

Reservoir Group's Taz™ Multiple Activation Circulating Sub delivers in BHA's with large volumes of drilling fluid, ensuring that a through bore clearance is maintained through the tool at all times.

Taz outperforms standard circulating subs when pumping large volumes of drilling fluid due to its unlimited number of activations downhole. The Taz circulation sub remains dormant in the BHA until opened by dropping an activation ball, which then disappears completely. The resulting pressure drop allows the j-slot mechanism to engage, opening multiple ports to the annulus. The TFA of the nozzles within the ports can be selected to suit the application, with the percentage of diverted flow being a function of their size and the pressure drop below the tool.

The central feature of the Taz system is the proprietary drop ball mechanism - the ball 'disappears' upon activation, ensuring that a through bore clearance is maintained through the tool at all times. Closing the ports is achieved by pumping down an identical ball, which also 'disappears' upon de-activation, leaving the tool dormant and ready to be activated again in a truly endless cycle.



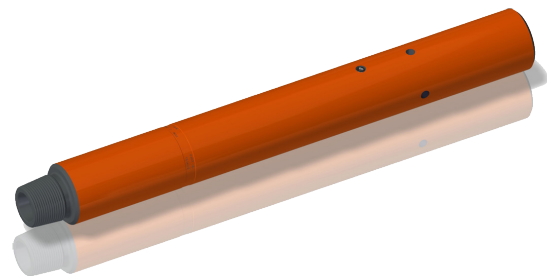
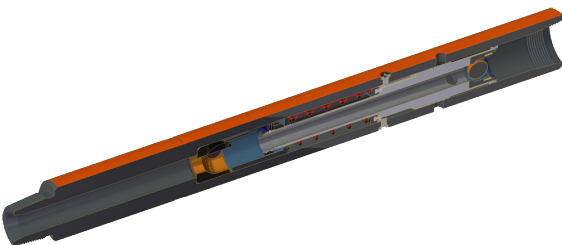
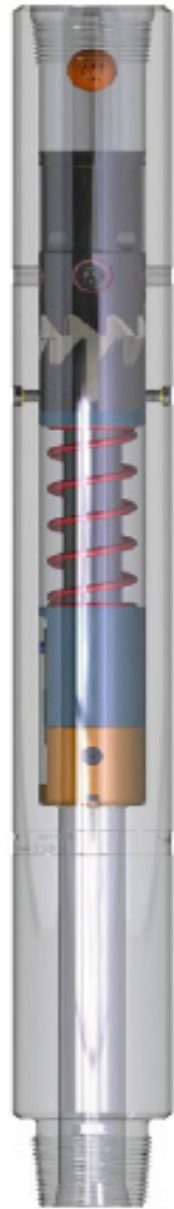
Features	Benefits
Unlimited activations	Save tripping time; no need to POOH to empty catcher sub
No pass through restrictions	Able to access tools through the ID lower in the BHA
Tools come pre-configured Rig crew can run tool	Rig crew can run tool; no specialized personnel required
Interchangeable seats and ball sizes	Run more than one tool in the BHA at intervals to open endless possibilities for hole cleaning
Interchangeable nozzles	Setup the tool for your direct application

Taz™
for Demanding Applications

- Lost circulation
- Well cleanout
- Horizontal and Directional
- Hole enlargement
- Wellhead cleanout
- Surge protection
- Coring

Technical Specifications

6 ^{3/4} " Taz™ Circulating Sub	Imperial	Metric
Top connection	API 4 1/2 IF	
Bottom connection	API 4 1/2 IF	
Connection make-up	34,840 ft/lbs	
Sh. to sh. length	56 in	1,422.4 mm
Body-outer diameter	6.75 in	171.45 mm
Body-inner diameter	4.5 in	114.3 mm
Piston-outer diameter	4.5 in	114.3 mm
Piston-inner diameter	2 in	50.8 mm
Weight	435.6 lbs	198 kgs
Tensile strength	802,000 lbs/f	363,781 kgs/f
Torsional strength	71,126 ft/lbs	96,434 N/m
Number of nozzles	4	
Nozzle size	Up to 0.98 in	25 mm
TFA	Up to 3 sq. in	1,960 sq. mm
Taz ball size	2.125 in	53.975 mm
Maximum flow rate	1,250 GPM	4,750 l/min
Load to activate	562 lbs	2,500 N
Flow to active	150 GPM	568l/min
Max temperature	428°F	220°C



*Flow rates calculated using sea water