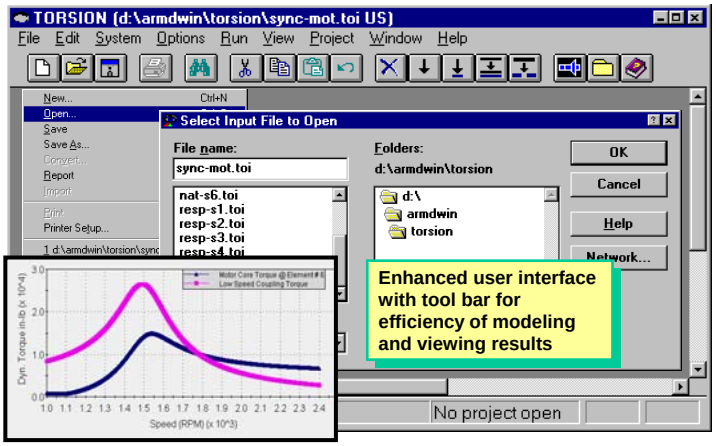
TORSIONAL VIBRATION (TORSION™)

The torsional vibration module uses a **finite element** based formulation for performing damped and un-damped torsional natural frequencies, mode shapes, stability, and time-transient response of mechanical drive trains. TORSION consists of two sub-modules **TORNAT** and **TORRSP** integrated by TORSION's module messenger. The messenger controls the sub-modules to provide a complete torsional vibration analysis environment. TORSION accepts models generated with ROTLAT and has the same basic modeling capabilities as well as the modeling of multi-shaft / multi-branch systems, coupling stiffness and damping, gear tooth flexibility, various types of external excitations, synchronous motor start-up torque, compressor torque, etc.



Enhanced user interface with tool bar for efficiency of modeling and viewing results

New steady-state torsional response analysis solver TORHRM available: angular displacement, velocity, acceleration, torque, stress depending on speed.

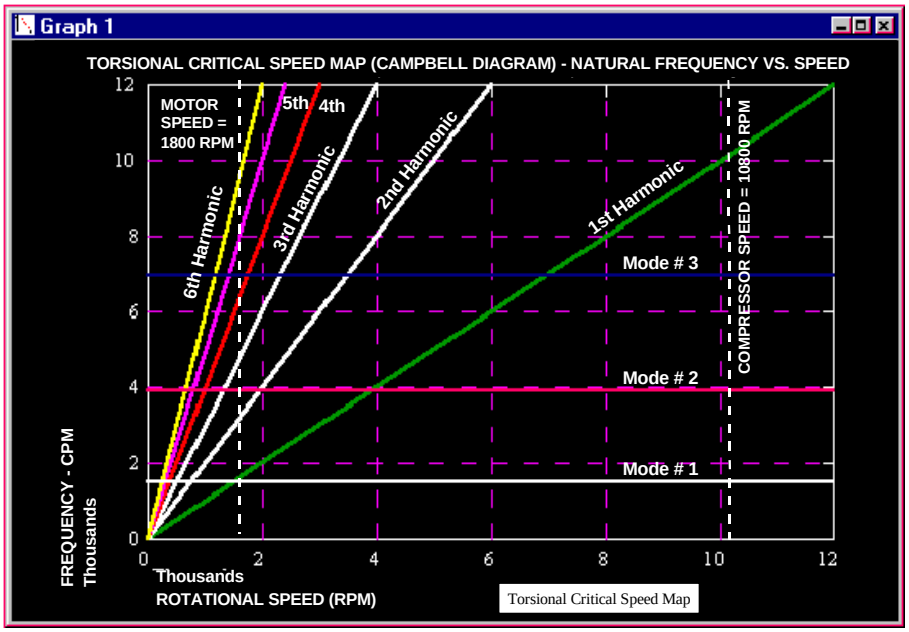
TORSION analyses results include:

Stability Analysis

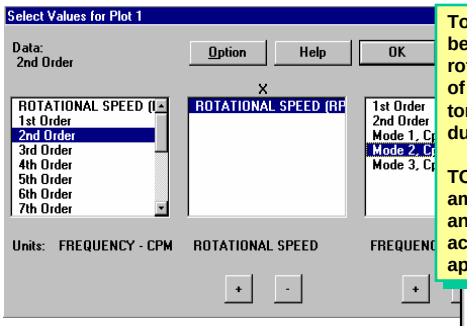
- Natural frequencies
- Growth factors / damping ratios
- Mode shapes of vibration
- Critical speed maps (CAMPBELL diagrams)

Time-Transient Response

- Torsional vibratory amplitudes and shaft torque time history
- Dynamic stresses
- Fatigue life
- Gear backlash



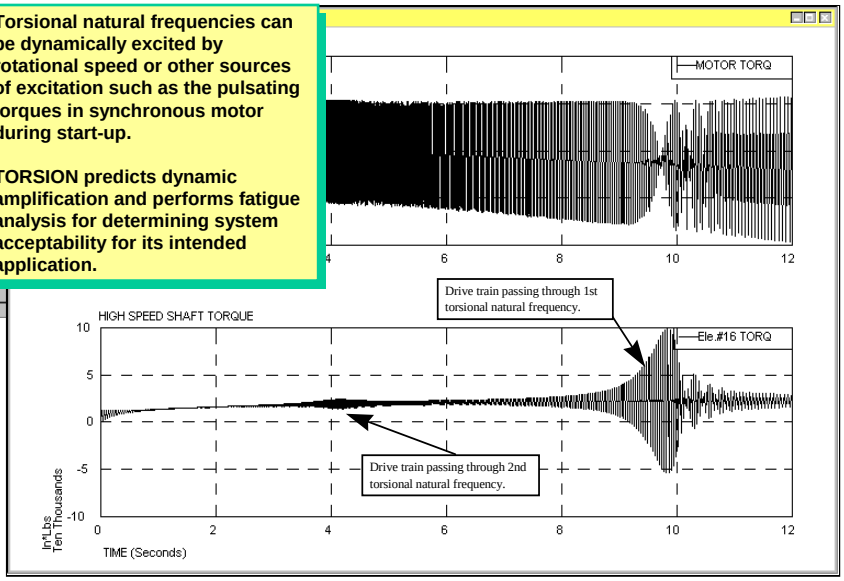
Graphics utility permits user defined graph settings, scaling, and many other options.



Graphics screens can be copied to other applications such as word processors and presentation utilities for preparation and presentation of technical reports.

Torsional natural frequencies can be dynamically excited by rotational speed or other sources of excitation such as the pulsating torques in synchronous motor during start-up.

TORSION predicts dynamic amplification and performs fatigue analysis for determining system acceptability for its intended application.



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