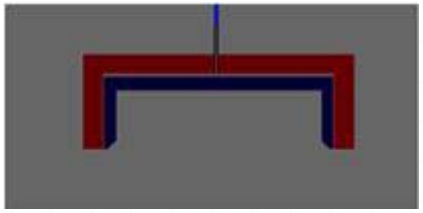
O-jack (piston type)
The loads are applied by using hydraulic jack units



Y-jack (capsule type)
The loads are applied by using hydraulic capsule units

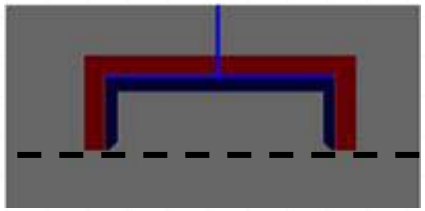


Concrete at pile body is intact



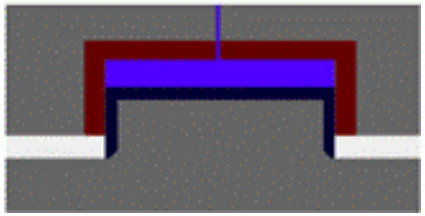
Mechanism 1
Start pumping the oil into the capsule

Concrete will split at split zone



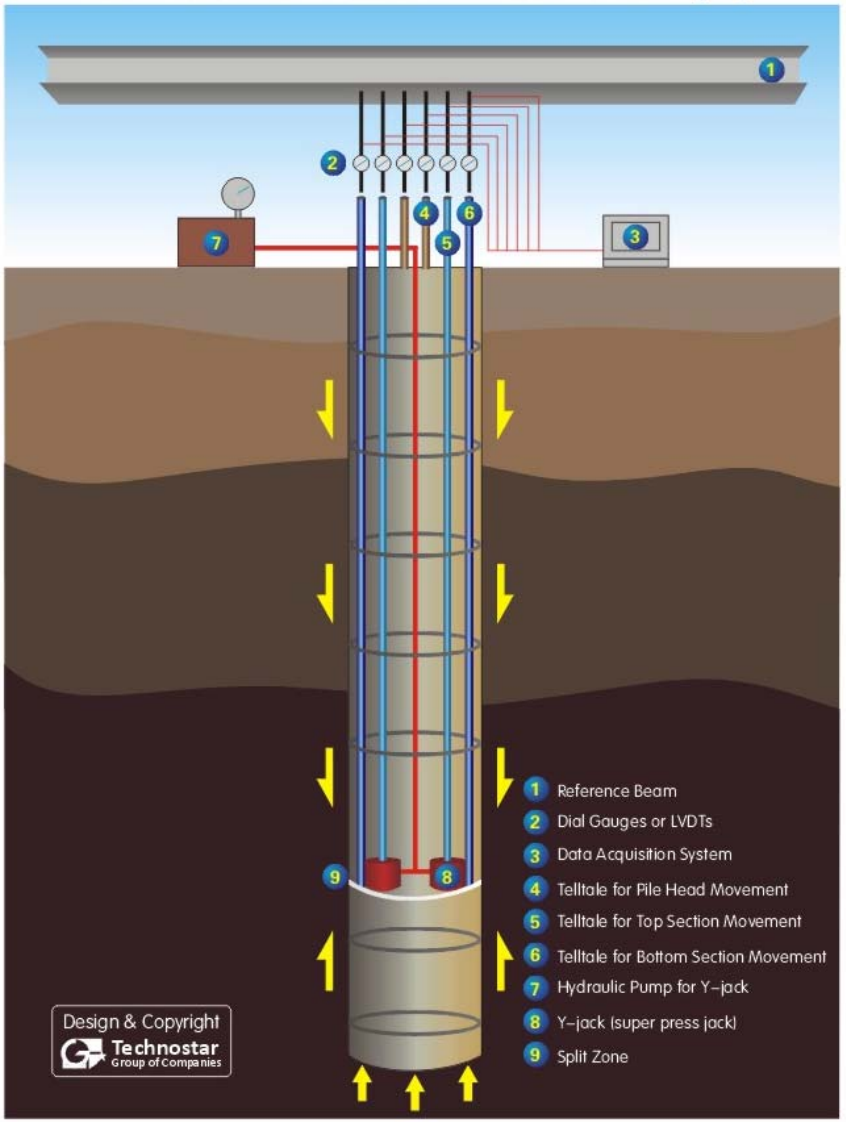
Mechanism 2
Oil fully occupy the capsule

Pile body split to sections



Mechanism 3
High pressure oil will open up the cell

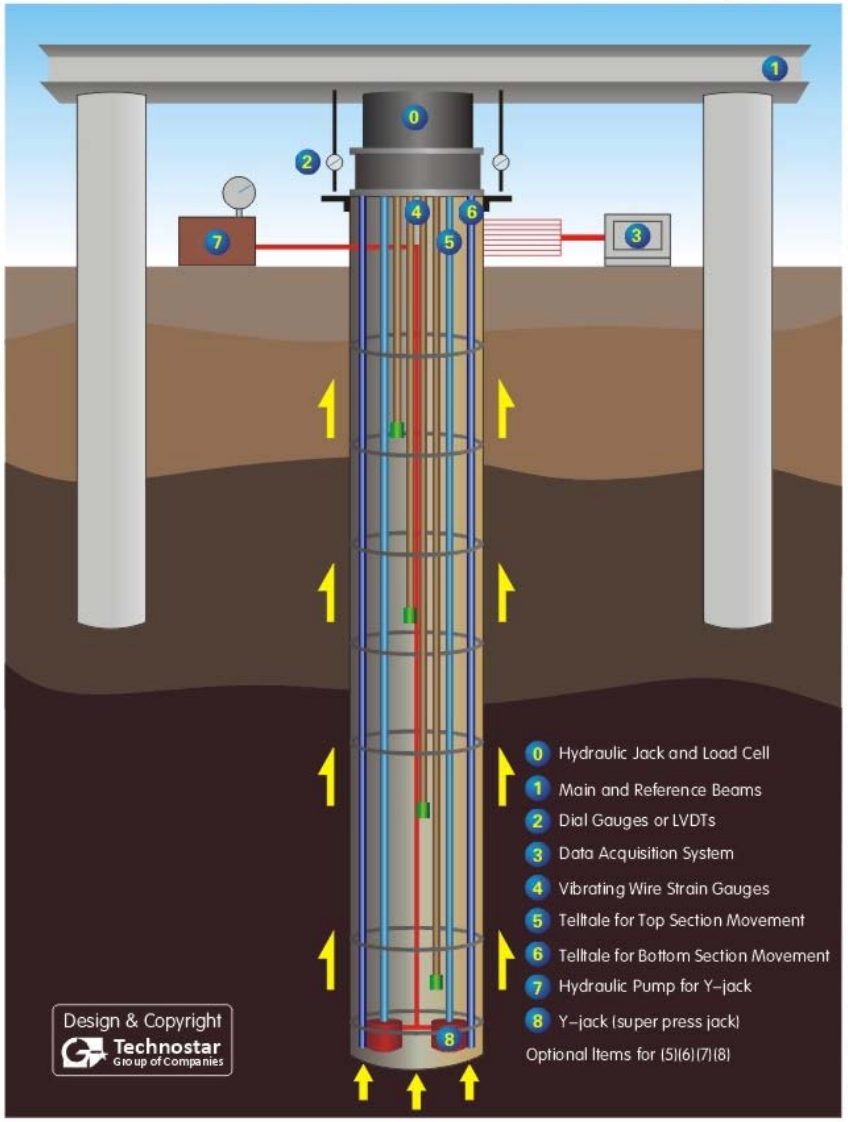
Y-jack Setup Diagram



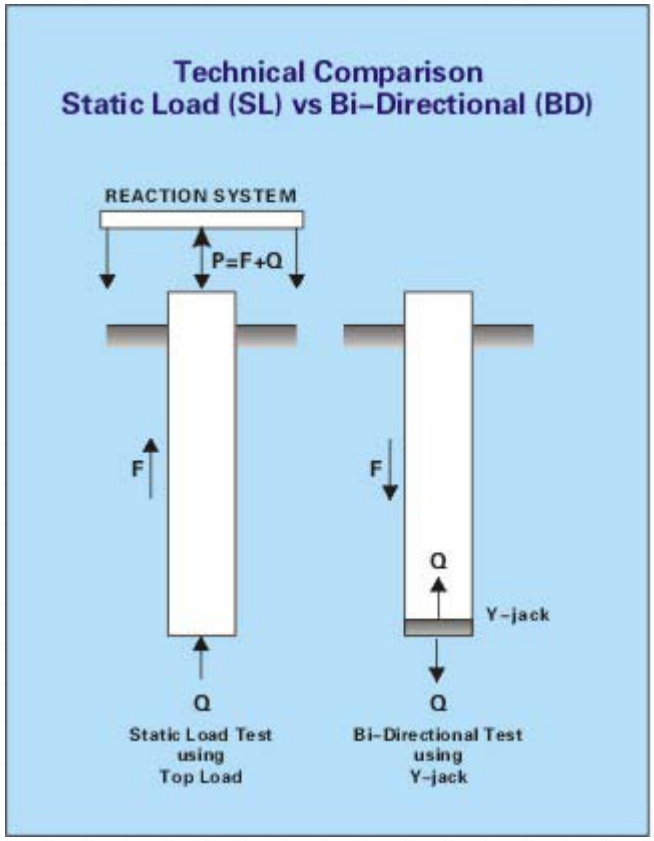
Is BD equivalent to SL?

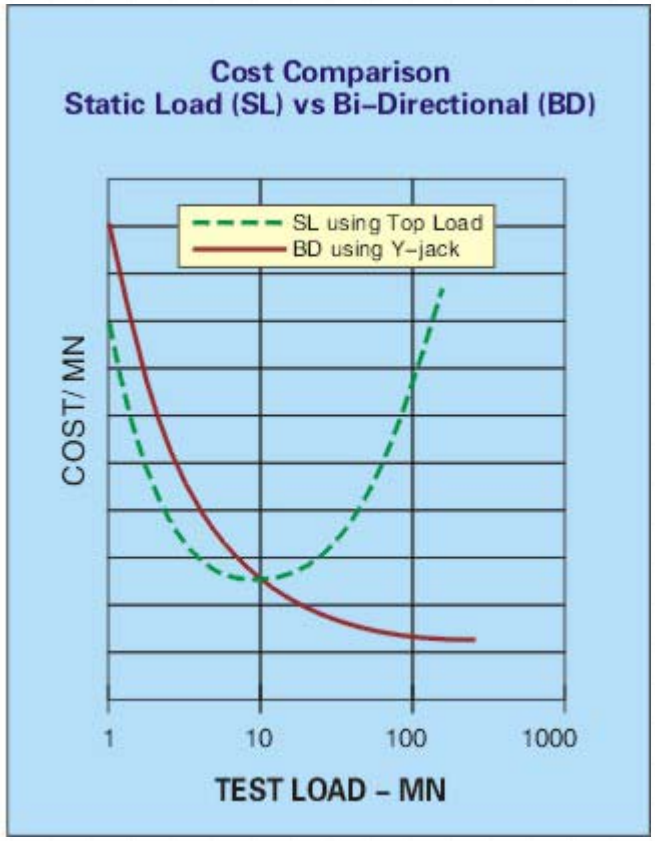
It is a big **YES**.....

If the SL reaction system (either Kentledge or anchor piles) covered by soil and apply loading, the system become bi-directional (BD). The hydraulic jack (#0) become BD-jack.



SL vs BD





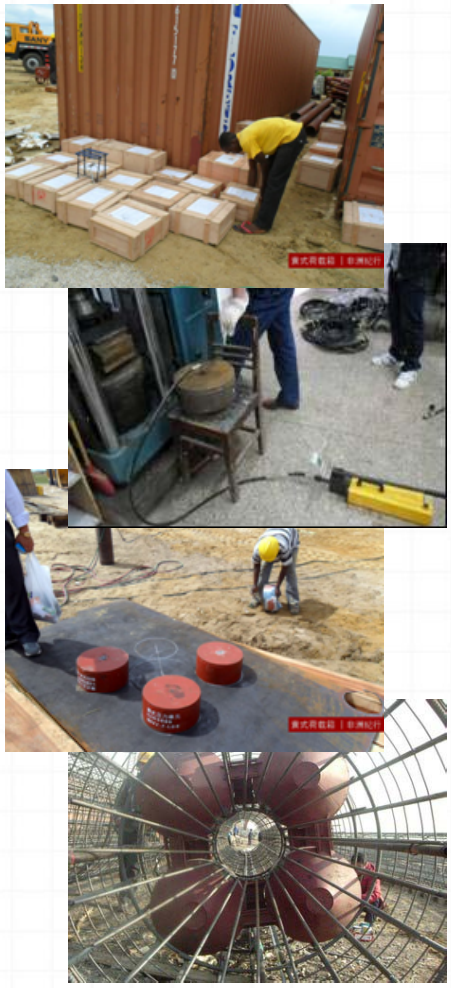
Theoretically, both SL and BD are using **SAME THEORY**, i.e. Newtonian 1st Law,

Action = Reaction

The significant advantage of BD is to take pile skin friction to replace reaction system.

General Advantages of Y-jack

- Y-jacks are easy handling and very mobility in remote area.
- Y-jacks can be calibrated in factory prior to mobilize to project site.
- Assembly at site is relatively easy and simple.
- Multiple Y-jacks can achieve very high load (unlimited).
- Y-jacks are mass productions, hence lower the costs.



Technical Advantages of Y-jack

- Mass production in factory and pass QA/QC to maintain consistent quality and calibrated.
- Y-jack is a closed form super press jack that no hydraulic leakage happen (no oil seal ring).
- The pressure of Y-jack is limited to 20MPa (for high bearing design pile, limited to 30MPa).
- The Y-jack location only occupy < 50% pile section area for concrete to flow easily.
- Y-jack is “embedded” in the top and bottom pile sections to form the whole pile (not separated).

Y-jack Photo Gallery

leaving Yichang 3 Gorges Dam

4 hours speed cruise to site

fabrication of Y-jack at site

Y-jacks at top rebar section

5cm pipe for grouting

lower top to bottom section

Y-jacks & cables in bore-hole

jointing rebar sections

supervision under the rain

site ready to concreting

concreting to 2m dia. pile

testing after > 7days

Y Jack Expert : Mr. Wai Experience

In Factory:

- Visited the Y-jacks factory at Beijing
- Witness the production and calibration
- Study the theory of hydraulic vs. capsule jacks
- Calculate and determine the jack location
- Select and design the geometry of Y-jacks

At Project Site:

- Fabricate Y-jacks to form Super Press Jack
- Install hydraulic hoses and telltale cables
- Setting up the static load test instruments and pumps
- Supervise static load test, analysis and reporting

RFQ: Request for Quotation

Please provide the following basic information and mail to info@traswja.com, mohdnuri@gmail.com or chtay118@gmail.com

- Design load and test load (ultimate capacity)
- Total pile length and location of Y-jacks
- Pile diameter and trimmie pipe diameter for concreting
- Skin friction at upper section (Rupper)
- Skin friction at lower section + end bearing (Rlower+Rend)
- Short descriptions about the project and test pile
- Country and city of the project and how many test piles
- Loading sequence for the test and duration