

WELLBORE CLEAN-UP SYSTEM

1. Non-Rotating Scraper

Non-Rotating Scraper milling tool is a robust, full 360° contact wellbore clean-up solution. It features a heavy-duty cement mill securely integrated with a single-piece mandrel. The tool can be deployed as a standalone unit or configured modularly as part of the Combo Wellbore Clean-Up System.

The tool is versatile and can be customized to suit a wide range of casing sizes and drill pipe combinations.

APPLICATIONS

- Wellbore clean-up operations prior to completion to eliminate hardened cement sheath, scale, mud residues, cuttings, and other debris from the casing interior
- Commonly used alongside Casing Scraper to achieve enhanced hole cleaning performance
- Enables drilling of casing cement plugs in a single trip
- Suitable for extended reach wells requiring high-strength drill pipe connections
- Ideal for remote locations with limited logistics, where tool servicing can be carried out at the rig site
- Applicable for short tripping operations where multiple tools are run in the same string

FEATURES

- Heavy-duty, self-energizing single-piece scraper broach, precision-machined from a solid steel billet and designed with multiple rows of overlapping teeth
- The scraper broach flexes to match the casing ID while maintaining sufficient rigidity to deliver effective scraping force, ensuring complete 360° contact where conventional sprung pad scrapers fall short
- Dual fluted centralizer rings ensure proper centralization, allow fluid bypass, and protect the scraper broach
- Free-rotating design incorporating internal bearing rings to minimize wear on the drill pipe, tool, and casing
- Quick assembly and redressing can be carried out on-site using basic hand tools
- Designed without external bolts, clamps, or fasteners that could loosen downhole
- Durable construction featuring a robust assembly with multiple redundancy safeguards> Robust assembly design with multiple backup features for enhanced reliability



BENEFITS

- Reduces overall operational costs through efficient wellbore clean-up, minimizing rig time and multiple runs
- Lower logistics, deck space, inspection, and maintenance costs as the system can be serviced at the rig site using basic hand tools
- Effective removal of fine debris prevents blockage of screens and pore throats, enhancing overall well performance
- High-strength mandrel design without internal connections ensures superior reliability and durability
- Compatibility with premium and high-torque connections eliminates the need for crossovers, maintaining string integrity
- Proven to minimize non-productive time during well completion through efficient clean-up operations
- Prevents premature failure of completion equipment by eliminating debris that could interfere with valves, electronics, and other critical components

2. Casing brush

The **Casing Brush** is a rugged and efficient wellbore clean-up solution engineered to provide complete 360° casing contact for superior cleaning performance. Designed for versatility, it can be run independently or as part of a modular Wellbore Clean-Up System.

Adaptable to a wide range of casing sizes and drill pipe combinations, the Casing Brush delivers reliable performance across diverse well conditions.

APPLICATIONS

- Suitable for pre-completion wellbore clean-up operations, effectively removing hardened cement sheath, scale, mud solids, cuttings, and other debris from the casing wall
- Commonly run in combination with a casing scraper to achieve enhanced hole cleaning performance
- Capable of drilling out casing cement plugs in a single trip, improving operational efficiency
- Ideal for extended reach wells where high-strength drill pipe connections are required
- Well-suited for remote locations with limited logistics, allowing maintenance to be performed at the rig site
- Efficient for short tripping operations where multiple brush tools are run on the same string.

FEATURES

- Incorporates multiple overlapping wire brush elements to ensure full 360° contact with the casing wall, while allowing ample fluid bypass for effective circulation
- Equipped with two fluted centralizer rings that provide proper centralization, enable fluid bypass, and protect the brush elements
- Features a free-rotating design with internal bearing rings to minimize wear on the drill pipe, tool, and casing
- Designed for quick assembly and redressing at the rig site or support base using simple hand tools
- Eliminates the use of external bolts, clamps, or fasteners that could loosen or fall downhole
- Built with a robust assembly design incorporating multiple backup mechanisms for enhanced reliability



BENEFITS

- The Wellbore Clean-Up System offers incremental savings in logistics, deck space, inspection, and maintenance
- Tools can be serviced at the rig site using basic hand tools, reducing operational costs and downtime
- Effective wellbore clean-up removes fine debris that can block screens and pore throats, thereby enhancing overall well productivity
- The system can be supplied with a wide range of rig-end connections, including premium and high-torque options, minimizing the need for reduced-strength crossovers
- Single-piece mandrel design without internal connections improves overall strength and structural integrity
- Efficient wellbore clean-up operations help minimize non-productive time during well completion
- Reduces the risk of premature failure of completion equipment by eliminating debris that can interfere with valves, electronics, and other critical components

3. Casing magnet

The Casing Magnet is a robust, high-strength, and high-capacity wellbore clean up tool designed for efficient retrieval of ferrous debris from the wellbore. It features a free-rotating centralizer to enhance performance and reduce wear during operations. The tool can be run as a standalone unit or configured modularly as part of the Wellbore Clean-Up System.

Engineered for versatility, this Casing Magnet can be adapted to suit a wide range of casing sizes and drill pipe combinations.

APPLICATIONS

- While tripping or circulating, HD Casing Magnet captures ferrous debris present in the wellbore and retains it for removal at surface
- Can be included in the string during heavy-duty milling, fishing, and workover operations
- May be installed just below the wellhead during BOP jetting to collect any loosened ferrous debris
- During displacement, the drill string can be rotated and reciprocated to improve wellbore cleaning without risking damage or wear to the casing, drill pipe, or HD Casing Magnet

FEATURES

- Equipped with three longitudinal ribs incorporating rows of high-strength, high-temperature-resistant rare earth magnets
- Provides excellent fluid bypass area along with high debris-carrying capacity
- Ensures secure retention of captured debris for effective retrieval at the surface
- Designed with a single-piece mandrel for enhanced strength in heavy-duty and high-torque applications
- Optional non-rotating centralizer reduces wear on the casing and tool while improving magnet performance
- Magnets are firmly secured within integral slots, supported by multiple backup retention mechanisms for maximum reliability
- Allows easy cleaning at the surface for quick re-deployment into the well
- Eliminates the use of external bolts, clamps, or fasteners that could loosen or fall downhole



BENEFITS

- The high-density magnet configuration reduces the number of tools and trips required for wellbore clean-up during intensive milling operations
- Effective wellbore clean-up eliminates ferrous debris that could block screens or disrupt sensitive completion equipment, improving overall performance
- Solid, high-strength mandrel design without internal connections enhances durability and reliability
- Can be supplied with a variety of proprietary high-strength connections, removing the need for crossovers that may weaken the string