

ST5

SHOCK TOOL

COUGAR
DRILLING SOLUTIONS

ST5 SHOCK TOOL



OVERVIEW

PRODUCT TECHNICAL SHEET
ST5 Shock Tool



ST5 SHOCK TOOL

The Cougar DS ST5 Shock Tool is designed for a wide range of drilling conditions. Deep, hot and deviated wells can all be drilled efficiently – from spud to T.D.

ST5 BENEFITS

- Increased bit life
- Increased penetration rate, by ensuring optimum bit weight and RPM
- Minimization of hole deviation by dampening transient loads and controlling net forces at the bit
- Lengthened drill string component life by reducing cyclic loading
- Reduced rig floor maintenance costs by reducing vibrations at the surface

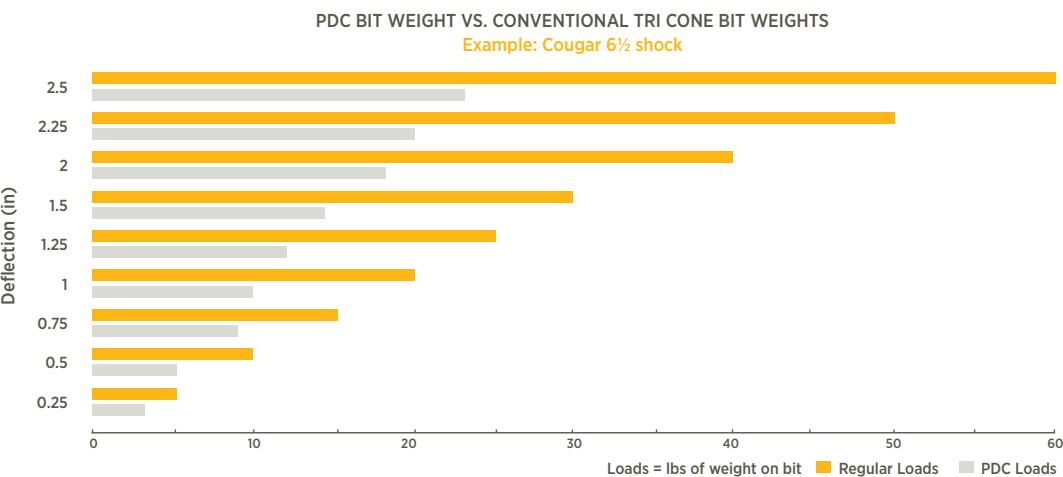
ST5 SHOCK TOOL PLACEMENT

For optimal tool performance, the Cougar ST5 Shock Tool should be placed just above the bit to minimize the amount of un-sprung mass below the tool. Please note: Improper location in the bottom hole assembly can cause severe damage to the shock tool.

The Cougar ST5 Shock Tool should be placed where it is exposed to minimum side loading or bending stress. The shock tool should have the equivalent amount of stabilization on either end. If it is stabilized at the lower connection, there should be stabilization within 30 ft. of the upper connection.

OPERATING FEATURES

- The Cougar Shock Tool's unique Belleville spring arrangement allows for spring rates tailored to specific applications. The shock tool is supplied with a standard spring configuration to ensure optimum performance with typical tool placement, and drill bit configurations. It can be supplied with a spring arrangement specifically tailored to PDC bit usage. A PDC bit spring configuration is a special arrangement of the Belleville spring at the time of tool service, but can be supplied in any size of Cougar DS shock tools.



OPERATION

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- The Cougar ST5 Shock Tool can be run with the mandrel up or down. The shock tool mandrel has a large diameter with sealing surfaces that provide excellent wear and corrosion characteristics. Ample wear surfaces are inside this tool to maximize its stiffness and to provide excellent tool action. This makes the Cougar DS Shock Tool equally effective in either orientation.
- The Cougar Shock Tool seal material and wear surfaces have been selected to provide maximum service life in all drilling mud systems. Invert mud systems and silicate mud systems are fully compatible.
- Bi-directional spring action allows the Cougar ST5 to compress or extend to compensate for any combination of bit weight or pressure drop across the bit.
- The advanced engineering of the Cougar steel springs provides excellent vibration dampening.
- Standard operating temperatures are up to 225°F (107 °C). Special seals are available for operating temperatures up to 450°F (232°C).
- The hydrostatically balanced ST5 Shock Tool has a special floating piston to prevent closing under deep drilling conditions.
- The ST5 Shock Tool body connections are minimal to reduce potential failures.

QUALITY

The Cougar ST5 Shock Tool is designed and constructed to withstand high temperatures, high torques, H2S, CO2 and other corrosive materials and environments.

- Tool joints and API body connections are relieved of stress using a modified API relief groove on pin connections. All threads are treated with an anti-corrosion and anti-galling coating.
- The use of Computer Aided Design (CAD), Finite Element Analysis (FEA) and Computer Aided Manufacturing (CAM) enhance the performance of the ST5. CAD and FEA provide the highest standards of design geometry and accuracy. CAM ensures the high quality and repeatability of precision manufacturing required for today's extreme drilling applications.

GET THE JOB DONE RIGHT

When drilling gets rough, you need a tool that isolates the drill string and keeps the bit on the bottom. You need the Cougar DS ST5 Steel Spring Shock Tool. Whether you're running the ST5 in deep, hot, deviated or normal wells, the shock tool's innovative spring design dampens vibration in even the harshest conditions.

PREMIUM TOOLS FOR TOUGH JOBS

We use the highest-grade steel available. Every Cougar DS tool passes magnetic particle inspection, and performance tests before leaving our shop. We ensure complete traceability by documenting and logging all manufacturing, testing and inspection processes.



ENGLISH UNITS

OD (in.)	ID (in.)	Approximate Shipping Weight (lb.)	Length (ft.)	Pump Open Force		Maximum Torque (ft.-lb.)	Stroke (in.)
				Piston Area (in. ²)	Ported Piston Area (in. ²)		
4 ¾	1 7/16	700	12	11.0	1.9	17,000	3
6 ½	2 ¼	1,300	12	18.6	2.3	40,000	3
6 ¾	2 ¼	1,450	12	22.7	3.9	40,000	3
8	2 ½	2,100	12	30.7	5.0	68,000	3 ⅝
9	2 13/16	2,950	12.5	41.3	7.7	93,000	3 ⅝
9 ½	2 13/16	3,150	12.5	41.3	7.7	93,000	3 ⅝
12	3	4,950	15.75	70.9	15.9	175,000	4

SI UNITS

OD (mm)	ID (mm)	Approximate Shipping Weight (kg)	Length (m)	Pump Open Force		Maximum Torque (Nm)	Stroke (mm)
				Piston Area (cm ²)	Ported Piston Area (cm ²)		
121	36	320	3.7	71	12	23,000	76
165	58	590	3.7	120	34	54,000	76
171	57	660	3.7	146	25	54,000	76
203	64	955	3.7	198	32	92,000	79
229	71	1,340	3.8	266	50	126,000	79
241	71	1,430	3.8	266	50	126,000	79
305	76	2,250	4.8	457	103	237,000	101

CERTIFICATE
0026960



ISO 9001

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COUGAR
DRILLING SOLUTIONS

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