

## Open hole

## RISK MITIGATION

# Powered capstan

The industry's highest-capacity capstan

## FEATURES

- Three main components
  - Torque unit
  - Hydraulic power pack
  - Electronic panel
- Can be derrick mounted or operated from the deck
- Built-in safety features protect both crew and equipment

## BENEFITS

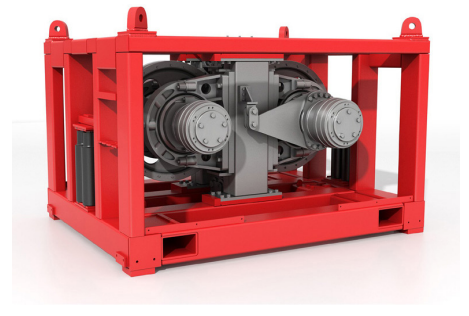
- Reduce spooling tension to help alleviate cable crush
- Reduce drum loading to help prevent drum failures
- Can be operated going into and out of the well to maintain wireline spooling profile
- Torque unit can replace top sheave when rigged up in derrick, and reduces load on rig-up equipment
- Provides additional line pull to assist hoist unit

## Overview

The Halliburton Powered Capstan is a traction winch that provides additional lifting force on the wireline. It works in sync with the main winch to augment lifting capacity, stabilize cable tension, and reduce cable crush. The Powered Capstan is ideal for downhole logging in high-tension wells and/or deviated wells, reducing the tension on the wireline winch by up to 18,000 lb. It can also increase the tension on the winch drum while there is low wireline tension. Thus, it can keep constant tension on the winch drum (within certain limits) with varying wireline tension.

Comprised of three main components, the Powered Capstan includes a torque unit, hydraulic power pack, and an electronic control panel. The torque unit can be located in a hazardous area because it has no electrical parts. The power pack is designed to operate in UL Class 1 Division 2 or ATEX Zone 2 areas, and the electronic control panel has to be located in a safe area (usually the winch/hoist unit).

The torque unit can be hung in the derrick from the blocks or sit on the deck, making it operationally versatile. When logging deviated wells, the wireline cable tension can be very low when running into the well. When the wireline is spooled back on the drum, it will be at a relatively high tension. Ideally, wireline cable should be spooled back onto the drum within a 5:1 tension ratio, i.e., if the cable spools off at 1,000-lb tension, it should not be spooled back on above 5,000-lb tension. This keeps consistent torque levels on the cable armour and prevents the armour from bird caging, and the conductors from crushing. The Powered Capstan can keep the same constant tension on the winch drum both going into the well and when coming back out, thereby improving reliability of the wireline cable and extending its life.

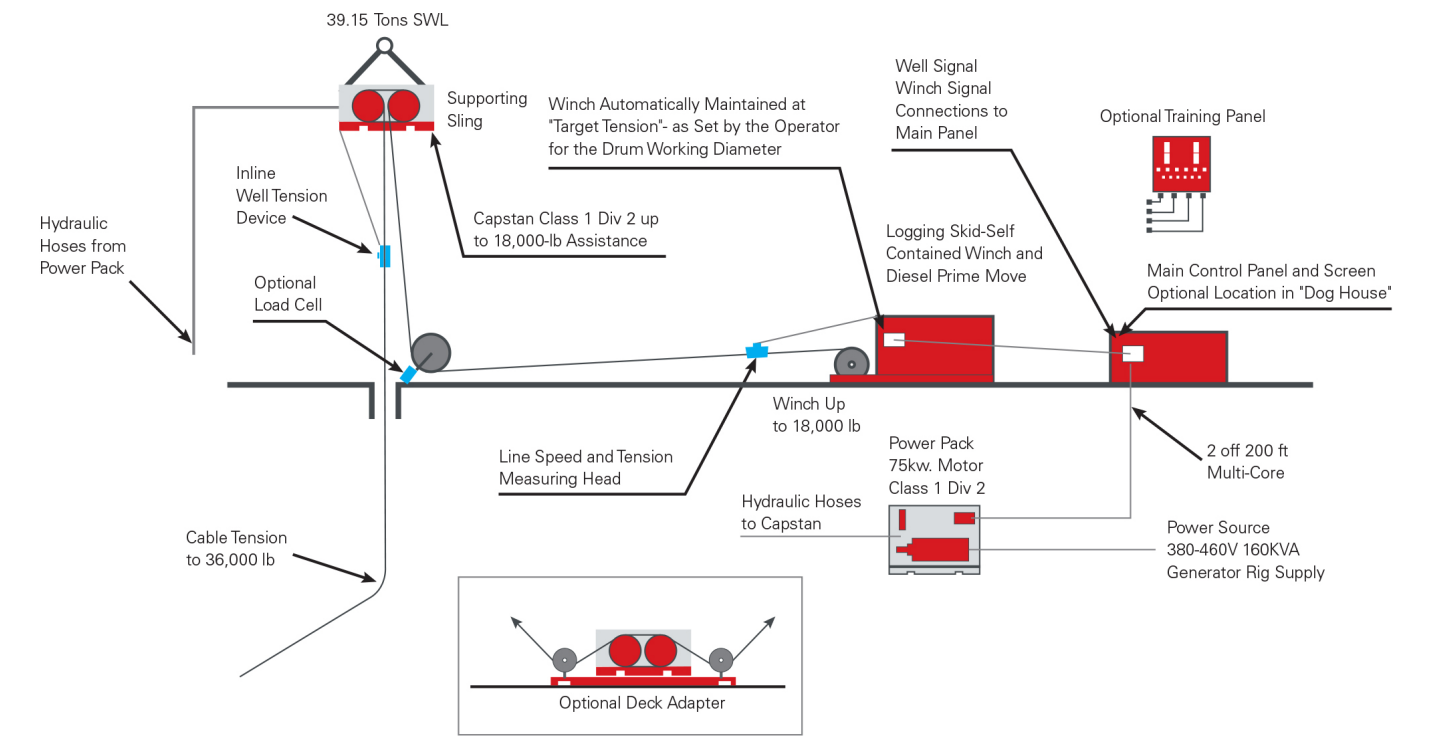


The Halliburton Powered Capstan is built to handle 18,000 lb of tension for use in ultradeep wells.

The hydraulic power pack has a 100HP (75kW) electric motor as the prime mover that is coupled to a variable displacement hydraulic pump. There is an explosion-proof motor starter that also houses other control equipment, such as intrinsically safe barriers for hydraulic oil pressures, and level and temperature sensors.

The electronic control panel controls the hydraulic power pack and torque unit. It is to be operated in a safe area and can be installed inside the logging unit or in a remote location, such as a workshop. If it is installed remotely, then a small control panel is installed inside the logging unit so the system can be fully controlled by the logging crew.

DESCRIPTION	SPECIFICATION	
Cable Speed-Max Line Speed in Full Displacement	213 ft/min	65 m/min
Cable Speed-Max Line Speed in Half Displacement	426 ft/min	130 m/min
Maximum Assist in Full Displacement	18,000 lb	8181 kg
Maximum Assist in Half Displacement	9000 lb	4090 kg



Powered Capstan in its operational configuration – derrick and on deck.

For more information, contact your local Halliburton representative or visit us on the web at [www.halliburton.com](http://www.halliburton.com)

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