

PressureWave[®] Formation Tester

Providing mission-critical pore-pressure measurements and fluid-mobility information

Applications

- Providing direct measurement of pore pressure in real time
- Developing and updating reservoir models while drilling
- Identifying safe operating limits for drilling-mud programs

Features and Benefits

- The PressureWave tool enables performing pressure tests either with the rig mud pumps turned on to prevent stuck pipe and well-control problems or with the mud pumps turned off to acquire the highest quality data possible.
- The tool transmits pressure and diagnostic data in real time during testing with mud pumps on or in near time when testing with the mud pumps off.
- From the wellsite, engineers can modify drawdown parameters, station time, and pad-setting force between stations by using Weatherford DownLink Commander[®] technology.
- An electromechanical drawdown module enables precise control of the drawdown rate and volume, which enhances measurement accuracy in very low-mobility formations.
- The minimal distance between the pressure gauge and the probe reduces the hydrostatic-head offset to less than 0.25 psi (1.72 kPa).

Tool Description

The Weatherford PressureWave formation tester provides direct measurement of the formation pore pressure. When used with the hostile-environment-logging (HEL) logging-while-drilling (LWD) system, the PressureWave formation tester also delivers mission-critical formation-pressure and fluid-mobility information.

The tool takes fast, reliable formation pressure measurements with the mud pumps either on or off. When testing with the pumps on, the tool transmits real-time data at a maximum rate of one measurement per 4 seconds with a 0.5-psi (3.45-kPa) resolution. The tool records all the high-resolution, 32-bit pressure data to memory every 0.2 seconds.

The data recorded by the PressureWave tool enables operators to better evaluate the potential of reservoirs and formations early in the life of the well. Pore-pressure data also informs drilling plans and helps drillers mitigate potential hazards.



The PressureWave formation tester acquires and records real-time pore-pressure data, which helps enhance reservoir models and drilling plans.



* PressureWave and DownLink Commander are registered trademarks of Weatherford in the US.

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Specifications

Sensor

Size	4-3/4 in.	6-3/4 in.	8-1/4 in.
Sensor type	Probe pre-test		
Gauge type	Quartzdyne [®] pressure transducer		
Probe to pressure gauge distance	13.1 in. (33.3 cm)	9.75 in. (24.76 cm)	13.4 in. (34 cm)
Measurement range	0 to 30,000 psi (0 to 206.8 MPa)		
Measurement accuracy	±0.02% of full scale		
Measurement resolution	<0.01 psi (<68.9 Pa)		
Flowline volume	57 cm ³	62 cm ³	64 cm ³
Total drawdown volume	45 cm ³		
Drawdown rate	0.1 to 4.0 cm ³ /s		
Maximum drawdown pressure	5,000 psi (34.5 MPa)		
Probe seal OD	2-3/8 in. (60.325 mm)		
Probe flow inlet diameter	3/4 in. (19.05 mm)		
Memory capacity	75 stations ^a		

^a Varies depending on the test parameters



* Quartzdyne is a registered trademark of Quartzdyne Electronics, a Dover Corporation.

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Specifications (continued)

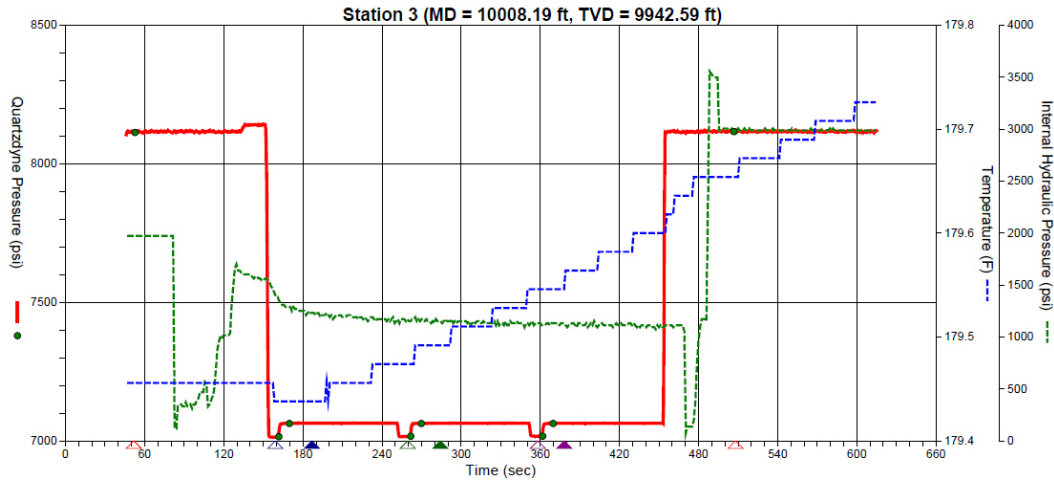
Mechanical

Size	4-3/4 in.	6-3/4 in.	8-1/4 in.
Hole size range	6 to 6-3/4 in.	8-1/2 to 10-1/4 in.	12-1/4 to 15 in.
Maximum collar OD	5-3/4 in.	8-1/4 in.	12 in.
Length	26.2 ft (7.9 m)	24.3 ft (7.4 m)	24.6 ft (7.5 m)
Weight	1,372 lb (624 kg)	3,290 lb (1,492 kg)	4,082 lb (1,852 kg)
Top/bottom connection	3-1/2 IF	4-1/2 IF	5-1/2 IF
Makeup torque	9,900 to 10,900 lbf-ft (13,424 to 14,780 N·m)	28,000 to 32,000 lbf-ft (37,968 to 43,392 N·m)	53,000 to 56,000 lbf-ft (71,868 to 75,936 N·m)
Maximum torque	16,700 lbf-ft (22,645 N·m)	48,200 lbf-ft (65,359 N·m)	80,100 lbf-ft (108,616 N·m)
Maximum tension	528,000 lbf (2,348,661 N)	978,000 lbf (4,350,360 N)	1,450,000 lbf (6,449,921 N)
Bending strength ratio	2.10	2.53	2.47
Maximum dogleg severity, rotating, per 100 ft (30 m)	15°	8°	7°
Maximum dogleg severity, sliding, per 100 ft (30 m)	30°	16°	14°
Equivalent bending stiffness (OD × ID)	4.75 × 3.28 in.	6.75 × 4.26 in.	8.25 × 6.89 in.
Maximum operating temperature	Standard model: 329°F (165°C)		
Maximum operating pressure	Standard model: 20,000 psi (137.9 MPa) Optional model: 30,000 psi (206.8 MPa)		Standard model: 20,000 psi (137.9 MPa) Optional model: 25,000 psi (172.4 MPa)
Maximum flow rate	350 gal/min (1,325 L/min)	700 gal/min (2,650 L/min)	1,800 gal/min (6,814 L/min)
Maximum sand content	2%		

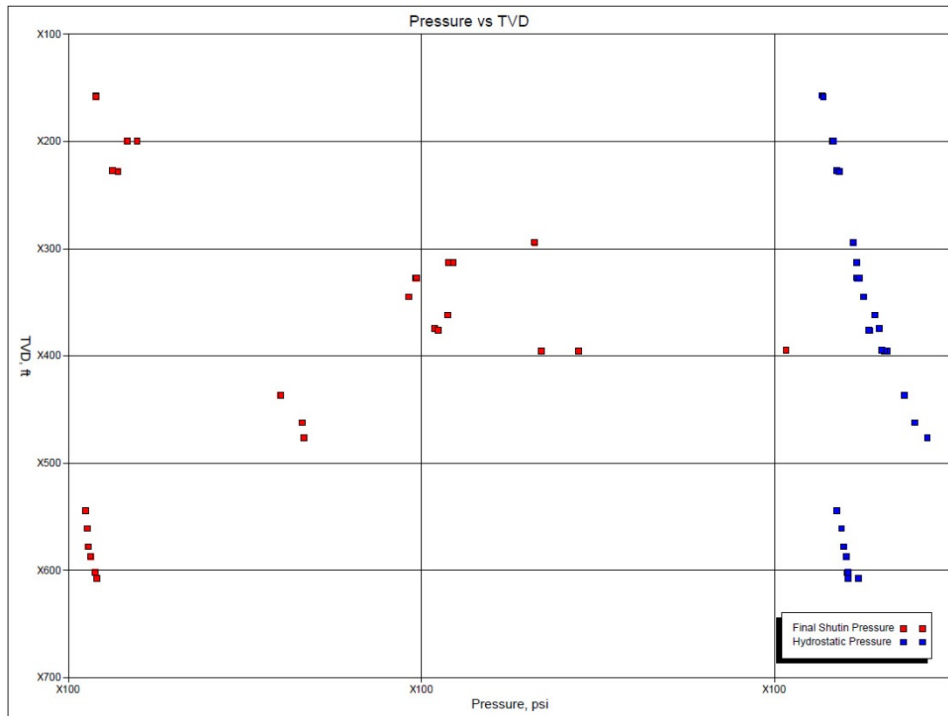


PressureWave[®] Formation Tester

Log Presentation



Sample pressure station plot of data recorded by the PressureWave tool



Sample pressure vs. true-vertical-depth plot of data recorded by the PressureWave tool

