

# Shafts, coaxial shaft systems

## General

- Graphical shaft editor for fast modelling
- Calculates stress concentrations from feature geometry
- Add force elements like gears, pulleys or couplings for simple load definition
- Materials, bearings, lubricants databases
- Automatic identification of critical sections

## Configurations

- Single shaft or coaxial shaft systems
- Static deformation, modal analysis
- General supports or rolling element bearings, pilot bearings, internal bearings
- Linear or non-linear calculation with Euler or Timoshenko beam model considering temperature effects

## Strength rating

- Strength rating along DIN 743, FKM guideline, Hänchen & Decker or AGMA 6101
- For static and fatigue strength, for single load case or load spectrum
- Using material database or own definition for S-N curve, different Miner rules
- Independent load factors and stress ratios for static and fatigue rating

## Modal and forced response analysis

- Modal analysis
- Forced response analysis, with damping
- Considers bearing stiffness

## Deformation and stiffness calculation

- Non-linear bearing stiffness is calculated based on inner bearing geometry
- Housing deformation, machining errors and similar may be defined as initial bearing offset
- Any number of loads may be added

## Tooth trace calculation

- Calculation of shaft deformation of pinion shaft, calculation of necessary lead modification
- Housing stiffness, bearing stiffness and shaft stiffness may be considered

