

### **Patented design prevents contamination of test sample by pressurization fluid**

Contact with pressurization fluid can compromise the integrity of sag test results. The M8500 HPHT Dynamic Sagging Tester prevents any contact between the test sample and the pressureization fluid, because the innovative design, in particular the accumulator piston, prevents the test sample from contact with any other fluid, from pressure chamber to pycnometer.

### **Highest pressure and temperature rating**

The 8500 offers the highest pressure and temperature rating of any HPHT sagging tester available in the USA, providing the researcher with a very realistic and robust test environment.

### **Multifunction options are available, adding many capabilities**

The M8500 is available with optional Ultra HPHT Fluid Rheometer, HPHT Cement Rheometer, and/or PVT and LSM Tester modules, with more being developed. These options allow a laboratory to significantly expand the scope and variety of fluid performance testing, without having to purchase, operate and maintain multiple instruments.

*The Grace Instrument M8500 High Pressure, High Temperature Dynamic Sagging Tester is designed for evaluating barite sagging and other weight material sag under simulated drilling conditions. It is fully compliant with standards API 10B & API 13B.*

*A sample of drilling fluid is subjected to an adjustable temperature, pressure, rotor (pipe) speed and borehole angle for a set period of time. Small amounts of the sample are taken from a defined collection site within the testing cell while maintaining temperature, pressure, and shear conditions. Other qualitative and quantitative analysis can also be performed.*



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### **Measurement Range:**

Total Sample Size: Approx. 500 ml  
 Sag Sample Vol.: 7.5 mL (x 3 chambers)  
 Shear Rate: 0.004 to 202 sec<sup>-1</sup>  
 Speed Range: 0.01 to 600 rpm cont.  
 Temperature Range: Amb. (20 °F w/chiller) to 600 °F  
 Pressure Range: Atm to 20,000 psi  
 Borehole Angle: 0 to 80°

### **Mechanical Specifications:**

Dimensions: 30" tall x 12.5" wide x 25" deep (tower)  
 20" tall x 14" wide x 25" deep (cab)  
 Weight: 278 lbs

### **Electrical Supply:**

Viscometer Voltage: 120 VAC (or 240 VAC with transformer)  
 Frequency: 50 or 60 Hz

### **Example of Sag Test Results:**

Table 1: M8500 Dynamic Sag Tester Results for 11.00 lb/gal, oil-based fluid with API Barite weight material		
Initial Mud Density	lb/gal	11.00
Borehole Angle	degrees	80
Temperature	°F	300
Pressure	psi	20,000
RPM	rpm	100
Annulus	inch	0.375
Shear Rate	S <sup>-1</sup>	33.71
Sag Density after 1 hour	lb/gal	13.14
Density Difference	lb/gal	2.14
Relative Density Increase	%	19.45