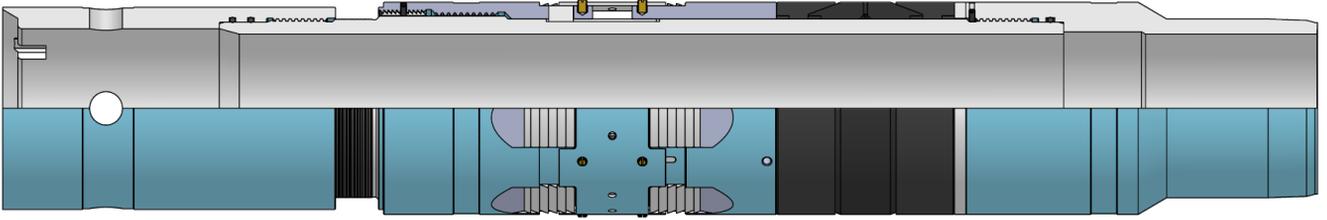


Hydraulic Retrievable Hanger (High Pressure)



Oil and gas wells often have several casing strings installed in the wellbore. Some casing strings extend from the bottom depth to the surface, while other casing strings may only line the lower portion of the wellbore. A typical example of this situation would be an intermediate casing string cemented in place to surface. The production casing would then extend from the bottom of the cemented intermediate casing to the bottom depth of the drilled wellbore. This production casing would be set or hung near the bottom of the intermediate casing using a casing hanger. This eliminates the need to run production casing to surface through an area of the well that is already cased. This can reduce the cost of completing a well.

Depending on the well type, casing hangers can vary in design. In vertical wells where the production casing is hung off the bottom portion of the intermediate casing, the hanger will incorporate directional slips. These slips will hold the production casing from slipping and moving down the wellbore. The location of wellbore pressures pertaining to the hanger will determine the type of slips required. Directional slips may be required to prevent upward or downward movements of the production casing in the wellbore. In some thermal wells, the production casing may be required to have no movements in both directions, while other thermal applications require freedom of movement, using no slip assemblies.

These casing hangers are equipped with an element or seal, which is activated when setting the hanger. If the hanger is equipped with slips, both the seal elements and the slips are set simultaneously. The setting movements of the components within the casing hangers are either mechanically or hydraulically controlled. Depending on the style of the hanger used, a 1 ball drop, or 2 ball drop system can be used to function the hanger. A 1 ball system sets the elements and releases the hanger using the same hydraulic movement. A 2-ball system sets the elements and releases the hanger in 2 independent hydraulic movements. The seal elements of the hangers are made of an elastomer material and are designed for either cold or thermal environments. Custom designed features of the elements allow for higher pressure sealing than conventional elements.

The Hydraulic Retrievable Hanger-High Pressure (HRH-HP) is set, hung, and released hydraulically. Depending on the pressure required to set the seals on the HRH-HP, will determine which ball system will be used. Due to the high pressures required to set the elements, the Hydraulic Running Tool (HRT) attached to the HRH-HP is different than the HRTs used on low pressure hangers. The unique design of the HRH-HP hydraulic functions, still operate using rig pumps. It is retrieved from the wellbore using the Mechanical Obtain Tool (MOT). Prior to attaching to the hanger, a mill assembly (part of the MOT) will mill off the ratchet ring to release the elements and slips. Once released, the MOT will then attach to the HRH-HP and remove it from the wellbore. The design of the slips on the HRH-HP will not allow them to fall off the tool or drag when obtaining the tool to surface. The design of the HRH-HP places the seal element below the slips, which eliminate slip resetting during removal. The HRH-HP has 2 tie back systems which can either re-attach to the OD or the ID of the existing HRH-HP.

APPLICATIONS:

- Vertical and horizontal wells.
- Cold or Hot temperature wells.
- High pressure wells.
- Multi directional anchor requirements.

FEATURES:

- Hardened and non-corrosive finish to the slip & ratchet components, and mandrel.
- Ratchet ring assembly provides a positive memory to the slips and seals.
- Seal Elements contain steel mesh that provide high pressure seal.
- Can be hydraulically set and mechanically removed.
- Tie Back capabilities.

BENEFITS:

- Can be set using rig pumps. No high-pressure Pumps are required to function the HRH.
- Ease of deployment and retrieval of the HRH
- The slip assemblies reduce the risk of stuck hangers and fishing jobs.
- Highest temperature and pressure ratings on thermal seal elements.



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