Schlumberger

Rhino XC

On-demand hydraulically actuated reamer

The Rhino XC reamer can be tested at the surface to check settings prior to being run in the hole.

Applications

- BHA placement below ID restricted components, such as MLWD tools
- Boreholes requiring multiple reaming and nonreaming intervals
- Rotary BHA near-bit reamer placement
- Drilling highly abrasive formations
- Close-tolerance and expandable casing programs
- ERD and other well profiles with inclination greater than 65° where conventional pump down activation is technically limited
- Drilling in unstable formations or formations with equivalent circulating density (ECD) control issues

Benefits

- Provides on-demand wellbore enlargement
- Improves drilling performance
- Ensures full-gauge concentric wellbores

Features

- Unlimited activations regardless of wellbore inclination
- Full-flow capability in reaming and nonreaming modes
- Deployment and retraction of PDC cutter blocks in minutes
- Effective cleaning of borehole with integrated jet nozzle and flow paths

Unmatched underreaming performance

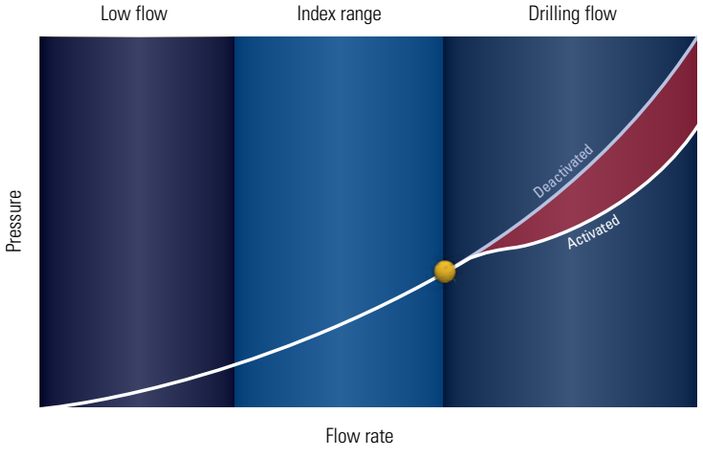
The Rhino XC* on-demand hydraulically actuated reamer enables fast activation and effective wellbore enlargement, delivering improved casing running, cementing clearance, and ECD control.

Complete actuation control

The reamer's on-demand flow activation system provides complete control of reamer cutter block deployment from surface. This allows the reamer to be placed below ID-restricted BHA components such as MLWD tools. And, with flow-actuation control, the Rhino XC reamer provides the fastest cutter block activation and deactivation in the industry.

Application flexibility with borehole quality

The Rhino XC reamer is effective in a variety of formations where simultaneous drilling and hole-enlargement reliability are essential. The reamer's one-piece, balanced design increases torque and load-carrying capacity while reducing drilling-generated vibrations that produce undergauge and irregular boreholes.



The Rhino XC reamer is activated by cycling flow to a predetermined index range. Once flow is increased beyond this range, the cutter blocks deploy. A change in standpipe pressure indicates the reaming mode (activated or deactivated) at the surface; making drillpipe connections does not affect the reaming mode.

Ensures cutting diameter reliability

As with all Rhino* integrated borehole enlargement systems, the Rhino XC reamer features the patented Z-Drive* reamer cutter block deployment system: A parallel tongue and groove design ensures cutter blocks are deployed to the borehole enlargement diameter during activation and are retracted when the reamer is deactivated.

Controls high-fluid volumes for effective cleaning

The Rhino XC reamer's full-circulation capability optimizes borehole cleaning and cuttings evacuation. The tool's large bore handles high-fluid volumes with optimized distribution between the bit and cutter blocks. This high-fluid capability also accommodates the fluid requirements of rotary steerable systems and directional assemblies.

Delivers faster ROP in fewer trips

For extended footage, optional Predator* cutter blocks are available. Equipped with the ONYX* PDC cutters, Predator cutter blocks maximize ROP with cutters that remain sharper longer. ONYX cutters are more thermally stable for greater wear and impact resistance than other PDC cutters. And, single-set placement of each cutter on the cutting profile ensures a more stable and durable cutting structure.

Premium Predator cutter blocks equipped with ONYX cutters increase durability and maximize ROP.

Optimizes underreaming for a variety of applications

The cutting structure design is optimized for bit and reamer dynamics and formation lithology using i-DRILL* engineered drilling system design, which provides insight into the effects of different design parameters and the interaction of the cutting structure as a part of the drilling system. The resulting design delivers improved drilling performance over a wide range of applications: from hard and highly abrasive to interbedded difficult-to-drill formations.

For unmatched performance, flexibility, and control, the Rhino XC on-demand reamer is the industry's premier borehole enlargement tool.

Rhino XC Specifications

Tool Series	Overall Body Diameter, in	Standard Fishing Neck Diameter, in	Enlarged Hole Size, in	Minimum Pilot Hole Size, in	Internal Bore Diameter, in	Internal Bore Diameter without Nozzles, in	Increased Tool Length Due to Actuator, in	Sub Outer Diameter, in	Maximum Flow Rate, galUS/min
8000	8.00	7¼	9–10¼	8¼	2.00	1.94	38.6	7.25	750
9250	9.25	7¼	10¼–11¾	9½	2.00	1.94	38.6	7.25	750
11625	11.63	10½	13–15	12⅛	3.00	2.7	59	11	1,700
13000	13.00	10¾	14½–16½	13½	3.00	2.7	59	11	1,700
14250	14.25	11	15¾–18¼	14½	3.00	2.7	59	11	1,700
16000	16.00	12	17½–20	16½	3.00	2.7	59	11	1,700
16000	17.375	12	18½–22	17½	3.00	2.7	59	11	1,700

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Find out more about Rhino XC on-demand hydraulically actuated reamer at slb.com/RhinoXC.

Animation

Watch an animation that demonstrates how the Rhino XC reamer hydraulically expands via flow activation.

Case Studies

Rhino XC reamer's advanced flexibility means its placement in the BHA is unrestricted while providing faster and unlimited actuation. In recent operations,

- the Rhino XC reamer enlarged deepwater GOM well in one trip, providing pilot hole for coring run stabilization
- SOCAR used the Rhino XC reamer to underream a 989-m tophole section of a gas storage well in one run
- Noble Energy used an integrated BHA to drill a 1,221-ft section at an average ROP of 84.5 ft/h in a deepwater GOM well.

i-DRILL

Engineered drilling system design
slb.com/iDRILL

Rhino RHE

Dual-reamer rathole elimination system
slb.com/RhinoRHE

PowerDrive

Rotary steerable systems
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