# RipTide® RFID Drilling Reamer 12000

Provides unlimited actuations to enlarge boreholes below casing restrictions and simultaneously drill and enlarge wellbores

## Applications

- Drilling and enlarging simultaneously in a single trip
- Underreaming concentric boreholes below casing restrictions to facilitate casing running 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 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 drilling reamer offers two methods of activation—radio-frequency identification (RFID) and pressure cycling—and delivers virtually unlimited activation and deactivation during tripping and drilling.
- The fullbore ID permits wireline retrieval of radioactive sources beneath the reamer, which saves rig time and associated costs.
- The RipTide RFID drilling 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 fully independent control, which improves operational efficiency.
- The reamer can operate with low flow rates to protect sensitive formations.
- Cutter blocks grip the reamer body at full actuation to reduce vibration, which extends cutter life.
- The retractable cutter blocks facilitate reamer retrieval to save substantial rig time and costs.

## Tool Description

The Weatherford RipTide RFID drilling reamer 12000 is a concentric mass-balance underreamer that enlarges the borehole below casing restrictions. The versatile reamer can simultaneously drill and enlarge when used in conjunction with a rotary-steerable system, motor, or rotary BHA. The RipTide reamer can also be used to underream existing boreholes and to open selective zones for solid-expandable installations.

The reamer is electronically activated using RFID technology, which provides virtually unlimited activations and deactivations on demand. A small yet durable RFID tag is dropped into the drillpipe ID at surface level and carried downhole in the drilling fluid. The tag transmits instructions to the electronic downhole reader on the reamer controller. Then the controller unlocks, which allows the cutter blocks to fully extend from the reamer body. Alternatively, the reamer controller is equipped with a secondary method of activation via pressure cycling. At any point in the operation either method of activation can be used.

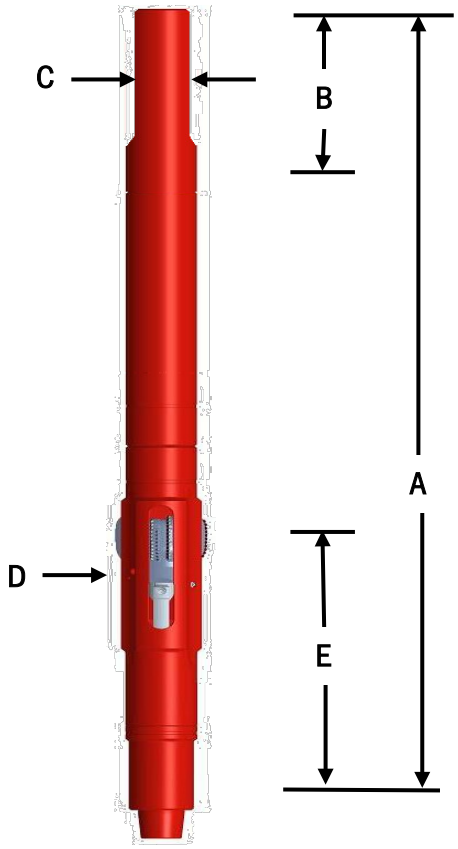
The Weatherford RipTide RFID drilling reamer 12000 has retractable and concentric cutter blocks that minimize vibration while drilling and facilitate tool retrieval.

Weatherford®

# RipTide® RFID Drilling Reamer 12000

## Specifications

| | | |
|---|---|---|
| Overall length | A | 21.25 ft (6.47 m) |
| Length with booster sub | | 25.80 ft (7.86 m) |
| Fishing neck length | B | 2.00 ft (0.61 m) |
| Fishing neck OD | C | 8.25 in. (209.55 mm) |
| | | 9.50 in. (241.30 m) |
| Reamer body OD | D | 11.75 in. (298.40 mm) |
| Distance from bottom sub pin to cutter blocks (open position) | E | 5.66 ft (1.73 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) |
| Inside diameter | 2.81 in. (71.37 mm) |
| | 3.50 in. (88.90 mm) |
| Nozzle size in reamer, minimum and maximum | 7/32 to 24/32 in. (5.56 to 19.05 mm) |
| Maximum flow through each nozzle[a] | 140 gal/min (530 L/min) |
| Maximum flow through all nozzles[a] | 420 gal/min (1,590 L/min) |
| Top sub length | 3.00 ft (0.91 m) |
| Top sub box up connection | 6-5/8 Reg or 7-5/8 Reg |
| RFID controller OD | 9.25 in. (234.95 mm) |
| RFID controller length | 10.86 ft (3.31 m) |
| Booster sub length (optional) | 4.55 ft (1.39 m) |
| Reamer body length | 4.58 ft (1.40 m) |
| Equivalent body diameter[b] | 11.44 in. (290.65 mm) |
| Bottom sub OD | 8.25 in. (209.55 mm) |
| Bottom sub length | 2.81 ft (0.86 m) |
| Bottom sub pin down connection | 6-5/8 Reg, 7-5/8 Reg |
| Reamer assembly weight[c] | 1,615 lb (733 kg) |
| Controller assembly with top sub | 2,370 lb (1,075 kg) |

[a] The flow rate is 75 ft/sec (22.9 m/sec).
[b] The measurement indicates the body OD minus the junk slot.
[c] The reamer assembly weight does not include cutter blocks.

## Available Cutter Block Sizes

| PDC | Pilot Hole | Opening Diameter |
|---|---|---|
| 13 × 13 mm | 12.00 in. | 13.00 in. (330.20 mm) |
| 13 × 13 mm | | 13.13 in. (335.50 mm) |
| 13 × 13 mm | | 13.50 in. (342.90 mm) |
| 16 × 13 mm | | 13.50 in. (342.90 mm) |
| 13 × 13 mm | | 14.00 in. (355.60 mm) |
| 13 × 13 mm | | 14.25 in. (361.90 mm) |
| 16 × 13 mm | | 14.25 in. (361.90 mm) |
| 13 × 13 mm | | 14.50 in. (368.30 mm) |
| 16 × 13 mm | | 14.50 in. (368.30 mm) |
| 13 × 13 mm | | 14.75 in. (374.60 mm) |
| 16 × 13 mm | | 14.75 in. (374.60 mm) |
| 13 × 13 mm | | 15.00 in. (381.00 mm) |
| 13 × 13 mm | 12.25 in. | 16.00 in. (406.40 mm) |

## Recommended Drilling Parameters

| | |
|---|---|
| Maximum rotation | 150 rpm |
| Weight on reamer | 30,000 lb (133,450 N·m) |
| Torque | 38,000 ft-lb (51,520 N·m) |
| Dogleg severity | 15°/100 ft (30 m) |
| Lost-circulation material | 75 lb/bbl (0.21 g/cm$^3$) |
| Maximum temperature | 266°F (130°C) |