



Always Striving Beyond Reaching

CHENGDU ASBR TECHNOLOGY CO., LTD. Wellbore Cleanout Tools Product Manual



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PRODUCT INTRODUCTION-WELLBORE CLEANOUT TOOLS

2.1 BOP Jetting Sub



The BOPJetting Sub can be run with a variety of tools to achieve one-trip well cleanup. The jetting sub is run in hole in the closed position, allowing fluid to circulate through the bottom. After other operations are completed, a restriction plug can be dropped from surface into the piston to shift the sleeve open, allowing wellbore fluid to be pumped through the BOP jet nozzles. A nozzle in the restriction plug still allows fluid to pass through the bottom of the drill string.

PRODUCT FEATURES

- Optimizing its jet port diameters to change the fluid's velocity and pressure as it passes through, which enhances the flushing capability of the jets.
- Cleaning Tubing and Casing Inner Walls: Uses high-pressure jets to flush away deposits, which reduces wellbore blockages and improves fluid flow
- Flushing Debris: The powerful jets can break down downhole deposits and assist with milling and cuttings removal, improving overall operational efficiency.

Specification in	Body OD in	ID in	Maximum OD in	Length in	Connection
5	3.15	0.79	3.54	45.28	2 7/8" PAC
5 1/2	4.13	1	4.33	46.06	NC31
7	5	1.5	5.59	47.44	NC38
9 5/8	6.77	1.75	7.87	47.64	NC50

*Customizable upon request.

2.2 Wellbore Flushing Filter



The Wellbore Flushing Filter is a multi-functional downhole tool that integrates wellbore flushing, debris collection, and fluid filtration. It can complete multiple operational tasks in a single trip, improving operational efficiency and optimizing the downhole environment. By effectively flushing the wellbore, it removes free debris and sediments from the well, ensuring a cleaner downhole operating environment. Equipped with high-strength stainless steel screen pipe filter media, it can effectively collect and carry metal fragments and other downhole debris to the surface, reducing their impact on subsequent operations. Before completion, especially after milling operations, it can effectively prevent completion tools or liner equipment from sticking due to wellbore debris, enhancing operational safety and stability.

PRODUCT FEATURES

- **Multi-tasking in One Trip:** Flushes the wellbore, collects debris, and filters fluid, improving operational efficiency.
- **High-efficiency Filtration System:** Standard configuration includes high-strength stainless steel screen pipe filter media, which is durable and reliable, adapting to various downhole environments.
- **Reduces Sticking Risk:** Minimizes residual wellbore debris, ensuring smooth subsequent completion or liner running operations.
- **Strong Adaptability:** Suitable for various drilling, workover, and completion conditions, effectively preventing sticking issues caused by wellbore debris.

Body OD in	ID in	Length in	Brush OD in	Casing OD in	Max Collection Length in	Max Collection Volume gal	Connection
3.15	0.59	116.93	4.53	5	76.85	2.09	2 7/8" PAC
4.13	0.87	117.13	4.88	5 1/2	77.2	3.19	NC31
5	1.5	117.99	6.3	7	78.07	5.4	NC38
6.77	1.77	118.11	9.29	9 5/8	78.54	13.21	NC50

*Customizable upon request.

2.3 Casing Brush



The casing brush is a mechanical wellbore cleaning tool specifically designed to remove debris including mud cake, cement residues, scale, and perforation burrs from the casing inner wall. By providing a clean and smooth casing surface, it helps facilitate subsequent downhole operations such as the deployment of production tubing or other completion equipment.

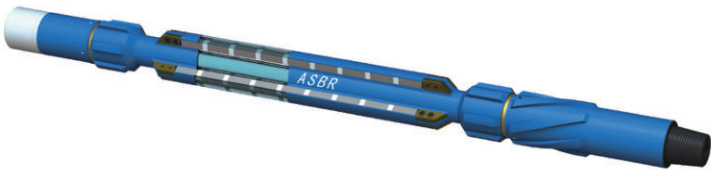
PRODUCT FEATURES

- **Effective Debris Removal:** The tool is specifically designed to remove mud cake, cement residues, scale, perforation burrs, corrosion deposits, and other debris from the casing inner wall, ensuring a clean and smooth wellbore surface.
- **Compatibility with Scrapers:** In completion and testing operations, it is often run in conjunction with casing scrapers. The scraper first performs the initial cleaning pass, and the casing brush then removes any remaining residues to achieve a fully cleaned wellbore.
- **Enhanced Operational Reliability:** A thoroughly cleaned wellbore ensures smooth deployment and proper setting of packers, bridge plugs, and other downhole equipment, significantly reducing operational risks.

Body OD in	ID in	Length in	Tensile Strength klbs	Torsional Strength kft-lb	Casing Size in	Connection
3.15	1	61.8	303.5	12.2	5	2 7/8" PAC
4.13	1.5	61.8	348.45	13.64	5 1/2	NC31
4.76	1.77	61.8	406.9	15.9	7	NC38
6.38	2	61.8	472.1	20.3	9 5/8	NC50

*Customizable as per requirements

2.4 Magnet Rod



The Magnetic Tool is an efficient wellbore cleaning device suitable for deepwater wells, deep wells, deviated wells, and high-pressure/high-temperature (HP/HT) wells. It has built-in high-strength magnets that can attract ferromagnetic debris from wellbore fluids, such as metal impurities remaining after operations like window cutting, packer milling, and junk milling. This improves wellbore cleanliness and reduces the risk of equipment damage.

This tool can be used independently or in combination with a BOP Jet Sub, junk basket, circulation sub, scraper, brush, etc., to enhance wellbore cleaning effectiveness.

PRODUCT FEATURES

- **Strong Magnetic Attraction:** Utilizes high-temperature, high-strength magnets. Its debris capture capability far exceeds traditional tools, maintaining high efficiency even in high-temperature, high-pressure environments.
- **Optimized Flow Path Design:** Ensures that while metal debris is being attracted, wellbore fluid circulation is maintained, improving cleaning efficiency.
- **High Mechanical Strength:** Features a single-mandrel design with no internal connections. Its tensile and torsional strength are superior to drill pipe connections, making it suitable for high-torque, high-speed operations.
- **Durable and Easy to Maintain:** Replaceable magnet inserts are corrosion-resistant and high-temperature resistant, allowing for quick replacement and cleaning, which reduces maintenance costs.

Body OD in	ID in	Length in	Max Temperature °C	Tensile Strength klbs	Torsional Strength kft-lb	Connection
3.15	1	61.8	180	303.49	12.17	2 7/8" PAC
4.13	1.5	64.96	180	348.45	13.64	NC31
5	2	75.3	180	420.39	16.60	NC38
6.69	2	83.3	180	483.34	21.02	NC50

*Customizable as per requirements/Magnets can be customized according to well temperature.

2.5 Rotating Mechanical Scraper



The Rotating Mechanical Scraper is a 360° free-rotating wellbore cleaning tool, which can be used independently or as part of a wellbore cleaning system. It is suitable for various casing sizes and drill pipe combinations, used to remove impurities such as cement sheaths, scale, drilling solids, cuttings, and other debris, ensuring smooth completion operations.

PRODUCT FEATURES

- **Integral Scraping Blades:** Machined from a single block of high-strength alloy steel, featuring multiple staggered rows of cutting teeth. Compared to spring-type scrapers, it offers stronger scraping force and achieves true 360° full coverage.
- **Adaptive Scraping:** The scraping blades flexibly conform to the pipe wall, providing powerful scraping while reducing wear.
- **Helical Centralizing Ring:** Optimizes fluid circulation, reduces wear between the blades and casing, and maintains excellent centralization.
- **Free-Rotating Design:** An internal bearing ring structure allows the scraper to rotate independently. When the drill string rotates and reciprocates, it avoids additional wear, extending its service life.
- **No External Fasteners:** No external bolts, clamps, etc., eliminating the risk of loosening downhole. Scraping blades can be quickly replaced on-site, reducing downtime.

Casing OD in	maximum entry speed ft/min	Max Rotating Speed in Tension RPM	Max Rotating Speed in Compression RPM	Max Compression While Rotating klbs
9 5/8	200	120	90	50
7	200	120	90	35
5 1/2	200	120	90	15
5	200	120	90	15

* Can be customized according to user requirements.

2.6 Non-Rotating Mechanical Scraper



The Non-Rotating Mechanical Scraper is specifically designed for cleaning casing inner walls of deposits such as cement remnants and cement sheath, hard paraffin and various salt crystals and sediments, perforation burrs, and iron oxides formed after casing corrosion. It effectively removes the following stubborn impurities to ensure subsequent operational tools can be run smoothly without obstruction:

PRODUCT FEATURES

- **Precise Casing Size Adaptation:** This tool operates within a fixed casing size space. The casing inner diameter within the scraping range keeps the internal compression springs in a normal working state, ensuring stable and reliable scraping performance.
- **Efficient 360° Cleaning:** Features a helical blade design which, even with a smaller number of blades, ensures complete coverage of the pipe wall, cleaning deposits without dead spots, and maintaining sufficient flow channel width to not impede fluid circulation.
- **Independent Scraping, Reduced Casing Wear:** The tool's scraping shell and main body are connected by a bearing structure. When the work string rotates, the main body rotates with the string, while the scraper assembly does not necessarily follow the rotation. Even when operating at higher rotational speeds, the scraper will not cause excessive wear to the casing wall, thereby extending casing service life.

Body OD in	ID in	Length in	Casing OD in	Tensile strength klbs	Min Scrape OD in	Max Scrape OD in	Torsional strength kft-lb	Connection
3.15	0.98	59.06	5	310	3.7	4.21	12.17	2 7/8" PAC
4.13	1.5	59.84	5 1/2	350	4.53	5.24	13.64	NC31
4.76	1.77	61.81	7	410	5.75	6.69	15.86	NC38
6.38	2.01	62.99	9 5/8	500	8.27	9.37	18.81	NC50

* Can be customized according to user requirements.

2.7 Venturi Reverse Circulation Junk Basket



The ASBR Venturi Reverse Circulation Junk Basket is an efficient wellbore debris cleaning tool that utilizes the Venturi effect to create a negative pressure in the wellbore, sucking debris-like foreign matter into and collecting it within an internal storage barrel. It is suitable for cleaning up gravel, cuttings, metal fragments, tool remnants, and other materials, ensuring smooth subsequent operations.

PRODUCT FEATURES

- **Suitable for Various Medium:** Can operate in liquid or gas, adapting to different well condition requirements.
- **Efficient One-way Valve Design:** Completely locks the recovered debris, preventing backflow of debris and improving operational reliability.
- **Optional Bottom Components:** Can be connected with a mill shoe or reverse circulation mill shoe to work with a power drilling tool, enabling simultaneous drilling and cleaning.
- **Adjustable Collection Capacity:** By extending the collection barrel, it can meet the needs of retrieving different volumes of debris, improving operational efficiency.

OD in	ID in	Length in	Tensile strength klbs	Torsional strength kft-lb	Max Collection Volume gal	Connection
3.54	1	141.73	303.49	12.54	1.56	2 7/8" PAC
4.13	1.5	143.5	337.21	14.01	2.64	NC31
5.51	1.77	144.09	472.1	17.33	5.28	NC38
7.87	2.01	144.69	528.3	18.81	11.89	NC50

* Can be customized according to user needs

2.8 Rotary Shoes



Rotary Shoes are highly efficient milling tools, typically installed at the bottom of the BHA, specifically designed to remove obstructions from inside casing, tubing, and the wellbore. Whether it's a sand-plugged tubing, an open hole with formation collapse, or a packer and other downhole fish, rotary shoes provide exceptional milling capability, offering reliable assurance for workover and drilling operations.

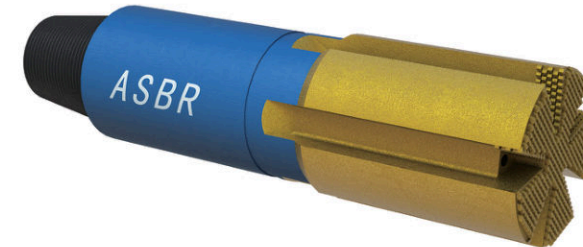
This tool is made from high-strength alloy steel and can be embedded with high-performance tungsten carbide inserts, ensuring excellent wear resistance and efficient milling capabilities even under severe operating conditions. The type of cutting teeth can be customized based on field requirements to match different operational needs.

PRODUCT FEATURES

- **High-Strength Material:** Heat-treated alloy steel body with superior wear resistance and strength, extending service life.
- **Multiple Alloy Cutters Options:** High-performance tungsten carbide inserts can be selected based on operational requirements to optimize milling results.
- **High-Efficiency Cleaning Capability:** Suitable for milling various downhole obstructions, including stuck debris, formation collapse, metal junk, and cement cleanup.
- **Customized Design:** Supports different structures, sizes, and tungsten carbide insert solutions to meet specific well conditions.
- **Suitable for Reverse Circulation Operations:** Can be used in conjunction with reverse circulation tools to improve the efficiency of downhole debris cleanup.

*Can be customized based on user requirements.

2.9 Efficient Workover Milling Tools



During workover operations, issues such as downhole fish, deformed pipe strings, sand plugs, or metal obstructions can affect normal production or interfere with subsequent operations. High-efficiency workover milling tools, which include various types such as efficient junk mills, pilot mills, taper mills, and watermelon mills, are suitable for scenarios like junk removal, wellbore dressing, packer milling, and bottom hole cleanup. These tools employ various advanced technologies to ensure high milling efficiency and strong durability, effectively extending tool life and increasing the success rate of workover operations.

PRODUCT FEATURES

- **High-Efficiency Tungsten Carbide Cutters:** Uses imported high-performance wear-resistant materials to ensure excellent cutting force and wear resistance, effectively improving milling efficiency.
- **Reliable Welding Process:** Advanced welding technology ensures that the tungsten carbide teeth are securely attached, without coming off or carbonizing, which enhances the tool's service life and stability.
- **Lean Teeth Layout Design:** Optimized arrangement of cutting teeth provides a uniform and stable milling effect, reducing unnecessary vibrations during operation and improving control accuracy.
- **Optimized Hydraulic Flow Path Design:** Improves the fluid flow path to effectively enhance the ability to clean up bottom hole debris, reducing the risk of secondary plugging.
- **Strong Durability, Adaptable to Complex Conditions:** Suitable for complex well conditions such as high-temperature/high-pressure wells, deep wells, and deviated wells, offering long service life and high reliability.

* Can be customized according to user requirements.