

HYMEC HST SHOCK TOOL



The HST Shock Tool is a new generation Shock Tool and incorporates both proven and new technology for much improved performance. Using steel disc springs, a unique damping system and pump open force enables the HST Shock Tool to produce maximum bit performance. During drilling or milling the tool will normally be run partially compressed, enabling to compensate up or down as required to make bit/mill stay on bottom.

Jarring

The tool is sprung in both directions, but when jarring becomes necessary, an overpull will bring the retaining ring in contact with the pin on splined housing, causing the tool to act as an integral part, eliminating any adverse reaction from the spring system while jarring.

Features

- High quality steel for longer life
- No chrome exposed to drilling fluid
- Steel disc springs sprung in both directions
- Shock absorber ensures that bit / mill return with hydraulic control after bounce up
- Metal to metal contact when jarring up
- Hydrostatically balanced
- Spline is stabilised and the tool will not build angle
- Internal mechanical safety bearing
- Tool is fully stress relieved both internal and external

Advantages

- Reduce bit / mill bounce
- Extends bit / mill life and performance
- Reduces shock loads up the string
- Can be used in high temperature wells with special seals

TOOL OPERATION

The shock tool incorporates a pressure balancing piston which equalises pressure inside the tool with pressure inside the drill string. This piston also guarantees pressure lubrication throughout the tool. Because of a difference in pressure inside and outside the tool, or pressure drop across the bit the tool tends to open the amount equal to the pressure drop across the bit, times the cross sectional area of the splined mandrel at the seal area.

If the hydraulic force extending the tool is more than the bit weight, then the tool will open compressing the spring from the top end, or between the wash-pipe and the pin on the splined housing, until the bit weight and load carried by the springs equal the pump open force. If the pump open force is less than the bit weight, then the tool will close compressing the springs from the bottom, or between the end of the splined mandrel and pin on the bottom sub, until the load carried by the springs plus the pump open force is equal to the bit weight.

The shock tool is preferably run next to the bit to keep the oscillating mass to a minimum, allowing the shock absorbing element to most effectively absorb accelerations and keep the bit on bottom. If a packed hole assembly is run, then the tool should be placed further up the string. This, however, will reduce the effectiveness because of the larger oscillating mass.

Free vertical movement is assured by guiding the mandrel above and below the spline drive assembly. No lateral loads are taken on drive assembly. The tool is manufactured from S.A.E. 4330 and 4145 quenched and tempered steel. The Shock Tool does not use any temperature sensitive elastomers for shock absorption and may be used to 450°F with the use of optional seals for temperatures above 275°F. The length of run between servicing should be shortened for high temperature holes.

Specifications

Tool Series	47	66	81	95	112	120
Tool Size OD (new)	4.89"	6.73"	8.26"	9.67"	11.23"	12.00"
Bore ID	2.25"	2.75"	3.25"	3.75"	4.00"	4.00"
Tensile Load (Max) lbs	508,080	894,560	1,399,820	2,168,640	2,570,240	2,570,240
Yield Torque (new) ft/lbs	17,700	58,400	112,800	162,300	236,400	236,400
P.O.A. sq. in.	7.4	15.9	23.6	33.2	47.6	47.6
Max Temp F/C (Standard)	275/132	275/132	275/132	275/132	275/132	275/132
Max Temp F/C (High)	450/232	450/232	450/232	450/232	450/232	450/232
Max Drilling Hrs up to 275° F (Standard)	350	350	350	350	350	350
Max Drilling Hrs up 450° F (Standard)	200	200	200	200	200	200
Length approx. m/ft	4.9/16	4.9/16	4.9/16	4.9/16	4.9/16	4.9/16
Weight approx. kg/lbs	300/660	600/1320	1000/2200	1400/3080	2000/4400	2300/5060
Standard Connections	NC38	NC50	6.5/8" Reg.	7.5/8" Reg.	8.5/8" Reg.	8.5/8" Reg.

Other sizes available on request.

Sales enquiries:

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Downhole Product Services

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