

## Differential Sticking

*Most incidences of stuck pipe are caused by differential-pressure effects. Excessive differential pressures across lower-pressure permeable zones can cause the drillstring to push into the wellbore wall where it becomes stuck. When differential sticking occurs, spotting fluid can sometimes free the drillpipe.*

*Differential sticking may be identified by the following characteristics:*

- ◆ *Pipe sticks after remaining motionless for a period of time*
- ◆ *Pipe cannot be rotated or moved when circulation is maintained*



The Differential Sticking Tester was designed to determine how likely a given drilling fluid will be to produce a "stuck pipe" situation and how effective a given drilling fluid treatment or application of spotting fluid in any given drilling fluid would be in reducing this tendency. This measurement is called the "Stuck Tendency Coefficient". It takes into account both the stickiness and the cake building capability of the drilling fluid. The "Stuck Tendency Coefficient" is determined by the Timed Filtrate Test.

The unit can be pressurized by the CO<sub>2</sub> regulator assembly or from any nitrogen source. If Nitrogen is to be used, the Differential Sticking Tester must be fitted with a suitable Nitrogen regulator, gauges, relief valve, hose and fittings. The standard test uses 477.5 psig (3292 kPa) differential pressure

applied to a stainless steel vessel of approximately 140 ml capacity. The measurement can be made using either the flat-faced torque plate or the 12-1/2" (31.75 cm) spherical radius plate which approximates pipe in casing or collars in borehole contact geometry. (Both are provided.) In the event of a "sticky" sample that tends to adhere more to the torque plate than to the filter paper, stainless steel micro-corrugation disks are provided, to help ensure success of the test.

## Parts and Accessories

PART NO.	DESCRIPTION
209471	CO <sub>2</sub> PRESSURIZED ASSEMBLY
205091	RETAINER WRENCH
206922	LEVER
206915	CELL BODY
206916	CELL CAP
206917	CELL SCREEN HOLDER
206918	FILTER RETAINER RING
206913	FLAT BOTTOMED TORQUE PLATE
206908	RUBBER RING GASKET
206909	PLASTIC RING GASKET
207232	SUPPORT SCREEN
206910	LOCKING MESH DISC
206914	SPHERICAL TORQUE PLATE
209496	VALVE STEM
205649	"O" RING 3/16 X 5-1/16 X 1/16
205662	"O" RING 2-1/4 X 2-1/2 X 1/8
205652	"O" RING 1/2 X 3/8 X 1/16
205665	"O" RING 3-3/4 X 3-1/2 X 1/8
205640	SPANNER WRENCH
205639	TORQUE WRENCH
208608	BOX OF CO <sub>2</sub> CARTRIDGES
209516	LOCK PIN
205868	GRADUATED CYLINDER, 25 ml TC
205636	SOCKET, 5/16

### Specifications

Capacity: 140 ml cell  
Dimensions: 13.5" x 7.5" x 6.25"  
Weight: 23 pounds  
Pressure: 477 psig

### Order No. 206906 Differential Sticking Tester

*Fann Instrument Company offers a complete line of instruments for use in testing drilling fluids in accordance with the following American Petroleum Institute publications:*

API Recommended Practice 13B-1, ANSI/API 13B-1/ISO 10414-1,  
API Recommended Practice 13B-2, & API Specification 13A

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