Commander™ 500 Top-Drive Cementing Head with Wireless Remote

The Commander™ 500 top-drive cementing head with wireless remote control allows for continuous pumping during the launch of balls or darts for uninterrupted fluid flow, helping protect the formation from surge pressures caused when circulation is re-established. Additionally, this top-drive head enables on-going rotation and reciprocation of casing during cementing operations to help facilitate full coverage. This top-drive or rotary-rig cement head can be manually or wirelessly-remote actuated to release the operating darts or drop balls via the ball-drop port. Halliburton's Commander 500 head has integral features in support of cementing and liner operations for moderately demanding jobs, both land and offshore.

**Features**
- Modular multi-chamber configuration allows the head to be configured for well-specific operational requirements with additional chambers as required.
- Modular sections joined with full torque/tensile connectors so the number of chambers can be increased or decreased.
- Integral swivel design reduces the overall assembly length.
- One 2-in. 1502 circulation swivel port.
- Allows loading of drill pipe wiper through swivel (disassembly of head is not required).
- Removable side entry port (3.06-in. ID) allows multiple insertions of activating balls up to 3.0-in. (Pin ID of 3.06-in. is the actual restriction).
- All seals for the valve inserts, plug indicator flipper and ball drop port are accessible for routine maintenance without disassembly of the chambers.
- Remote operation capability to operate self-contained actuators.
- The signal from the remote controller is secured by the encoded radio transmission.
- All wireless remote control operation is recorded and can be downloaded for post job analysis.
- Wireless remote actuators operated by fillable and replaceable nitrogen cylinders.

- Logic sequence programmed into the wireless controller ensures that darts cannot be dropped out of sequence and allows for automatic valve sequencing for flushing the head after the job is complete.
- Remote controller can operate two 10,000 psi 4.0-in ID Kelly valves.
- Dart loading tools help ensure the safe and accurate loading of rubber and foam dart types.

**Benefits**
- DNV Type and Product certification.
- Baskets are DNV certified.
- Integral swivel assembly
- Ability to load plugs in the field and in the basket without breaking the tool apart to install the plugs.
- Drop plugs while flowing.
- Designed to allow minor maintenance in the field for improved reliability.
- Wireless remote control capability removes the need for man riding.
Technical Specifications
- Combined 1,000,000 lb (500 ton) load rating
- 5 ½-in. API full hole box and pin connections
- 10,000 psi (68.95 MPa) working pressure
- 45,000 ft-lbf torque
- 4.00-in. main bore (plug chamber inner diameter)
- 13 ¾-in. (349.2 mm) outer diameter (OD)
- 2.0-in. bypass bore
- Manual or remotely-operated ball drop
- Rated to 20 bbl/min through the main bore and 8 bpm through the bypass bore
- Overall length for the two chamber assembly is 178.18-in.
- Swivel rated to 30 rpm
- Wireless Remote Control is Class 1, Zone 1 Atex or NEC certified and has 150-ft range

Commander™ 500 Wireless Top-Drive Cementing Head Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Part No.</td>
<td>102152482</td>
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<tr>
<td>Maximum hookload</td>
<td>1 million lb (500 ton)</td>
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<tr>
<td>Maximum working pressure</td>
<td>10,000 psi</td>
</tr>
<tr>
<td>Rated torque</td>
<td>45,000 ft-lbf</td>
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<tr>
<td>Complete tool weight</td>
<td>4,107 lb (1862 kg)</td>
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<tr>
<td>Connections</td>
<td>5 1/2-in. API full hole box and pin</td>
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<tr>
<td>Maximum pump rates</td>
<td>Integral swivel 8 bbl/min, top-drive 20 bbl/min</td>
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<tr>
<td>Swivel</td>
<td>30 rpm</td>
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<tr>
<td>Wireless remote</td>
<td>Class 1, Zone 1 Atex or NEC with 150-ft range</td>
</tr>
<tr>
<td>Tool Length</td>
<td>182.63 in.</td>
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</tbody>
</table>

For more information on the Commander™ 500 Cementing Head, please call your local Halliburton representative or email us at cementing@halliburton.com.