

Dynamic Cementation Stack-Up



Dynamic Cementation Improves Zonal Isolation

Tesco offers a variety of products that can be used for maximum effectiveness to achieve desired zonal isolation. Combining these products together is what Tesco calls Dynamic Cementation, and it is the single most cost-effective way to improve zonal isolation.

- Improve cement job quality - increase efficiency of mud displacement and the ability to maintain overbalanced pressure during “wait on cement”
- Prevent early gelation - the Dynamic Cementation Stack-Up prevents early gelation that can occur while rigging up a conventional cement head system
- Improve cement sheath integrity - reduce the chance for fluid contamination and, as a result, increase the chance of cement obtaining a high final compressive strength

Casing Drive System™

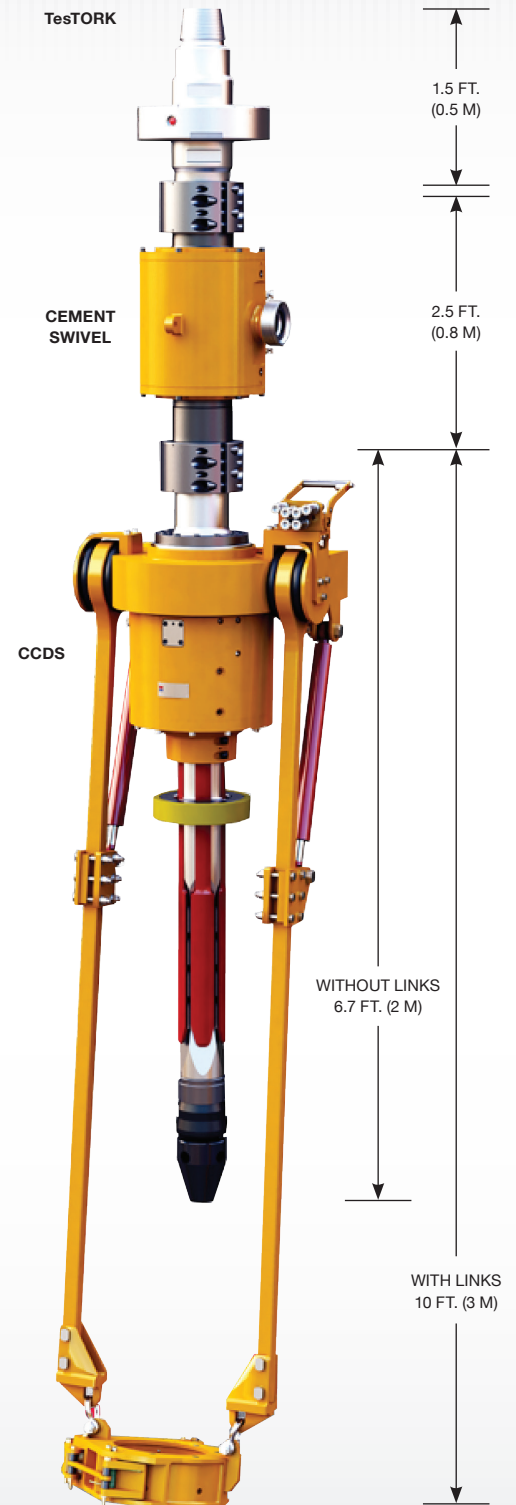
The Casing Drive System (CDS) can convey casing, makeup casing connections, fill up, reciprocate, rotate and circulate casing during casing running, cementing and completion operations. It effectively replaces equipment such as the fill up tool, power tongs, traveling elevators and stabbing boards. Internal and external models are available.

- Operate with confidence - Zero Weight Interlock system ensures confidence during tubular running operations
- Cut out unnecessary equipment and expenses - the CDS performs multiple operations using one tool instead of several labor-intensive conventional tools
- Keep it simple - CDS can be integrated into existing Top Drive robotics, so no need to rig up extra HPU, hose loop or control panel
- Versatility - Different internal/external configurations can run tubular sizes from 3.5” to 20”
- Adequate cement height - when rotating while cementing, the rotating casing drags cement around the pipe enabling it to flow evenly to the narrow side of the annulus

Compact Casing Drive System™

The Compact Casing Drive System (CCDS) performs the same operations as the CDS, but its compact design and light weight provides single-mast rigs safer operations and faster tubular running times.

- Space saver - Depending on the desired configuration, the CCDS can be as short as 6.7’
- Versatility - designed for quick rig up and rig down and compact size allows for easy handling and logistics



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Cement Swivel

Tesco's Cement Swivel is a rotational side-entry port for cement that makes the traditional cement head assembly obsolete. Rigged up with all equipment at the beginning of casing running operations, the Cement Swivel is already in place when the time comes to move from casing running procedures to cementing.

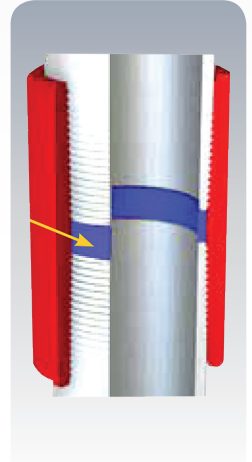
- Reduce NPT - the cement swivel allows for seamless transition between casing running and cementing operations
- Even distribution - cement is continuously rotating around the casing and so provides an uninterrupted flow of fluids



Multi-Lobe Torque Rings

Non-shouldered connections are torque limited and not suitable for any rotational applications. Tesco's Multi-Lobe torque (MLT) rings provide a positive torque shoulder, enabling the additional benefit of increasing torque capacity, or delta torque.

- Cost savings - MLT Rings allow the use of cost-effective API casing and prevents connections from being overstressed
- Rotate longer - with less than premium connections, rotation during the entire cement job is made possible by applying torque rings



TesTORK™

Tesco's TesTORK is a wireless torque turn sub which monitors the torque turns and rotational speed of the casing in torque vs. turns, torque vs. time, or rpm format.

- Be sure - the torque sub can be used to check the accuracy of top drive torque turns used on the driller's panel
- Rotation monitoring - keep from over torqueing during rotation while cementing



Centralizers

Centralizers provide proper casing string centralization which is important for effective mud removal. Eccentric strings can lead to unequal flow areas on the high and low sides of the hole. Because spacer and cement follow the path of least resistance, large mud sections can be left on the low side of the hole. Centralizers are usually installed on the casing string to ensure an effective cement bond, but also aid getting casing string to bottom with reduced drag.

- Improve centralization - even flow areas around casing make it less likely for mud to remain behind and contaminate the cement that follows



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