

**SureDrill-DDM™**



# Drilling Dynamics Monitor (DDM™)

APS's Drilling Dynamics Monitor (DDM™)\* measures and records weight on bit, torque on bit, bending on bit, internal and annular pressure and temperature. Captured data may be transmitted in real time via APS's SureShot™ MWD/LWD system, or stored in the DDM's downhole memory for later download and analysis.

The DDM tool can be equipped with vibration monitoring to measure, calculate and record axial, lateral and angular down-hole shock and vibration. Real-time vibration alarms may be transmitted via SureShot.

\* U.S. Patent #6,547,016

## Product Preliminary Specifications – DDM Tool

Weight on Bit	4-3/4 in.	6-3/4 in.	8 in.
<b>Operating Range</b>	± 30,000 lbs	± 60,000 lbs	± 100,000 lbs
<b>Accuracy</b>	± 5% absolute	± 5% absolute	± 5% absolute
<b>Repeatability</b>	± 1% absolute	± 1% absolute	± 1% absolute
<b>Resolution</b>	1%	1%	1%
<b>Torque on Bit</b>			
<b>Operating Range</b>	± 14,000 ft-lbs	± 30,000 ft-lbs	± 50,000 ft-lbs
<b>Accuracy</b>	± 5% absolute	± 5% absolute	± 5% absolute
<b>Repeatability</b>	± 1% absolute	± 1% absolute	± 1% absolute
<b>Resolution</b>	1%	1%	1%
<b>Bending on Bit</b>			
<b>Operating Range</b>	± 11,000 ft-lbs	± 45,000 ft-lbs	± 45,000 ft-lbs
<b>Accuracy</b>	± 5% absolute	± 5% absolute	± 5% absolute
<b>Repeatability</b>	± 1% absolute	± 1% absolute	± 1% absolute
<b>Resolution</b>	1%	1%	1%
<b>Pressure – Bore &amp; Annulus</b>			
<b>Operating Range</b>	0-20,000 psi	0-20,000 psi	0-20,000 psi
<b>Accuracy</b>	0.1% FSR	0.1% FSR	0.1% FSR

# Drilling Dynamics Monitor (DDM™)

## Product Preliminary Specifications – DDM Tool (continued)



General	4-3/4 in.	6-3/4 in.	8 in.
<b>Borehole Size Range</b>	5-1/4 in. to 6-1/2 in.	8-3/8 in. to 9-7/8 in.	10-5/8 in. to 17-1/2 in.
<b>Connection</b>	3-1/2 IF	4-1/2 IF	6-5/8 Reg.
<b>Nominal O.D.</b>	5.25 in. / 4.90 in. necks	7.25 in. / 6.91 in. necks	8.22 in. / 8.00 in. necks
<b>Nominal I.D.</b>	1.50 in.	3.25 in.	2.813 in.
<b>Nominal Length (Shoulder - Shoulder)</b>	84.0 in.	84.0 in.	92.5 in.
<b>Memory</b>	32 MB	32 MB	32 MB
<b>Material</b>	P550	P550	P550
<b>Environmental</b>			
<b>Max. Sliding Bend Radius<sup>[1]</sup></b>	24.0°/100 ft	22.0°/100 ft	20.0°/100 ft
<b>Max. Rotating Bend Radius<sup>[1]</sup></b>	12.0°/100 ft	10.0°/100 ft	8.0°/100 ft
<b>Operating Temperature</b>	-15°C to 150°C 175°C Option	-15°C to 150°C 175°C Option	-15°C to 150°C 175°C Option
<b>Max. Survival Pressure</b>	26,500 psi	26,500 psi	26,500 psi

<sup>[1]</sup> Provisional.

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Specifications subject to change without notice.

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