

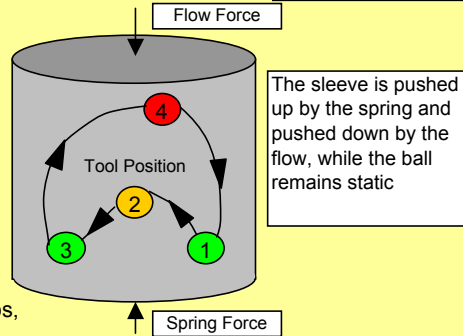
SPREADSHEET FOR CALCULATING PARAMETERS AND PROCEDURES FOR UWG FLOW ACTUATED CIRCULATING TOOL

	Pressure	Flow Rate	
Low-flow threshold (1 & 3)	179.7 <i>psi</i>	155 <i>gpm</i>	closed
Default, high-flow (2)	194.6 <i>psi</i>	225 <i>gpm</i>	closed
Non-default, high-flow (4)	246.6 <i>psi</i>	315 <i>gpm</i>	open



Current Position Default Position (pumps off): **closed**

- 1 closed** To move to position (2): increase flow rate above 225 gpm
- 2 closed** To move to position (3): kill pumps, or reduce flow rate below 155 gpm for at least 3 minutes
- 3 closed** To open the tool ports (position 4): increase flow rate above 315 gpm
- 4 open** To close the tool ports (position 1): kill pumps, or reduce flow rate below 155 gpm for at least 3 minutes



FACT tool & Bit Data	
Tool Size	6.75 <i>in</i>
Choke ID	22 <i>mm</i>
Default Position	closed
Drill Bit TFA	1.0431 <i>sq.in</i>

Drilling Fluid Data	
Density	10 <i>lbs/gal(US)</i>
Plastic Viscosity	30 <i>cP</i>
Yield Point	25 <i>lbs/100 sq.ft</i>

This software is not sufficiently complex to model cases in which more than one type of fluid is being displaced. In these cases, use average values and allow a greater margin of error both above and below indicated flow rates.

Interval	Pipe Intervals	
	To Depth (ft MDBRT)	Pipe ID (in)
1	1000	4.22
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

Annular Intervals			
To Depth (ft MDBRT)		Casing ID (in)	Pipe OD (in)
1000		8.681	5

FACT Tool Depth (ft MDBRT)
0

