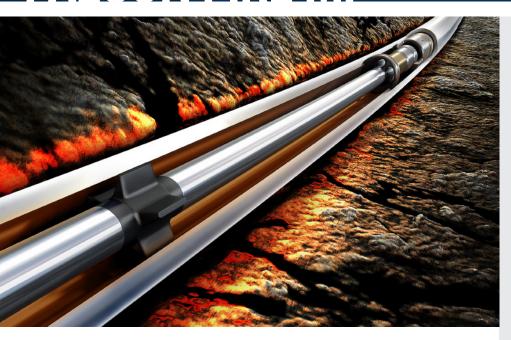
FALCON FIRE MP



The Falcon Fire MP MWD is Scientific Drilling's high-temperature Mud Pulse MWD system, ensuring safer operations, maximum reliability, precision wellbore placement, and deeper reach.

The system parameters are fully field-programmable, yielding predictable performance in the world's harshest drilling environments, including extreme LCM conditions.

Falcon Fire MP MWD provides the following borehole measurements in real-time:

- Survey Inclination & Azimuth
- Tool Face
- API Calibrated Gamma Ray
- Drilling Dynamics: Axial and Lateral Vibration, Stick slip, Temperature
- Continuous Inclination

For more information on improving your drilling efficiency [while staying on target] contact your Scientific Drilling sales representative or visit: http://scientificdrilling.com/mwd

APPLICATIONS

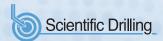
- High-temperature environments
- + Geothermal
- Unconventional resource plays
- Directional/horizontal drilling
- + Relief well and re-entry
- Magnetic ranging (passive and Active)
- Steam assisted gravity drainage (SAGD)

BENEFITS

- Pressure-compensated pulser design offers compatibility in a wide range of bottom hole pressure operations
- Bi-directional communication for MWD tool parameter customization while downhole
- Field-configurable system enables flexibility for changing well conditions
- Innovative electronics and mechanical design deliver optimal performance in high-temperature operations

FEATURES

- Utilizes proprietary TUF™ preventative maintenance system
- Includes full accelerometer and drilling dynamics package
- Supports temperatures up to 350°F (177°C)
- Capable of 50-1500 GPM flow rates
- Supports BHA sizes 3.125" to 9.5"
- Positive displacement up to 5 bps



GENERAL SPECIFICATIONS			
TOOL OD		DOG LEG SEVERITY	
		Rotating	
3.125 in (79.4 mm)	· -	17°	
3.500 in (89.9 mm)		15°	
4.750 in (120.7 mm)		12°	
6.250 in (158.8 mm)		10°	
6.500 in (165.1 mm)		10°	
6.750 in (171.5 mm)		3° 7°	
8.000 in (203.2 mm)	. —	(5°	
9.500 in (241.3 mm)	12	0	
PRESSURE RATING	20,000 psi @ 300°F (30,000 psi available)		
	137,900 kPa @ 150°C (206,842 kPa available)		
TEMPERATURE RATING	350°F (177°C)		
LOST CIRCULATION MATERIAL	Medium nut plug, 40 lbs/bbl (18Kg/bbl)		
TELEMETRY	Positive Displacement, up to 5bps		
	Tool Face ±0.15" > 3		
SENSOR ACCURACY	Azimuth ±0.25'	′>3	
	Inclination ±0.15" at all angles		
MAX BIT PRESSURE	No limit		
	TOOL OD	GALLONS/MINUTE	
RANGE OF FLOW RATES	3.125 - 3.5 in	50 - 200	
	4.750 - 6.5 in	100 - 400	
	6.250 - 6.5 in	200 - 600	
	6.750 - 8.0 in	250 - 1,000	
	9.5 in	400 - 1,500	
OPERATING TIME	300+ Hours		

DIRECTIONAL SPECIFICATIONS		
LENGTH	DIRECTIONAL ONLY 16.8 ft (5.12 m) (+6 ft pulser sub)	DIRECTIONAL & GAMMA RAY 20 ft (6.1 m) (+6 ft pulser sub)
DATA UPDATE PERIOD	Minimum 1.4 sec @ 0.1 sec pulse width Maximum 14 sec @ 1 sec pulse width	
CALCULATED SURVEY TIME	7 Seconds	
RAW SURVEY TIME	18.2 Seconds	
CONTINUOUS INCLINATION	SLIDING Yes	ROTATING Yes

VIBRATION SPECIFICATIONS	
AXIAL	4 g $_{\rm RMS}$ for 3hr; 6 g $_{\rm RMS}$ for 0.5hr
LATERAL	5 g $_{\text{RMS}}$ for 3hr; 7.5 g $_{\text{RMS}}$ for 0.5hr
STICK-SLIP DETECTED (0.5HR)	150% for 3hr, 200% or neg. rpm detected for 0.5hr

 $[\]star \mbox{Specifications}$ are subject to change without notice

