

Gear body influence

Modelling and FEM

- Hub / web / rim arrangement
- Parametrized geometry
- Automatic meshing, parabolic tet elements
- Automatic meshing, parabolic prism elements
- Modeling of local radii
- Automatic defeaturing capabilities
- Geometry preview, mesh preview
- Import of *.stp files
- Multibody modelling (separate materials for rim and body)
- Result review per body

Calculations and integration

- Calculation of deformation and reduced stiffness matrix
- Stiffness matrix connected to shaft calculation
- In combination with LTCA
- 2D and 3D-gear body deformation

Tooth geometry export

Options

- With or without profile / lead modifications
- Modifications may be different per tooth
- Modifications may be different per flank
- Output in transverse, normal and axial section
- Output of tooth or gap, single or half tooth
- Output as x,y format to use e.g., in spreadsheet calculations
- Output as x, y, z format in line with Gleason or Klingelnberg format for measuring machines

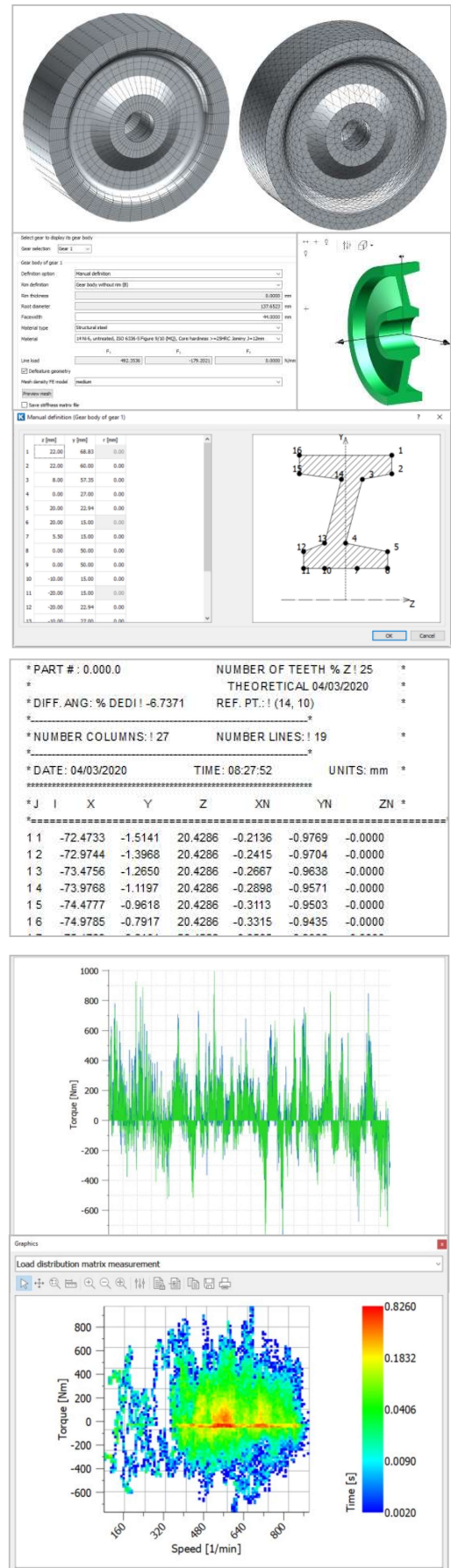
Rating with time series

Import and conversion

- Import time series of speed and torque from text file
- Convert to load duration distribution load spectrum (LDD), save LDD for gear rating
- Considers changes in torque direction
- Considers changes in speed direction
- Graphical display of resulting load and speed distribution

Configurations

- Rain flow count method according to Amzallag or ASME
- Simple count method



Loaded tooth contact analysis

Configurations

- Considers all modifications in profile and lead direction and topological modifications
- Calculation over one or several pitches
- Pitch errors may be considered in part or fully
- Calculation for nominal or operating center distance
- Calculation for nominal or partial load level
- Meshing friction considered in calculation
- Considers true gear geometry from manufacturing simulation
- For internal and external gears
- User defined resolution in calculation
- Line load calculation along ISO 6336-1, Annex E with consideration of manufacturing errors

Mesh stiffness calculation

- Calculation of transmission error TE for spur and helical gears, showing peak to peak transmission error PPTTE, average and standard deviation
- Calculation of normal force, torque variation, contact stiffness, bearing forces, kinematics, specific sliding, and local heat generated over meshing cycle
- Results displayed vs. roll angle, pinion diameter, length on path of action, pinion angle of rotation
- Calculation has been verified in benchmarks against reference software, practical experience in full load tests and FEM calculations
- Different methods for slice linking spring stiffness

Output

- Graphics, exportable as graphic format or *.dxf
- Report including calculation settings and results summary
- Report including all graphics

True contact ratio calculation

- Calculation of true transverse contact ratio under load
- Calculation of true total contact ratio under load

