

Tool Specification

6³/₄ in. BlackBox High Frequency Tool

Our BlackBox™ High-Frequency (HF) memory-mode tool samples dynamics data at 1500 Hz and load measurements at 100 Hz. With advanced internal memory that can record a full dataset for 175 hours, it provides data for weight on bit, torque on bit, three-axis vibration, annular pressure, internal pressure, temperature, and RPM. Due to the high memory capacity of the BlackBox HF tool, all of the high-speed, sampled data is stored and delivered to the surface where it can be further analyzed in the office.



Mechanical specifications

Specifications and dimensions¹

Size	6 ³ / ₄ in.
Overall length	72 in.
Material	4330V Mod.
Material yield strength	165 ksi
Max tool OD	6 ³ / ₄ in.
Nominal ID	2 ¹ / ₄ in.

Mechanical ratings

Rating pressure ²	20,000 psi
Dogleg - Rotating	10°/100 ft
- Sliding	20°/100 ft
Max tension	700 K
Max torque	36,700 ft-lbs
Rated temperature	32 (0) to 302° (150°) F(C)

Uphole connection

Tool connection	NC50 Box
Tool joint ID	3 ¹ / ₂ in.
Tool joint OD	6 ³ / ₈ in.
Max make-up torque ³	36,700 ft-lb

Downhole connection

Tool connection	NC50 Pin
Tool joint ID	3 ¹ / ₂ in.
Tool joint OD	6 ³ / ₈ in.
Max make-up torque ³	36,700 ft-lb

Data performance⁴

Memory life	175 hr continuous (typ) 8 GB data storage
Data collection	Vibration record rate = 1500 Hz All other record rates = 100 Hz

Dynamic sensor specifications⁵

Measurement type	Range	Sensor accuracy	Sensor resolution
Lateral vibration (x-axis, y-axis)	±40 g	1% FS	0.0025 g
Axial vibration (z-axis)	±40 g	1% FS	0.0025 g
RPM	±333	5% FS	0.05 rpm
Weight	±300 klb	2.5% FS	13 lb
Torque	±40 kft-lb	2% FS	2 ft-lb
Annular pressure	0 to 20,000 psi	0.4% FS	0.7 psi
Internal pressure	0 to 20,000 psi	0.4% FS	0.7 psi
Temperature	-40° C to 150° C	3° C	0.13° C

¹ All measurements listed are nominal. Redressed or worn Sub values may vary.

² Maximum internal, external, or hydrostatic pressure.

³ The maximum make-up torque should be applied when possible.

To determine MUT for uphole and downhole connections, consult the specifications sheet of the mating component.

⁴ The lesser of the two max MUT values shall not be exceeded.

⁵ Values assume default data configurations are used.

⁵ Values are based at the ambient temperature under nominal vibration levels.