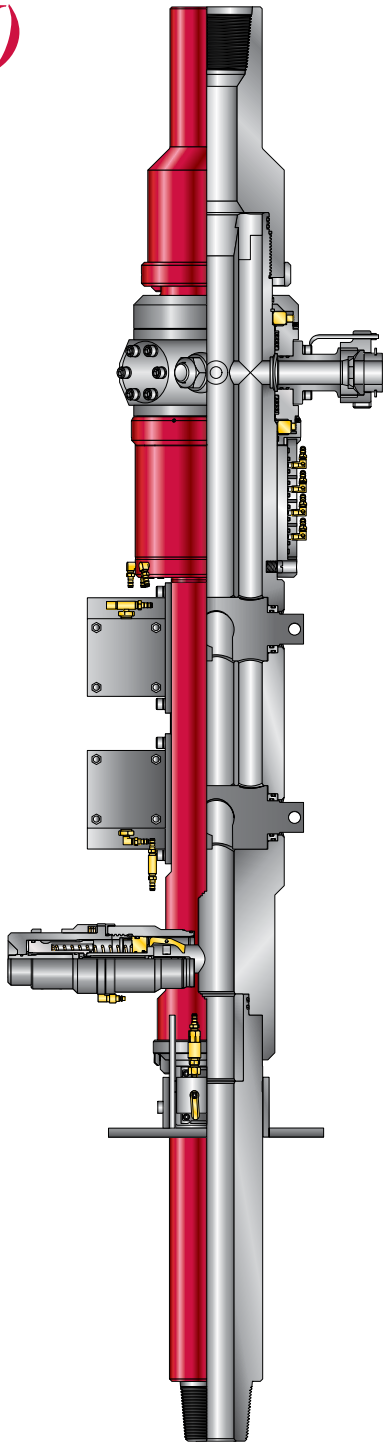
Remote-Control Top-Drive Cementing Head (RC-TDH)



Weatherford's RC-TDH is a remotely controlled, top-drive cementing head designed to allow the release of setting balls and drillpipe darts without breaking connections. The RC-TDH was designed specifically for use with a top-drive system and improves on the design of the Weatherford top-drive cementing head (TDH).

The RC-TDH is pre-loaded with the setting ball, drillpipe dart(s), or full-length wiper plug(s) and can be racked in the derrick for easy access. The well can be circulated through the RC-TDH via a top drive or cement unit with the dart(s) and setting ball loaded. When circulating through the side bore and/or bypassing dart(s), the maximum pump rate is 15 bbl/min. When pumping through the main bore, after plugs have been released and bypass valves are closed, the maximum allowable rate is 30 bbl/min. The ball and dart(s) are released by switches clearly marked on the remote-control panel, eliminating the need for physical manipulation of the cementing head.

Applications

- Running any liner, with or without a top drive
- Launching darts and balls related to Sub-Surface Release™ cementing plugs

Features, Advantages and Benefits

- The RC-TDH is powered by rig air. Remote-control release of ball and darts from a console on the rig floor eliminates the need for personnel in a riding belt to operate the cementing head when it is placed above the drill-floor level. This capability significantly reduces the risk to personal safety.
- High tensile, torque, and pressure ratings enable the RC-TDH to withstand conditions that other heads cannot.

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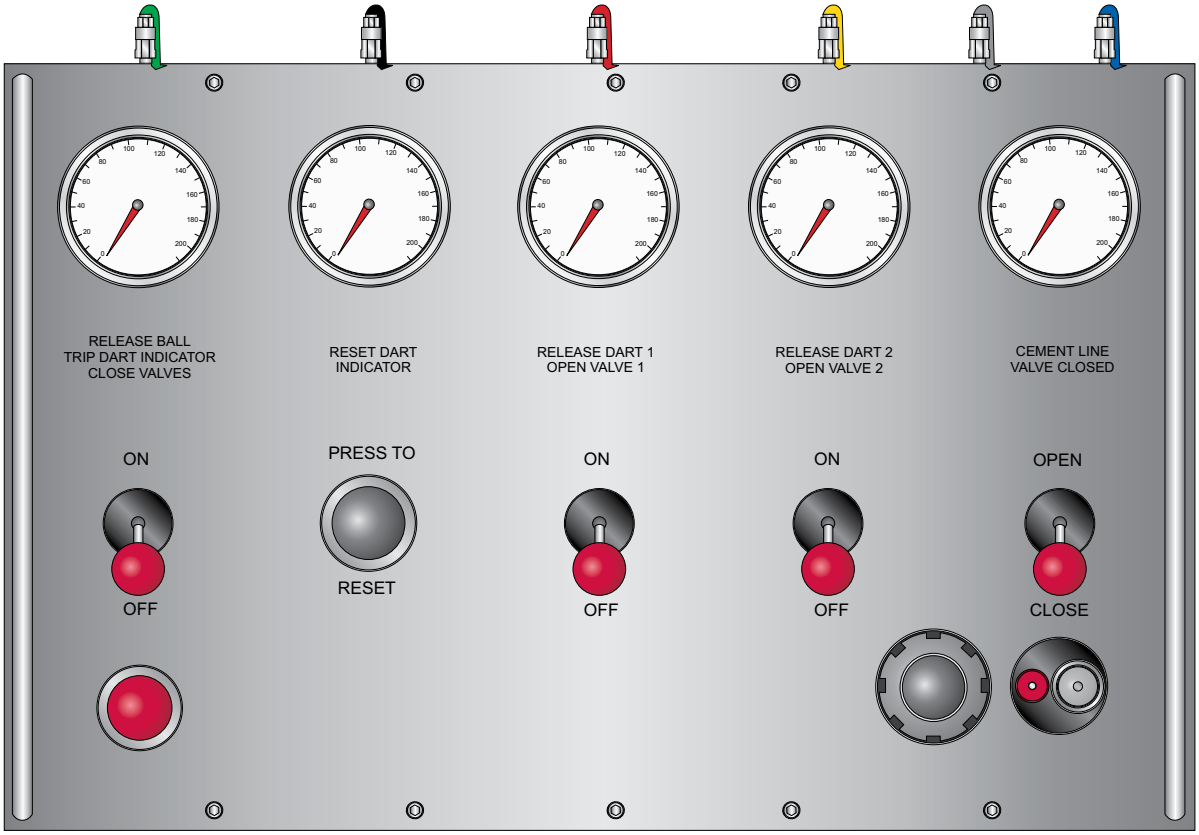
Features, Advantages and Benefits *(continued)*

- The RC-TDH allows circulation through the top drive and/or through the cement line, even when fully loaded. This advantage simplifies operations and saves rig time when the cementing head is being used.
- The RC-TDH permits release of ball and darts while rotating and reciprocating the drillstring and eliminates the need to break any connections when dropping the setting ball or releasing the darts, saving time and enhancing the efficiency of the cement job.
- Dual dart-release valves are designed with locks to prevent accidental release.
- The integral swivel facilitates rotation of the drillstring while cementing, resulting in a better cement bond.



Remote-control panel for the RC-TDH cementing head.

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Specifications

Part number	01213985	
Connections (in.)	6-5/8 API full hole box × pin	
Maximum torque (lbf-ft/*N•m*)	80,000 *108,466*	
Minimum operating temperature (°F/°*C*)	–4° *–20°*	
Main bore ID (in./*mm*)	2.961 *75.209*	
Bypass channel ID (in./*mm*)	1.938 *49.225*	
Dropping ball size OD (in./*mm*)	1.250 to 2.250 *31.750* to *57.150*	
First dart chamber length (in./*mm*)	25 *635*	
Second dart chamber length (in./*mm*)	40 *1,016*	
Design Capacity	**At 2.25 Safety Factor**	**At 1.5 Safety Factor[a]**
Maximum rotating speed (rpm)	40	20
Design load[b] (lb/*tonne*)	1,070,000 *485*	1,675,000 *759*
Working pressure (psi/*MPa*)	7,500 *51.7*	5,000 *34.4*
Tension only (lb/*tonne*)	1,210,000 *549*	1,815,000 *823*
Pressure only (psi/*MPa*)	10,000 *68.9*	
Maximum pump rates (bbl/min)	15[c]	
	30[d]	

[a] DNV certificate is not applicable for ratings at 1.5 safety factor.
[b] Design load reduced by dynamic load is equal to safe working load.
[c] Through side bore or with bypass open.
[d] Through top drive with bypass closed.

Maximum pump rates apply to cement head only. Other system limitations may require rate reduction, such as formation strength and pore pressure, or equipment, such as liner top packers, wiper plugs, landing collars, float equipment, etc., and must be assessed for each operation before pumping begins. Contact an authorized Weatherford representative for details.

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