



### ROTOR DYNAMICS (ROTLAT™)

ROTLAT is a finite element based software for performing damped and undamped critical speeds, mode shapes, stability, unbalance response, and time-transient response.

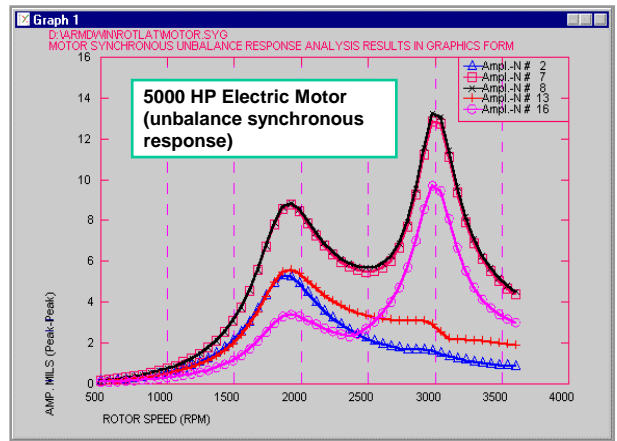
ROTLAT consists of four modules: ROSTAB, ROTORMAP, ROSYNC, and RORESP integrated by ROTLAT's module messenger. The messenger controls the sub-modules to provide a complete lateral vibration analysis environment.

ROTLAT'S modeling capabilities include solid, hollow, tapered and stepped type elements, cylindrical, conical, tilting-pad, and rolling element type bearings, gravitational loading, bearing elevation, gyroscopic effects, flexible coupling, casing, foundation flexibility, and material damping in the shaft and foundation.

ROTLAT analyses results include:

#### Stability Analysis

- Natural frequencies & mode shapes
- Growth factors/damping ratios
- Rotor orbit directions
- Bearing reaction forces
- Shaft weight, deflection, and centerline slope
- Stability and critical speed maps



Bearing Load Information		
	Bearing 1	Bearing 2
Speed 1	0.0000E+00	0.0000E+00
Speed 2	0.0000E+00	0.0000E+00
Speed 3	0.0000	

Node	DOF	Type	Auto	ND File	Elevation
1	2	2	<input type="checkbox"/>	Manual	0.000000E+00
2	13	2	<input type="checkbox"/>		0.000000E+00

Bearing Information	
Bearing type	0 to 4
Bearing Type	<input checked="" type="checkbox"/> 0 User-specified (manually edit) <input type="checkbox"/> 1 Journal, fixed geometry (JURNBR) <input type="checkbox"/> 2 Conical, fixed geometry (HYBCBR) <input checked="" type="checkbox"/> 3 Tilting pad (TILTBR) <input type="checkbox"/> 4 Rolling element (COBRA)

Bearing dynamic coefficients are manually specified or automatically imported from bearing solution modules

#### Unbalance Response

(Synchronous response)

- Multiple unbalance forces
- Magnitude and phase
- Dynamic forces and moments
- Vibratory amplitudes and orbits
- Forces and moments transmitted to bearings and foundation
- Foundation vibratory amplitudes

#### Time-Transient Response

(Non-synchronous response)

- Gravitational & external force: sinusoidal, step, ramp, pulse
- Lateral amplitudes
- Rotor orbits
- Dynamic forces and moments
- Dynamic stresses

