

RipTide® Quattro Drilling Reamer 16500

Enlarges boreholes below casing restrictions or simultaneously drills and enlarges wellbores

Applications

- Drilling and enlarging 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 circulation density (ECD) and minimize the risk of kicks
- Facilitating solid-expandable installations and openhole, gravel-pack, and oversized-liner completions
- Optimizing cement jobs

Features and Benefits

- The RipTide reamer can operate with low flow rates, if necessary, to protect sensitive formations.
- Multiple on-demand activations and deactivations enhance flexibility.
- Cutter blocks grip the reamer body at full actuation to reduce vibration, which extends cutter life.
- The retractable cutter blocks facilitate tool retrieval.
- The balanced, concentric design of the cutter blocks minimizes vibration while drilling.
- Compatible with all rotary steerable system (RSS) types and field proven for maintaining rate of penetration when run in a hole-enlargement-while-drilling bottomhole assembly (BHA).

Tool Description

The Weatherford RipTide drilling reamer is a concentric mass-balance underreamer with an extensive operational history for enlarging wellbores below casing restrictions. Each versatile reamer can enlarge predrilled holes on a dedicated run, or it can simultaneously drill and enlarge a hole section, thereby optimizing rig time, in conjunction with an RSS or rotary BHA.

The RipTide Quattro drilling reamer 16500 significantly advances traditional ball-drop designs for cost-effective capabilities. Its field-proven, extrudable ball-drop system enables multiple activations and deactivations of the reamer on a single BHA trip. The number of activation cycles varies depending on the length of the ball catcher chosen for the specific application. The standard design enables four cycles, with one activation and one deactivation per cycle, because it has a retention capacity for eight balls.



The Weatherford RipTide drilling reamer has retractable and concentric cutter blocks that minimize vibration while drilling and facilitate tool retrieval.



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Specifications

Overall length	A	20.72 ft (6.31 m)
Length with booster sub		16.17 ft (4.93 m)
Fishing neck length	B	2.00 ft (0.61 m)
Fishing neck OD	C	9.50 in.
Reamer body OD	D	16.00 in. (406.40 mm)
Distance from bottom sub pin to cutter blocks (open position)	E	6.00 ft (1.83 m)

Additional Specifications

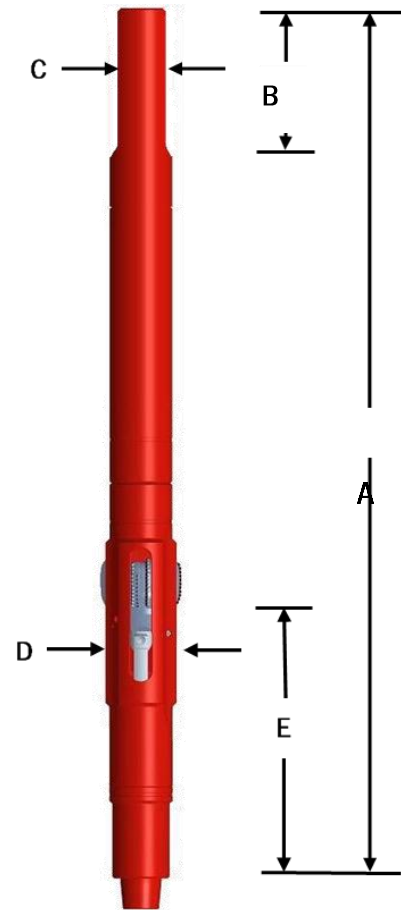
Maximum flow rate	2,000 gal/min (7,571 L/min)
Tensile yield	1,777,800 lbf (806,396 kgf)
Torsional yield	118,100 ft-lb (160,122 N-m)
Ball seat ID	2.25 in (57.15 mm)
Nozzle size in reamer, minimum and maximum	"7/32 to 16/32 in.
Maximum flow rate thru each nozzle ^a	(5.56 to 12.70 mm)"
Maximum flow rate thru all nozzles ^a	206 gal/min (779.8 L/min)
Top sub length	618 gal/min (2,339 L/min)
Top sub box up connection	3.00 ft (0.91 m)
Ball-drop controller OD	7-5/8 REG
Ball-drop controller length	10.25 in (260.4 mm)
Booster sub length (optional)	4.79 ft (1.46 m)
Reamer body length	4.55 ft (1.39 m)
Bottom sub OD	5.50 ft (1.68 m)
Bottom sub length	2.80 ft (0.85 m)
Bottom sub pin down connection	7-5/8 Reg
Reamer assembly weight ^b	2,775 lb (1,259 kg)
Controller assembly with top sub	1570 lb (712 kg)
Activation ball size	2.50 in (63.50 mm)

^aThe flow rate is 75 ft/sec (22.9 m/sec).

^bThe reamer assembly weight does not include cutter blocks.

Available Cutter Block Sizes

PDC	Pilot Hole	Opening Diameter
16 mm	16.25 in.	19.00 in. (482.6 mm)
		20.00 in. (508.0 mm)
		21.00 in. (533.4 mm)
19 mm	17.50 in.	22.00 in. (558.8 mm)
	18.50 in.	24.00 in. (609.6 mm)
	21.00 in.	26.00 in. (660.4 mm)
	23.00 in.	28.00 in. (711.2 mm)
	26.00 in.	32.00 in. (812.8 mm)
	28.00 in.	35.00 in. (889.0 mm)



Recommended Drilling Parameters

Maximum rotation	150 rpm
Weight on reamer	35,000 lb
Torque	60,000 ft-lb (81,350 N-m)
Dogleg severity	15°/100 ft (30 m)
Lost-circulation material	75 lb/bbl (0.21 g/cm3)
Maximum temperature	300°F (150°C)

