

GEOTECHNICAL PISTON CORING AND CPT STINGER

TDI-Brooks International, Inc. offers a comprehensive suite of offshore geotechnical field services, including piston coring, jumbo piston coring, box coring, and the deployment of multiple CPT tools. Our vessels can also be used to accommodate some third party geotechnical equipment packages. Geotechnical analytical services are offered to complement our field services. TDI-Brooks also has extensive experience in conducting offshore surface geochemical and heat flow programs, environmental assessments, metocean, site surveys and seabed surveys.

The TDI-Brooks Jumbo Piston Coring (JPC) system consists of various hardware assemblies designed to be fastened together into a working core rig and deployed to the seabed for extracting a “jumbo” piston core. The deployed core rig comprises assemblies for the core head, the core barrel, the piston, and the trigger system. Typically, geophysical surveys are used to select piston coring locations based on surface expression of faults and other features related to conduits for upward migration of hydrocarbons.



Jumbo Piston Coring for Geotechnical Studies

- Equipped with 30m 10.2cm barrel, 1,800kg weight stand
- Capable of operating in water depths in excess of 4,000m
- ASTM standardized testing (including Torvane & mini-vane) UU triaxial compression testing
- USBL positioning available
- Chirp sub-bottom profiles for improved positional accuracy



The TDI-Brooks jumbo piston coring (JPC) rig can be assembled to collect a sample up to 64 feet long. There is also lifting assembly that attaches to the trigger system, allowing the system to be deployed with an A-frame. The core barrel assembly is made up of selected sections of core barrel, connecting collars, a core liner assembly inside the barrel assembly, a core catcher, a core cutter, and set screws to hold the barrel assembly together.

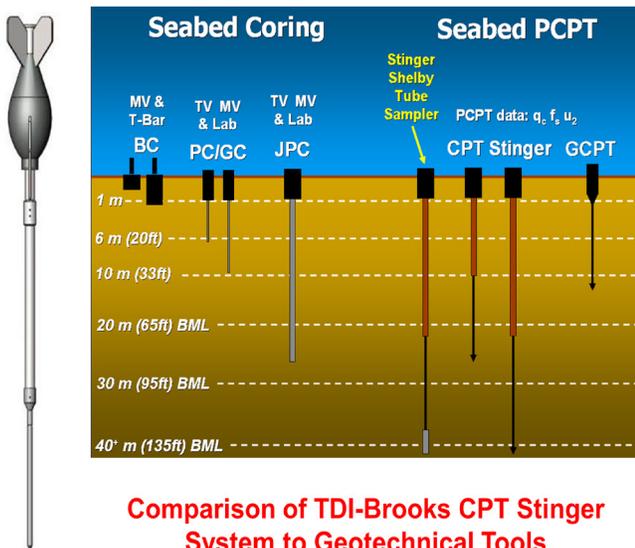
The TDI-Brooks Piston Coring (PC) system consists of various hardware assemblies designed to be fastened together into a working core rig and deployed to the seabed for extracting a piston core. The PC rig can be assembled to collect samples up to 30 feet long and collects a 3 inches diameter sample. The deployed core rig comprises assemblies for the core head, the core barrel, the piston, and the trigger system.



Navigated Piston Cores



Deepwater Static Cone Penetrometer (CPT Stinger) is installed in a JPC core-head, deployed and triggered with the well-proven TDI-Brooks JPC process, and allowed to free-fall ballistically to insert itself into the sediment like a JPC. Once fully embedded in the seafloor with the necessary resulting reaction force now available, the CPT-Stinger is programmed to extend a rod from inside the barrel deeper into the formation (like a stinger) at the standard ASTM (static) cone push rate.



Comparison of TDI-Brooks CPT Stinger System to Geotechnical Tools

Cone Specifications

The cone measures: Tip Resistance, Sleeve Friction, Pore Water Pressure, Vertical Acceleration, X-Y Tilt

The cone has a 15-cm² projected end area and fully conforms to ASTM International Designation: D 5778-07, Standard Test Method for Electronic Friction Cone and Piezocone Penetration Testing of Soils.

In-situ CPT data up to 130 feet BML of a fully embedded 73-ft Jumbo Piston Coring rig.

- Standard JPC core liner replaced by CPT
- Stinger with self-contained power, control and logging module.



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TDI-Brooks is a privately held Texas firm incorporated in 1996 and headquartered in College Station, TX with a remote office located in Houston, TX and strategically located offices around the globe including Port Harcourt, Nigeria (TDI-Brooks Nigeria Ltd.), Rio de Janeiro, Brazil (GSI-Brooks), India and Colombia.