

# **TORAX**

# **OIL TOOLS LTD.®**

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# **TORAX**

## **TORSIONAL SHOCK ABSORBER**

Torax Oil Tools Ltd.® has developed a revolutionary new tool combination designed to reduce axial vibration and torsional stress loading on the drill string. The company's conventional shock absorber is run in conjunction with a newly developed rotary shock dampener (pat. pend.). the system provides a significant reduction in both harmonic and random stress cycles which are major contributors to drill string fatigue failures.

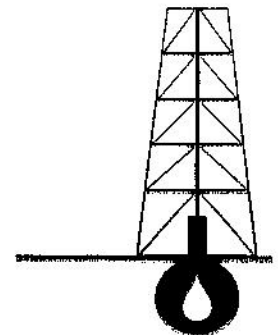
The torsional tool is designed with a splined housing which drives a splined mandrel through polyurethane inserts. Shock dampening is provided for, on both the driving and return faces of the splines. Spring rate is a function of; insert diameter, material durometer and in some cases a combination of unlike materials in the insert composition. Deformation of the inserts as loading increases provides for an exponential impact absorption curve. Under controlled test conditions the angle of deflection on a 158.75 mm (6 1/4") tool at 12200 Nm (9000 ft lb) torsional force was 6.5 degrees. The tools are assembled under preload conditions to insure proper return rates. Insert selection is determined through the knowledge of expected drilling conditions. Information regarding anticipated maximum torque loads, rotational speeds and bottom hole temperatures all contribute to optimization of the tool's configuration.

The torsional tool is designed with a sealed, oil filled and pressure compensated spline housing. The synthetic operating fluid is treated with a gas evacuation system to less than .1 atmospheres to remove any air bubbles that are present in the tool. These additional precautions insure that the critical operating components remain in an uncontaminated environment regardless of drilling fluid conditions.

During development of this tool, reliability and dependability held the highest priorities in design criteria. It was felt that, in addition to providing a superior assembly which will protect the drill string against fatigue and shock induced damage, the tool itself must be rugged enough to withstand the severe abuse encountered in the most demanding drilling conditions.

### ULTIMATE LOAD FACTORS

	daN	Lbs
Tensile Load	258.910	582.082 lbs
Shear Load	481.407	1,082,300 lbs



TOP HOUSING

FLOATING PISTON

UPPER BEARING

TRANSFER COLLAR

LOWER BEARING

COMPOSITE BARS

OUTER SPLINE HOUSING

BUSHING

INNER SPLINE MANDREL

