

8500 DwC RipTide[®] Reamer

Enlarges boreholes in drilling-with-casing (DwC) operations

Applications

- Drilling, enlarging, and casing a wellbore in a single trip
- Underreaming concentric boreholes below casing restrictions to enable casing to advance during retrievable DwC operations
- Expanding existing pilot holes in a wide range of formations
- Reducing annular fluid velocities to effectively manage equivalent circulating density (ECD) and minimize the risk of kicks
- Optimizing cement jobs

Features and Benefits

- The reamer enlarges holes by a large percentage beyond the bit diameter in DwC applications.
- Cutter blocks grip the reamer body at full actuation to reduce vibration, which extends cutter life.
- The balanced, concentric design of the cutter blocks minimizes vibration while drilling.
- The dual-row polycrystalline-diamond-compact (PDC) design and the HD cutter technology substantially increase diamond content and durability to combat hard and abrasive drilling environments.
- Interchangeable nozzles provide cooling, cleaning at the reamer, and optimization of flow distribution between the reamer and bit.
- The short distances between the bit and reamer, reamer and motor, and motor and bit facilitate steering.
- The tool can be fitted with a standard RipTide controller and bottom sub, which converts the tool for typical hole-enlargement operations that do not use DwC technologies.

Tool Description

Built on the same robust platform as the RipTide drilling reamer, the 8500 DwC RipTide reamer serves as the hole enlargement tool in 9 5/8-in. DwC applications. The hole enlargement ratio of the DwC RipTide reamer is larger than that of a typical RipTide reamer.

The DwC RipTide reamer has a bit box connection at the bottom to accept the drill bit. The pin connection on the top connects to the drilling motor. The cutter block is expanded hydraulically. When the pump is on, the differential pressure between the bore inside the tool and the annulus outside the tool drives the piston against a spring to move the cutter blocks to the open position. Once the cutter arms fully expand, they are supported by the mandrel shoulder and cannot collapse unless the piston retracts as a result of



The Weatherford DwC RipTide reamer has cutter blocks that retract (left) and expand (right) for hole enlargement in DwC operations.



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Tool Description (continued)

inadequate differential pressure. When the pump is turned off, the spring moves the piston and cutter blocks to the collapsed position.

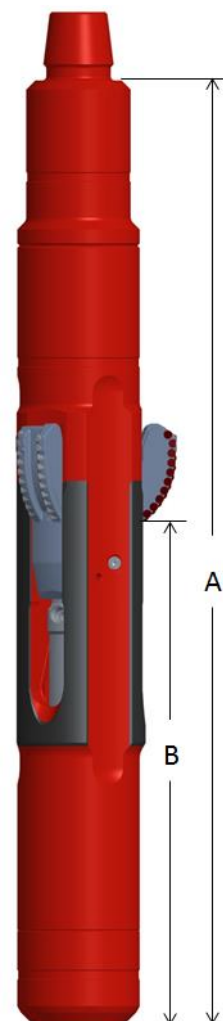
Specifications

Standard cutter block opening diameter ^a	12.25 in. (311.15 mm)
Cutter collapse diameter	<8.38 in. (<212.85 mm)
Body OD	8.38 in. (212.85 mm)
Inside diameter	2.00 in. (50.8 mm)
Opening pressures	28 psi (2.0 bar)
Fully opened pressures	90 psi (6.2 bar)
Recommended operating pressure	500 psi (34.5 bar)
Maximum tensile strength ^b	885,000 lbf (401,400 kgf)
Top connection	4-1/2 REG pin
Bottom connection	4-1/2 REG box
Overall makeup length (A)	58.75 in. (1,492.2 mm)
Distance from bottom shoulder to opened block (B)	31.50 in. (800.1 mm)
Nozzle count	3
Available nozzle size	7/32 to 18/32 in. (5.56 to 14.29 mm)
Equivalent body diameter ^c	8.02 in. (203.71 mm)

^a Cutter blocks of different diameter sizes may be available or may be custom designed.

^b This is the tensile strength of the top pin connection under makeup torque.

^c The equivalent body diameter takes the junk slot area into account. The annular area between the borehole diameter and this equivalent body diameter is the annular pass-through area.



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