



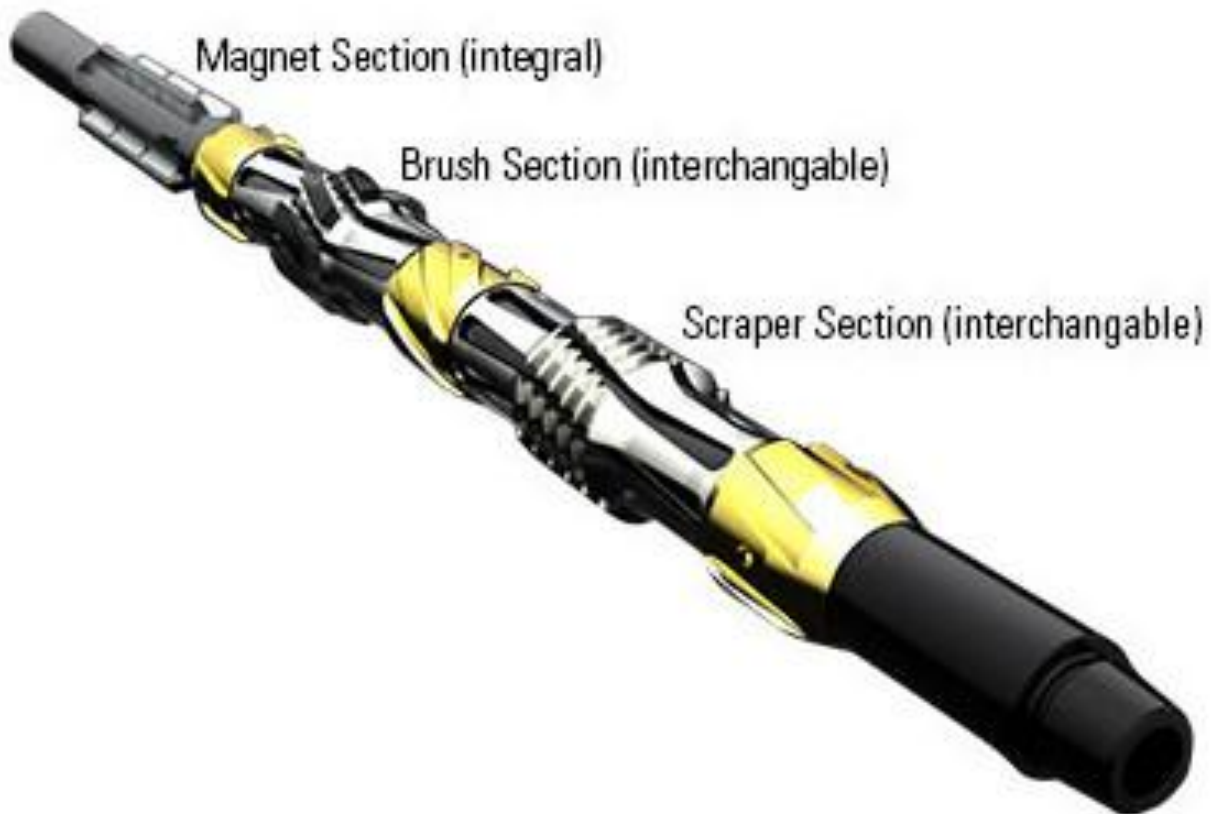
BRIGHATECH



**CASING BRUSH – CASING SCRAPER –
MAGNET COMBO TOOL**

Combo (MULTIBACK tool) Casing Clean Up Tool

The modular design of the Combo (MULTIBACK) tool allows it to be configured for specific applications or requirements. When designing the displacement system that will prepare the wellbore for the next completion phase, it is critical to complement the chemical and hydraulic cleaning with a thorough mechanical cleaning system. The Combo (MULTIBACK) tool has a versatile design with an integral magnet section to capture ferrous debris, scrapers to dislodge difficult-to-remove debris, and brushes to disturb the sheath and any other fluid build-up on the inner wall of the casing or liner. The tool can be run in the inner production riser, casing, and liner to remove a combination of scale, rust, mud film, drilling debris, ferrous debris, and pipe dope. It can be run with any combination of magnet, scraper, or brush. Additional tools also can be added to the work string to either facilitate more cleaning in a single run or to add duplicate tools for better coverage on a short trip.



Vadodara, Gujarat, INDIA

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TECH UNIT	Casing Clean Up Tool Combo
DESCRIPTION	
DATE & REV	09.02.2023 / 00

Combo (MULTIBACK tool) Casing Clean Up Tool

It merges the latest proven magnet, scraper, and brush technologies into a simplified, rugged tool that can be used on wellbore preparation trips. The component arrangement flexibility provides numerous options to customize the tool for a specific application.

BRIGHATECH Scraper is made up of mandrel, centering sleeve, upper support seat, hoop scraper, semi-annular plate, lower support seat, fixing sleeve, spline body, gland nut, lower joint as well as other components.



Structure of Scraper Part with Stabilizers (Non-Rotating)

BRIGHATECH Rare Earth magnet part is made up of upper joint, body, rectangular magnet, lower joint.



Structure of Magnet Part



Structure of Casing Brush with Stabilizers (Non-Rotating)



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Combo (MULTIBACK tool) Casing Clean Up Tool

The Combo tool is run in the well as a conventional wellbore preparation tool on the work string.

The lanterns for the scraper and brush unit are flexible, non-rotating, and provide the force to contact and clean 360° of the casing's internal diameter. Its self-centralizing design ensures equal cleaning force at all angles of inclination.

The Rare Earth magnet section comprises a mandrel with fins that allow for large flow channels between them. The Rare Earth magnets are installed on the inside faces of the fins using a method for retaining the individual magnets so that the debris is collected in the high volume channels.

The magnet section is integral in the tool while the scraper and brush sections are interchangeable.

The Combo (MULTIBACK) tool is run in the well as a conventional tool on the work string. It can be run in hole or pulled out at a maximum speed of 150 ft/min (46 m/min) and rotated up to 120 rpm. The tool has no limitations on circulation rates. The stabilizer for the scraper and brush unit are flexible, non-rotating, and provide the force to contact and clean 360° of the casing's internal diameter. It is self-centralizing inside the casing to ensure equal cleaning force at all angles of inclination. During rotation, the mandrel will rotate inside the lantern and stabilizer portions of the tool to avoid wear and damage to the casing. The scraper portion of the tool should be positioned at least 30 ft (9 m) above the drill bit/mill and placed so it does not pass through any drilled-out accessories such as landing or float collars.

The string should be regularly picked up off bottom and circulated to clear any accumulated debris.



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High Pressure Jetting Tool



High Pressure Jetting Tools

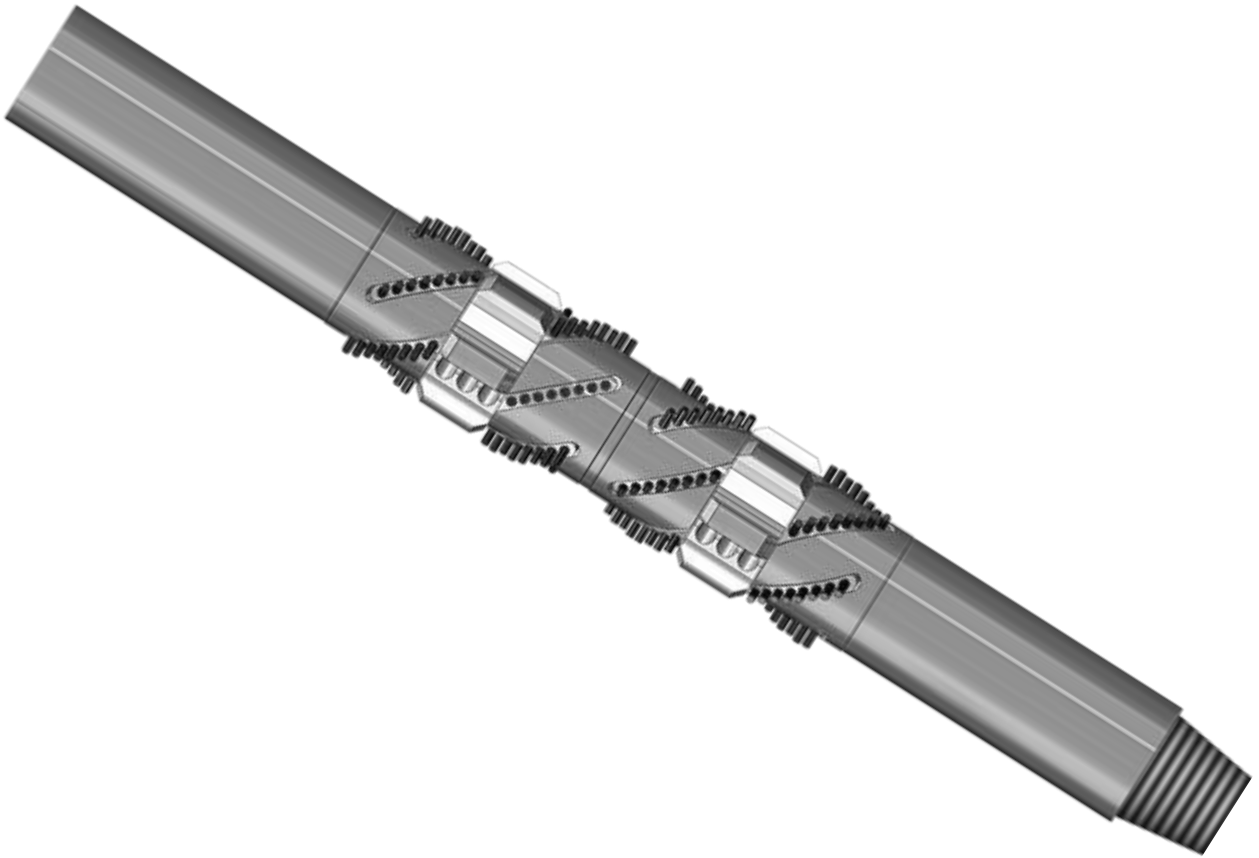
The 6" and 14" Jetting Tools are dual activation tools and they run in the well in the closed position (Ports closed).

The ports are opened to jet and clean the riser and BOP's. Upon completion of the required jetting action, the ports are closed to allow circulation of the string.



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High Pressure Casing Brush



Ultra Clean Casing Brush

The Casing Brush has the same helical design pattern as the casing scraper, but it has brush inserts in each blade, which provides double the casing ID coverage.

The stainless wire bundles are designed to prevent bristle loss, and the brushes are not clustered together which prevents clogging.



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Non-Rotating Casing Scraper



Non-Rotating Casing Scraper

A non-rotating casing scraper is a downhole tool designed to remove cement, scale, paraffin, and perforation burrs from the inner wall of casing without needing to rotate the workstring.

By remaining stationary while the drill string moves, it provides 360-degree coverage, protects the casing, and ensures efficient cleanup for well completion and workover operations.



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Downhole Filter Tool (Screen type)



Downhole Filter Screens (Stainless Steel)

Drill Pipe Mud Screens

Drilling Tools stocks rod-type, slotted-type, perforated-type retrievable and non-retrievable drill pipe mud screens manufactured from both steel and stainless steel.

These high-quality mud screens are available in both 24" and 36" lengths with additional lengths available upon request.



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Integral Lifting Sub



Integral Lifting Sub

An integral lift sub is a one-piece, high-strength alloy steel tool (commonly 90°) for secure handling. 4145M or 4140HT) used in oil and gas drilling to safely lift heavy, straight-OD components like drill collars, jars, or shock tools.

Screwed to the top of the assembly, it provides an elevator shoulder (18° or or 90°) for secure handling.

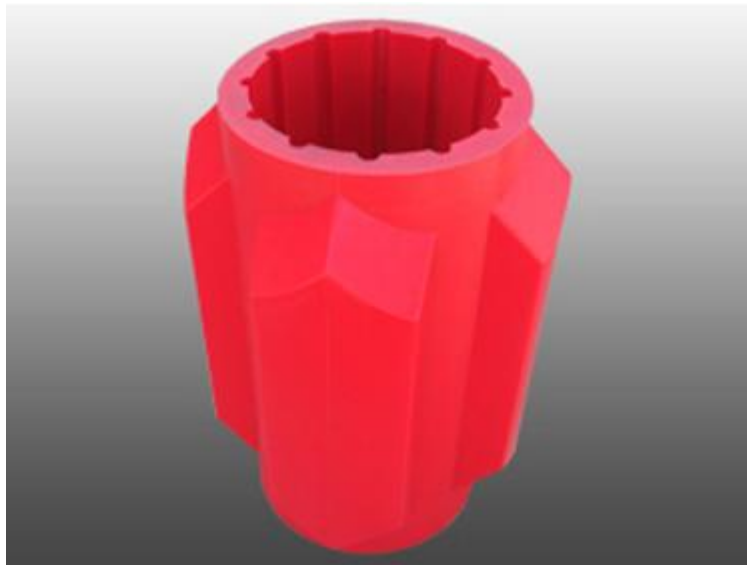


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Non-Rotating Stabilizer



Non-Rotating Stabilizer

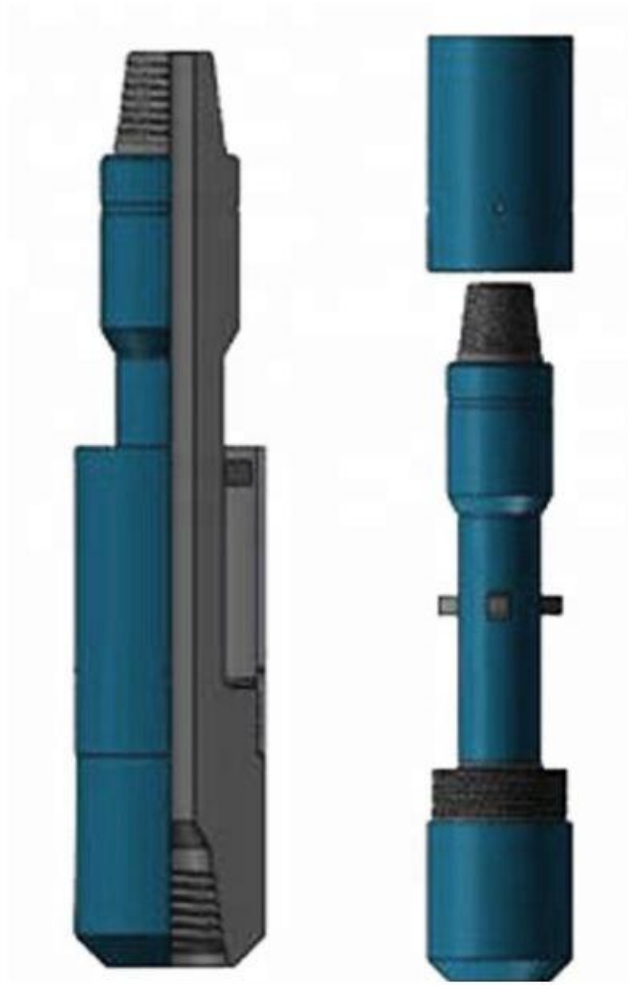
A non-rotating stabilizer is a downhole tool used in oil drilling to reduce torque, drag, and casing wear by allowing a sleeve (often made of polyurethane or rubber) to remain stationary against the borehole wall while the drill string rotates inside.

It enhances drilling efficiency, especially in deviated or horizontal wells, by protecting the tool joints and minimizing friction.



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Junk Basket (Boot type)



Boot type Junk Basket

A boot type junk basket is a downhole fishing tool run just above the bit to capture, via fluid velocity reduction, large debris and junk (e.g., carbide teeth, bearing parts) too heavy to be circulated out of the wellbore.

It is a critical, robust fishing tool used for cleaning the hole and protecting bits.

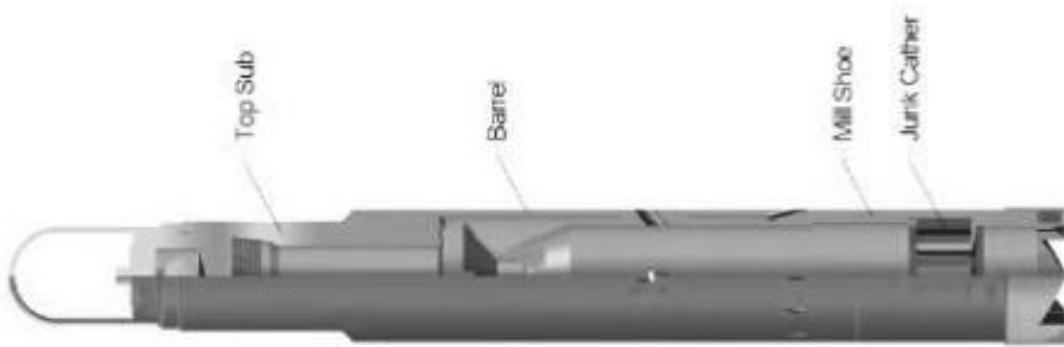


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A combination junk / jet basket (reverse circulation junk basket)



Reverse Circulation
Junk Basket



Junk Basket (Finger type with attachments)

The Reverse Flow junk Basket can recover whole, split into smaller pieces so that these pieces can be recovered or that they are too small to cause any additional issues, or finally pushed into the side of a soft formation or the bottom of a formation with a large enough rathole.

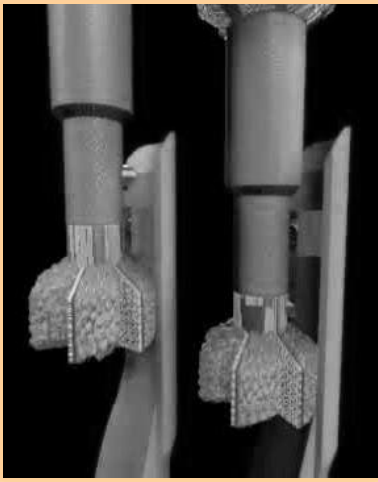
Finally, then can provide a directed high-velocity jetting action, which will force materials into the basket



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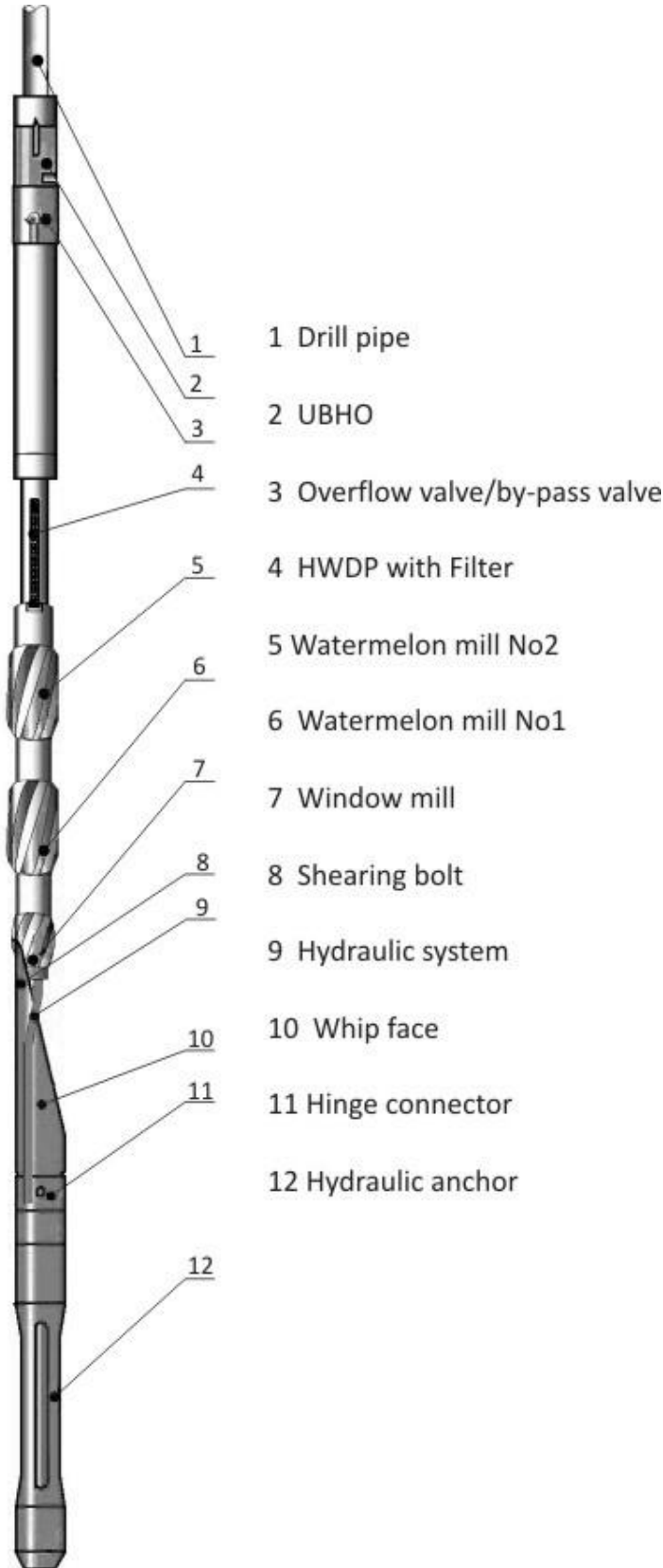
WHIPSTOCKS



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TECH UNIT	Casing Clean Up Tool Combo
DESCRIPTION	Retrievable Whipstock
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WHIPSTOCK SIDETRACKING SYSTEM DIRECTIONAL DRILLING



- 1 Drill pipe
- 2 UBHO
- 3 Overflow valve/by-pass valve
- 4 HWDP with Filter
- 5 Watermelon mill No2
- 6 Watermelon mill No1
- 7 Window mill
- 8 Shearing bolt
- 9 Hydraulic system
- 10 Whip face
- 11 Hinge connector
- 12 Hydraulic anchor

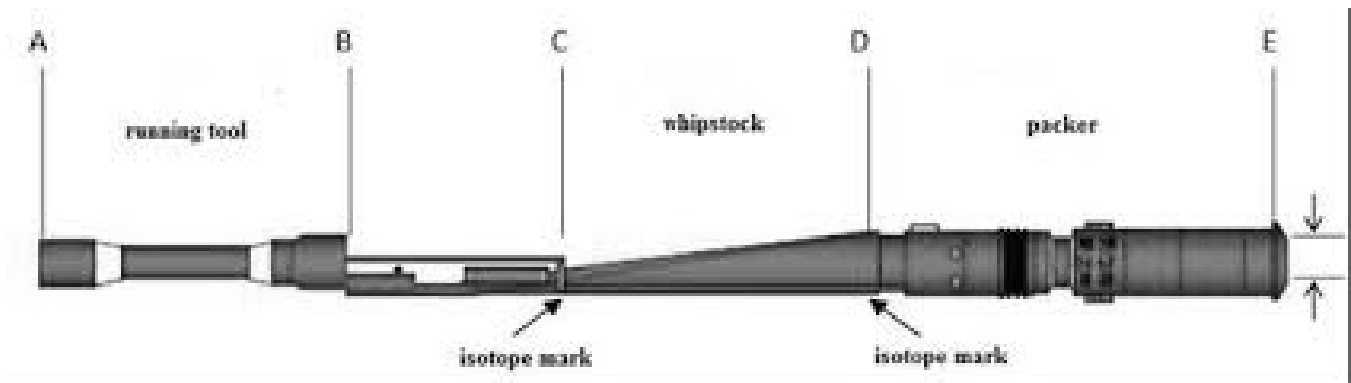


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WHIPSTOCK SIDETRACKING SYSTEM DIRECTIONAL DRILLING

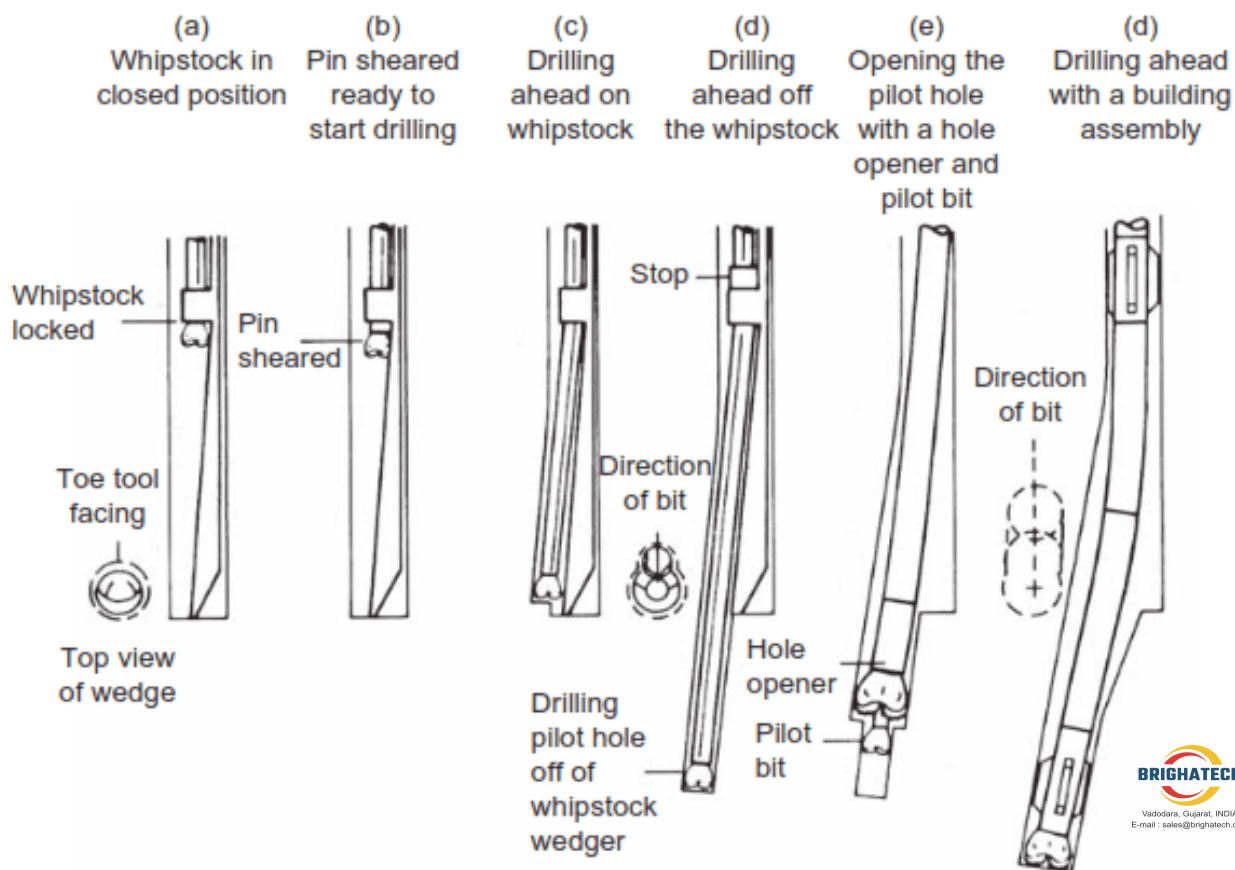
SPECIFICATIONS: SIZES & TYPES OF WHIPSTOCK

Casing Size	Hydraulic Anchor type	Hydraulic Anchor & Packer type	Hydraulic Retrievable Packer type
5-1/2"	BGT-5-1/2"	BGT-HAP-5-1/2"	BGT-HRP-1SP
5-3/4"	BGT-5-3/4"	BGT-HAP-5-3/4"	BGT-HRP-2SP
6-5/8"	BGT-6-5/8"	BGT-HAP-6-5/8"	BGT-HRP-3SP
7.00"	BGT-7.00"	BGT-HAP-7.00"	BGT-HRP-4SP
7-3/8"	HABGT-7-3/8"	BGT-HAP-7-3/8"	BGT-HRP-4SP
8-5/8"	BGT-8-5/8"	BGT-HAP-8-5/8"	BGT-HRP-6SP
9-5/8"	BGT-9-5/8"	BGT-HAP-9-5/8"	BGT-HRP-7SP
10-3/4"	BGT-10-3/4"	BGT-HAP-10-3/4"	BGT-HRP-8SP
12-3/4"	BGT-12-3/4"	BGT-HAP-12-3/4"	BGT-HRP-9SP
13-3/8"	BGT-13-3/8"	BGT-HAP-13-3/8"	BGT-HRP-10SP



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Field Operation: Retrievable whipstock & Permanent whipstock.



Permanent Whipstock:

- The permanent whipstock is run in the hole on the bottom of the drill string being attached with a shear pin. Usually, about 30 feet of tail pipe is run below the whipstock to act as an anchor.
- The assembly is run in the hole and landed near bottom.
- The whipstock is then oriented using conventional methods.
- The assembly is landed on bottom and cemented in place.

Retrievable Whipstock:

- The retrievable whipstock is run in the hole nearly to bottom. The orientation of the whipstock is checked with a single-shot, and the face of the whipstock is oriented in the direction desired.
- The tool is then set on bottom. Depending upon the type of retrievable whipstock, it may be necessary to drop a ball down the drill string in order to divert flow from the bottom of the whipstock to the drilling bit.



TECH UNIT	Casing Clean Up Tool Combo
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Field Operation: Retrievable whipstock & Permanent whipstock.

The retrievable whipstock is run in the hole nearly to bottom.

The orientation of the whipstock is checked with a single-shot, and the face of the whipstock is oriented in the direction desired.

The tool is then set on bottom. Depending upon the type of retrievable whipstock, it may be necessary to drop a ball down the drill string in order to divert flow from the bottom of the whipstock to the drilling bit.

Weight is applied to the assembly, and the pin that holds the whipstock in place is sheared allowing the bit to travel down the face of the whipstock.

The bit is rotated between 40 and 60 rpm's with low bit weights (Drill String Weight Calculations) while drilling off the whipstock.

Too much weight can cause the bit to bind and the whipstock to rotate.

Heavy vibration of the Kelly will indicate excessive weight on bit.

When the bit is one foot below the toe of the whipstock, weight can be gradually added. Drill approximately 15 to 20 feet of rathole before retrieving the whipstock.

The collar at the top of the whipstock has a smaller inside diameter than the bit. When the bit is pulled up to the collar at the top of the whipstock, the bit pulls the whipstock from the hole.

The rathole is then opened to full gauge using a hole opener with a pilot bit or bull nose.

The whipstock causes a significant change in hole direction and angle in a very short interval; therefore, a very limber assembly should be run following the hole opener. It is often necessary to work this assembly around the deflection.

Care should be taken to minimize rotation especially if the whipstock has been set on top of a cement plug. **Caution: If not careful, the assembly will redrill the old hole.**

After drilling a few feet with the limber assembly and reaming the sidetrack, a standard directional drilling assembly is run (RSS assembly – Mud Motor with bent sub) and drilling resumes.



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