



Wireless Controlled Cement Head

Safe and efficient well cementing

Designed to the highest standards of safety, consistency and reliability, Archer's Wireless Controlled Cement Head (WCCH) allows the controlled release of setting balls and drillpipe darts without the need to stop circulation, rotation, or break connections.

Controlled entirely from the rig floor, the WCCH has been specifically designed for use with top drive cementing systems. The WCCH can be shipped pressurized or de-pressurized either with breathing air or nitrogen according to customer requirements. Casing cementing, expandable screen deployment, perforating and squeezing, and cement injection operations are completed without the need for manriding above drill floor.

The WCCH is pre-loaded with the drillpipe dart(s) or setting ball(s) and can be stored in the derrick. No redress is required between operations. Utilizing hydraulically controlled valve actuators, the WCCH is able to drop balls and/or drillpipe darts while circulating and/or rotating, saving valuable rig time. Upon completion of the operation, controlled flushing eliminates all cement residues.

The smooth outside diameter eliminates externally mounted manifolds and valves while the unique activating sequence prevents incorrect opening. No welding on the head ensures that components will not fail due to metal fatigue or incomplete weld

penetration.

The WCCH has a 1500 klbs load capacity and delivers 50 kft/lbs of torque, exceeding the capacity of most drill pipe and casing connections, whilst its maximum operating pressure of 10 k psi meets the demands of longer, deeper completions.

Supplied with offshore support kit including

- Three-phase 16A/400 V compressor for refill of breathing air; or an air-driven Nitrogen booster for refill of nitrogen.
- High pressure quick connector with gauge and bleed of valve
- 24 V charger for internal battery pack
- Remote control unit with 4.8 V charger
- Equipment for reloading of darts

Remote control includes indicators for

- Tank pressure
- Working pressure
- Battery status cement unit
- Battery status handheld unit
- Radio link
- Valve status

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Specifications

| Tool system | 2 Valve | 3 Valve |
|--|---------------------|----------------------------|
| Nominal OD, in [mm] | 13 [330] | 13 [330] |
| Minimal OD, in [mm] | 4 [102] | 4 [102] |
| OAL, in [mm] | 98.74 [2508] | 130.61 [3,317] |
| Rated torque, ft lbs [N.m] | 50,000 [67,791] | 50,000 [67,791] |
| Max. Hook load, lbs [kg] | 1,594,000 [723,026] | 1,594,000 [723,026] |
| Max. Hook load at rated torque, lbs [kg] | 1,496,000 [678,574] | 1,496,000 [678,574] |
| Working pressure, psi [bar] | 10,000 [689] | 10,000 [689] |
| Test pressure, psi [bar] | 15,000 [1,034] | 15,000 [1,034] |
| Chamber sizes, in [mm] | 15 [381] 25 [635] | 15 [381] 24 [610] 25 [635] |
| Make-up torque, ft lbs [N.m] | Upper connection | 50,000 [67,791] |
| | Lower connection | 50,000 [67,791] |

Technical Specifications

| | |
|--|--------------------------------|
| Operating temperature, °C [°F] | 20 - 50 [68 - 122] |
| Radio frequency, Mhz | 434,375 - 434,400 |
| Digital communication distance, m [ft] | 50 [164] |
| Battery type | 24 V NiCD / 4.8 V NiMH |
| Battery standby time | 3 weeks |
| Actuator drive medium | Breathing air or nitrogen |
| Medium vessels | 3 x 2.9 ltr 300 bars composite |
| Complete cycles on one gas filling | 10 (3 valve and flag) |

Applications

- Casing and liner cementing
- Expandable screen deployment
- Perforating and squeezing cement
- Cement injection

Features

- Wireless control through digital radio communication
- Injection control  flameproof certified
- Remote control  intrinsically safe certified
- Self-contained compressed non-flammable gas power source
- No separate cement hose connected to the head
- No tugger lines to arrest rotation of the head
- No control umbilical to the head
- 10 kpsi maximum operating pressure
- 1500 klbs load capacity and 50 kft/lbs torque
- Large 4 in internal diameter

Benefits

- No personnel in the red zone
- No man riding
- Controlled flushing eliminates any cement residues in all areas
- Multiple operations can be completed without the need for redress
- High pump rate during washing and clean-up
- No externally mounted valves and manifolds
- Large plug holder I.D. minimizes plug wadding
- Can be stored safely in the derrick

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