RipTide® Rathole Killer® Drilling Reamer

Activated by both RFID technology and pressure cycling to simultaneously drill and enlarge wellbores while minimizing ratholes

Applications

- Drilling and enlarging wellbores simultaneously in a single trip
- Underreaming concentric boreholes below casing restrictions to facilitate running casing strings and to permit a larger intermediate casing diameter
- Expanding existing pilot holes in a wide range of formations
- Reducing annular fluid velocities to effectively manage equivalent circulating density and to minimize the risk of kicks
- Facilitating solid expandable installations and openhole, gravel-pack, and oversized-liner completions
- Optimizing cement jobs
- Minimizing ratholes

Features and Benefits

- The RipTide Rathole Killer drilling reamer gives operators the capability to run dual reamers—using two methods of activation—in the same drillstring with a full-bore inside diameter (ID). This enhances operational efficiency and flexibility, and reduces drilling time.
- Both activation methods—radio frequency identification (RFID) and pressure cycling—provide on-demand control for nearly unlimited activation and deactivation when tripping and drilling.
- Activating the primary reamer using RFID technology—thereby eliminating ball seats—enables using measurement-while-drilling (MWD) or logging-while-drilling (LWD) systems simultaneously with the reamer. MWD and LWD systems typically have restrictive IDs that do not accommodate ball-drop activation.
- Activating the secondary reamer with a pressure cycle prevents dropping an RFID tag through ID restrictions in MWD or LWD systems.
- The reamer operates with low flow rates, when necessary, to protect sensitive formations.
- The full-bore ID permits wireline retrieval of radioactive sources, which saves rig time and associated costs.
- The reamer records downhole events such as vibration, pressure, and temperature to provide the operator with a better understanding of downhole conditions.
- Tandem tools can be run in the same bottomhole assembly (BHA) with full independent control, which improves operational efficiency.
- Cutter blocks grip the reamer body at full actuation to reduce vibration, which extends cutter life.

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Features and Benefits (continued)

- The retractable cutter blocks facilitate reamer retrieval to save substantial rig time and costs.
- By giving operators the capability to underream the rathole section, the reamer eliminates a trip out of the wellbore for a dedicated cleanout run, which saves rig time.

Tool Description

The Weatherford RipTide Rathole Killer drilling reamer is a concentric mass-balance underreamer capable of enlarging wellbores below casing restrictions. The reamer can simultaneously drill and enlarge wellbores when used in conjunction with rotary-steerable systems (RSS) or rotary BHAs. In addition to underreaming existing boreholes and opening selective zones for solid expandable installations, the reamer minimizes ratholes.

The RipTide drilling reamer enables running dual reamers in the same drillstring with a full-bore ID. The primary reamer is placed above MWD or LWD tools. The secondary reamer is placed below the MWD or LWD tools and above the drillbit and RSS. Both reamers can be independently activated or deactivated multiple times on demand using RFID technology and hydraulic pressure.

The primary reamer is activated using RFID technology. An RFID tag is dropped into the drillpipe ID at surface level and is carried downhole in the drilling fluid. The tag transmits instructions to an electronic reader on the reamer controller. The cutter blocks then extend from the reamer body to simultaneously drill and enlarge the wellbore.

Once total depth is reached, the secondary reamer is activated with a pressure cycle, which opens or closes a solenoid-operated valve to lock or unlock the reamer. By placing the secondary reamer above the drillbit, the rathole is reduced to the length of the bit and the RSS.

Specifications

RipTide Series	Tool Joint Connection	Reamer Body OD	Opening Diameters	Maximum Flow Rate	Equivalent Body Diameter (Body OD Minus Junk Slot)
6000	3-1/2 IF	5-7/8 in. (149.2 mm)	6.25, 7.00, 7.25, 7.50, 7.88, 8.00 and 8.50 in. (158.75, 177.8, 184.15, 190.5, 200.152, 203.2 and 215.9 mm)	413 gal/min (1,563 L/min)	5.622 in. (142.79 mm)
8500	4-1/2 IF	8-1/4 in. (209.5 mm)	8.75, 9.00, 9.50, 9.88, and 10.25 in. (222.25, 228.6, 214.3, 250.9, and 260.3 mm)	830 gal/min (3,141 L/min)	7.940 in. (201.68 mm)
9500	4-1/2 IF	9-1/4 in. (234.9 mm)	10.25, 10.50, 11.00, 11.25, 11.50 11.75, 12.00 and 12.25 in. (260.3, 266.7, 279.4, 285.75, 292.1, 298.5, 304.8 and 311.2 mm)	830 gal/min (3,141 L/min)	8.900 in. (226.06 mm)
10625	6-5/8 REG	10-1/4 in. (260.3 mm)	11.75, 12.25, 13.00, and 13.50 in. (298.5, 311.2, 330.2, and 342.9 mm)	1,265 gal/min (4,788 L/min)	9.844 in. (250.04 mm)
12000	6-5/8 REG	11-3/4 in. (298.4 mm)	13.00, 13.13, 13.50, 14.00, 14.25, 14.50, 14.75, 15.00 and 16.00 in. (330.2, 335.5, 342.9, 355.6, 361.9, 368.3, 374.6, 381 and 406.4 mm)	2,000 gal/min (7,571 L/min)	11.443 in. (290.65 mm)
14750	7-5/8 REG	14-1/4 in. (361.9 mm)	16.00, 16.50, 17.00 and 17.50 in. (406.4, 419.1, 431.8 and 444.5 mm)	2,000 gal/min (7,571 L/min)	13.659 in. (346.94 mm)
16500	7-5/8 REG	16 in. (406.4 mm)	19.00, 20.00, 21.00, 22.00, 24.00, 26.00, 28.00, 32.00, and 35.00 in. (482.6, 508.0, 533.4, 558.8, 609.6, 660.4, 711.2, 812.8 and 889 mm)	2,000 gal/min (7,571 L/min)	15.051 in. (382.29 mm)