



DRILLING JARS

MOCS G2™ (MULTIPLE OPENING CIRCULATION SUB)

The second generation of *MOCS G2™* tool was developed to improve drilling efficiency and reliability, reduce drilling costs, and enhance the safety of your operation.

The *MOCS G2™* is activated and infinitely cycled with a single ball that changes the drilling fluid flow path from the ID of the string (non-bypass) to the annulus (bypass). By simply changing the flow regimes, you can cycle the tool between bypass and non-bypass modes an unlimited number of times.

REDUCE DRILLING COSTS AND ENHANCE THE SAFETY OF YOUR OPERATION FEATURES

- **Easy to use** – simple operation requires only one ball.
- **On-demand performance** – cycles in as little as 10 seconds with ball on seat.
- **Unlimited cycling** – flow rate actuation alleviates need for multiple balls.
- **Versatile** – can be loaded on surface and placed anywhere in the string.
- **Safe** – eliminates the need to break string at every cycle.
- **ID Compatibility** – variable ball size allows for flexibility with various string IDs.
- **Reduced invisible-lost time** – no wasted trips for an exhausted ball catcher.
- **Designed to trip dry pipe** – ports shift closed when pumps are off, automatically draining to the lower BHA.
- **Allows fishing operations below the tool** – open through bore before activation or by fishing the ball.
- **Maintains well control safety** – automatically closes ports when incoming flow drops.



MOCS G2™

TECHNICAL SPECIFICATIONS

Tool O.D.	4 3/4 in	6 1/2 in	8 in	9 1/2 in
Tool I.D.	1 1/2 in	1 7/8 in	2 3/8 in	2 3/4 in
Tool length	8.4 ft	8.3 ft	9.4 in	12.5 in
Weight	380 lbs	750 lbs	1,240 lbs	2,600 lbs
Tensile yield	500,000 lbs	1,250,000 lbs	1,800,000 lbs	3,000,000 lbs
Torsional yield	30,000 ft-lbs	50,000 ft-lbs	110,000 ft-lbs	220,000 ft-lbs
Maximum allowable flow rate ¹	700 gpm	900 gpm	1,400 gpm	2,000 gpm
Activation flow rate ²	230 gpm	430 gpm	580 gpm	580 gpm
Maximum recommended operating torque	18,000 ft-lbs	30,000 ft-lbs	60,000 ft-lbs	140,000 ft-lbs
TFA in bypass position	0.88 in ²	1.49 in ²	3.00 in ²	4.15 in ²
TFA in non-bypass position	0.78 in ²	1.45 in ²	2.01 in ²	2.19 in ²
Maximum hydrostatic pressure	30,000 psi	30,000 psi	30,000 psi	30,000 psi
Standard drop ball diameter	1.63 in	2.25 in	2.50 in	2.81 in
Standard tool joint	API 3 1/2 in IF	API 4 1/2 in IF	API 6 3/4 in Regular	API 7 1/2 in Regular

¹Only applies when circulating to the annulus in bypass mode,

²When drilling fluid density equals 8.3 lb/gal (water)