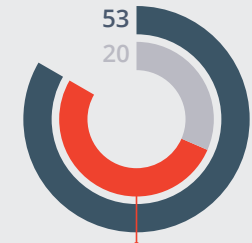


# 33 HOURS OF RIG TIME SAVED

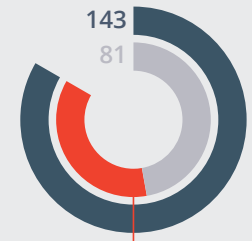
Downhole Power Tool (DHPT) safely removes 230m of casing



Industry Standard  
Ardyne Operation  
Customer Savings



**33**  
HOURS SAVED



**62**  
CONNECTIONS AVOIDED



**740,000**  
LBS OF ADDITIONAL FORCE



## DOWN HOLE POWER TOOL

The Down Hole Power Tool (DHPT) retrieves casing/fish in applications where the drilling rig or work string does not have sufficient capacity and can be used as a replacement for surface casing jacking systems.

### THE OPERATION

A UK customer planned a slot recovery operation, involving the removal of a 230m section of 9-5/8" casing, across the 13-3/8" shoe. The customer needed to pull this section of casing to avoid milling casing at 65 degrees inclination.

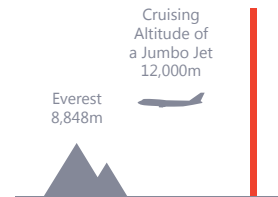
An attempt to pull the section with a conventional 9-5/8" casing spear failed, despite the rig applying its maximum pulling capacity of 440,000lb force.



**515**  
RUNS OF DHPT

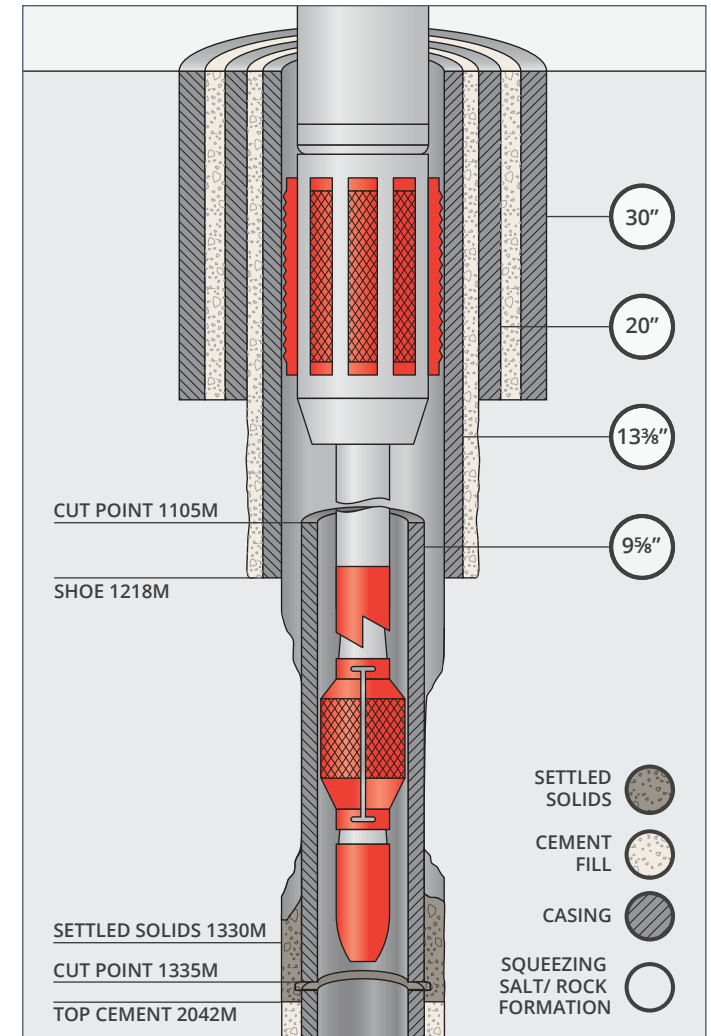


**217**  
PULLS WITH DHPT



**25,561m**  
PULLED WITH DHPT

### HOW IT WORKS



## THE CHALLENGE

### Why did the conventional spear fail?

- The depth of the section meant the maximum pulling force from the rig at the cut point was only 300,000 lbs, due to drag
- 117m of the 230m section of casing to be removed was in open hole
- The open hole section was in a salt formation, presenting a risk of squeezing salt
- Settled barite solids around the base of the section applied friction to the casing, increasing the pulling force needed
- The section was inclined 65 degrees

## THE SOLUTION

Because of the known difficulties, the customer ran the Downhole Power Tool (DHPT) as a contingency, along with the conventional spear in the original bottom hole assembly.

This approach did not interfere with the planned cut and pull operation, but having the DHPT available for contingency use in the BHA when the customer ran into problems saved an 8 hour trip when the DHPT was needed.

The DHPT was anchored in the 13-3/8" casing just above the cut point, and spear anchored into the 9-5/8" casing just below the cut point.

Each jack applied 1,040,000lb force directly to the 9-5/8" casing being pulled. The tool was jacked 18 times and pulled the casing free.

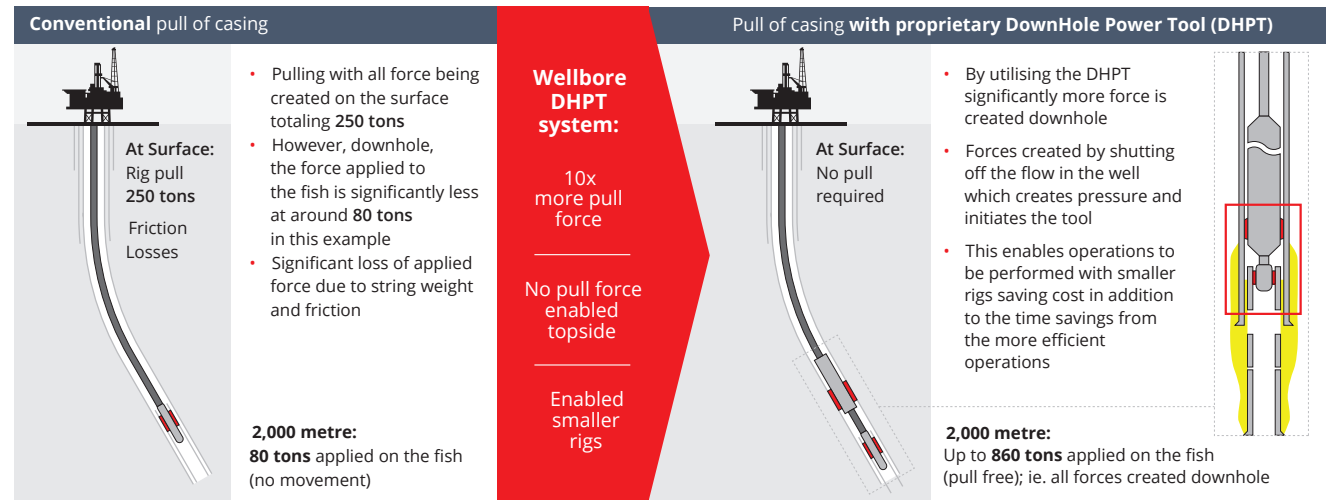
## TOOL DESCRIPTION & OPERATION

The Down Hole Power Tool (DHPT) retrieves casing/fish in applications where the drilling rig or work string does not have sufficient capacity and can be used as a replacement for surface casing jacking systems.

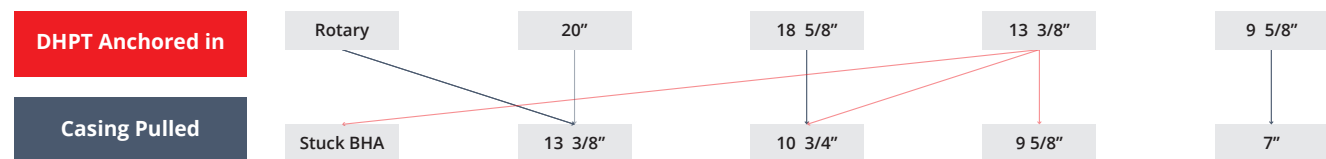
After the casing has been located and engaged, hydraulically-set mechanically releasable slips anchor the DHPT to the wall of the larger ID casing above.

Pressure is applied to begin the upward movement of the fish, with the DHPT downhole multi-stage hydraulic actuator functioning as a hydraulic jack.

After the stroke is completed, the anchors are released. The power section can be reset and the anchor re-engaged as many time as required.



## FLEXIBLE CONFIGURATION



(RUN HISTORY)

## ABOUT ARDYNE

Ardyne develops and supplies specialised technology and services to the global energy industry, focusing on reducing rig time spent on downhole casing removal in Slot Recovery/Re-Entry and Plug & Abandonment operations. Technology advancement lies at the core of Ardyne, combined with decades of operational experience and responsive, client-focused delivery.

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