

RapTr-X Asymmetric Whipstock System

Reliable Performance, Seamless Integration



Odfjell Technology presents the next-generation Asymmetric Whipstock System, featuring a uniquely engineered concave. Built on over 40 years of expertise, it's designed to meet the evolving challenges of today's slot recovery operations.

FEATURES

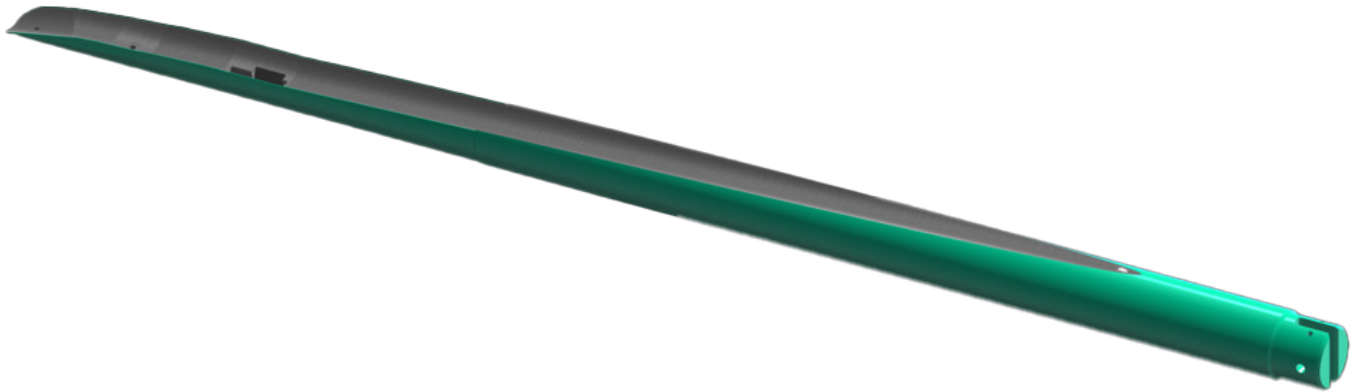
- Guide the mill in the centre of the whipstock concave face.
- Eliminate thinning or excessive wear of the right-hand edge.
- Maintains well trajectory by significantly reducing the right-hand walk while exiting the window.

We offer the following systems:

- RapTr-X for standard cased hole sidetracks
- RapTr-XL for extended-length window cased hole sidetracks

RapTr-X Asymmetric Whipstock Concave

Reliable Performance, Seamless Integration



The whipstock assembly features a concave integrated with a hinge pin, and option for an hinge connector with API connection, and a configuration of pipes and hoses to enable hydraulic communication with the packer or anchoring mechanism, as required.

The patented asymmetric concave is intentionally offset from the tool's centreline to reduce mill walk during window milling operations.

This concave design interfaces directly with the milling assembly via a shear bolt positioned on the cut-out ramp, which is built into the whipstock face. This configuration provides secure support to the milling assembly throughout the cut-out phase.

FEATURES

- The whipstock assembly is fully retrievable, with the preferred method of recovery utilising a hook slot in conjunction with a dedicated hook retrieval tool.
- A die collar is provided as a secondary means of recovery. The hook slot is specifically designed to allow the jar to be re-cocked during retrieval operations when using the hook tool.
- In the event that the packer fails to release during the recovery operation, the hinge pin is designed to shear at a predetermined load, allowing for controlled disengagement.

RapTr-X Retrievable Packer

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A hydraulically retrievable packer designed for use as either a temporary or permanent barrier. It allows for the application of maximum loads, torque, and tension throughout the setting, milling, and retrieval processes.

The packer's pressure retention capability is influenced by factors including casing grade, setting pressure, pressure direction (above or below the packer), and environmental conditions following window milling.

An ideal anchoring solution for multilateral well applications.

FEATURES

- HYCAR element and Nitrile seals
- The element, due to the rubber volume is suitable for H₂S service combined with Viton seals
- Copper cup seal provide an interference seal. Preventing rubber element from creeping
- Provided with an integrated hinge for direct connection to whipstock concave

RapTr-X Permanent Packer

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The hydraulic permanent packer is linked to the whipstock concave via a hinge connector with an API connection. Designed to function as a permanent barrier, the packer enables the application of maximum loads, torque, and tension during both the setting and milling operations.

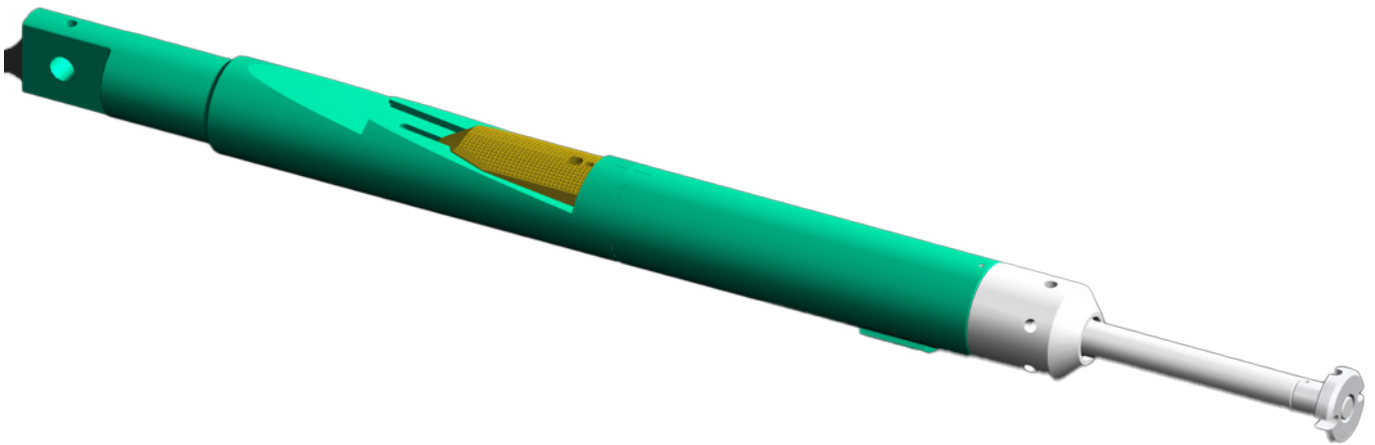
The packer's pressure retention is influenced by several factors, including casing grade, setting pressure, the direction of pressure (above or below the packer), and environmental conditions following window milling.

FEATURES

- Designed to maximize the amount of hydraulic force directly on to the seal and retaining slips
- Ratchet system locks slips and seal in position
- Copper cup seal provide an interference seal. Preventing rubber element from creeping
- Low setting pressure
- Provided with an API box connection for make up to the hinge connector pin on the whipstock concave

RapTr-X Mechanical Anchor

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A robust, mechanically set retrievable anchor featuring anti-rotation slips.

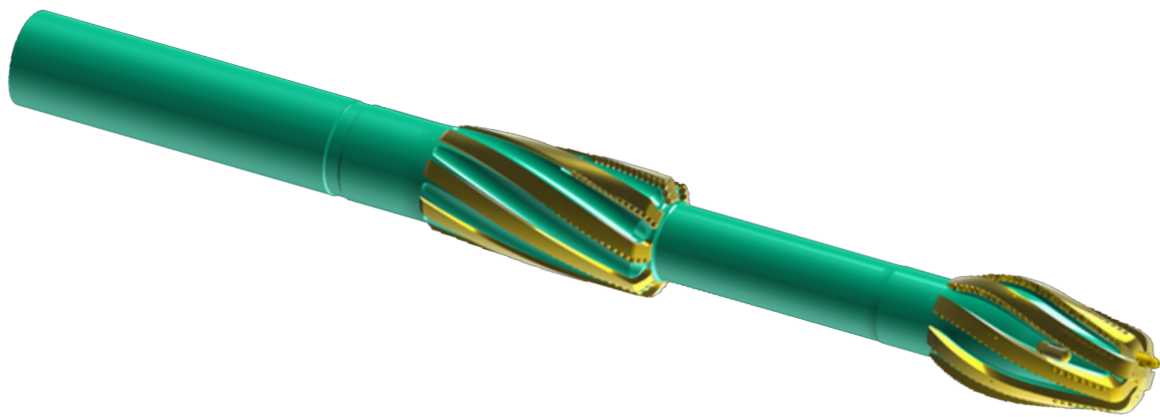
Once activated, it can be pulled uphole from the tripping depth to the designated setting depth. The anchor includes an integrated hinge for direct connection to the whipstock concave.

FEATURES

- Can be used for low side exit
- Provided with an integrated hinge for direct connection to whipstock concave

RapTr-X Dual Mill

Reliable Performance, Seamless Integration

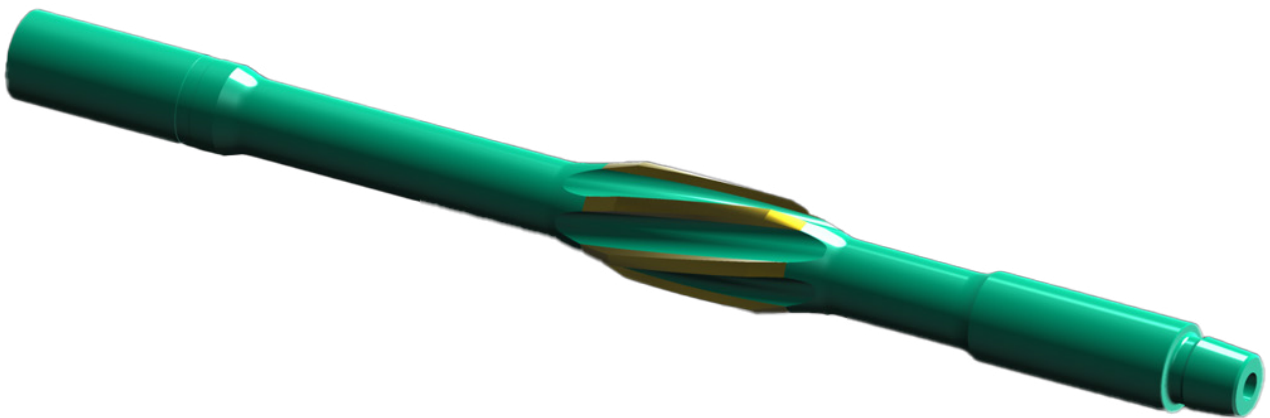


The Dual Mill assembly consists of two mills integrated into a single mandrel, each equipped with integral blades dressed with a crushed tungsten carbide matrix and tungsten carbide inserts for enhanced durability and cutting efficiency.

For 18 5/8" and 20" casing, the Dual Mill assembly consists of a Lead Mill and a Follow Mill, connected via a standard API connection.

RapTr-X Upper Mill

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The Upper Mill features integral blades dressed with a crushed tungsten carbide matrix and tungsten carbide inserts for superior cutting performance.

It is an optional component when used with the RapTr-X system.

For the RapTr-XL system, the Upper Mill made up to the Dual Mill and and forms the Tri-Mill assembly.

It can be spaced out to optimis the milling bottom hole assembly (BHA), enabling the creation of a long, single-trip window suitable for rotary steerable system (RSS) drilling assemblies.