

## KISSsoft: Gears in 3D

To represent the progressive milling of tothing on a 5-axis milling machine, you need a precise 3D model that shows the initial situation. KISSsoft can output 3D models in nice new colors which can then undergo further processing with CAD or CAM software process.

### Cylindrical gears

- Straight and helical toothed gears
- Helical gearings and racks
- All possible modifications

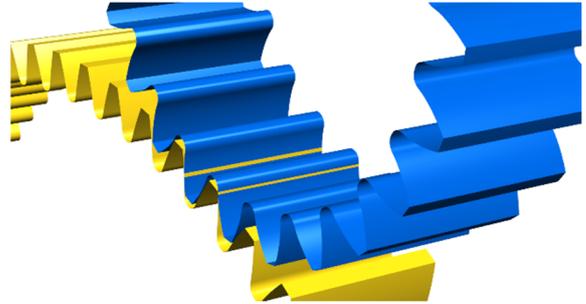
The program can output cylindrical gears with straight and helical flanks, as well as helical gearings and racks, along with all possible modifications. In addition to the standard range of modifications specified in ISO 21771:2007, such as crowning and profile crowning, angle corrections, and different types of tip and root relief, you can also perform freely definable topological modifications. Different modifications can be defined for each flank, so you can specify the optimum running performance for each flank.



### Skin model used to verify contact

This skin model display makes it easy to verify the contact lines in every meshing position. You can also vary the predefined parameters, such as the axis deviation error, axis inclination error, and center distance. This provides a way to also output the 3D model for premilling which may, for example,

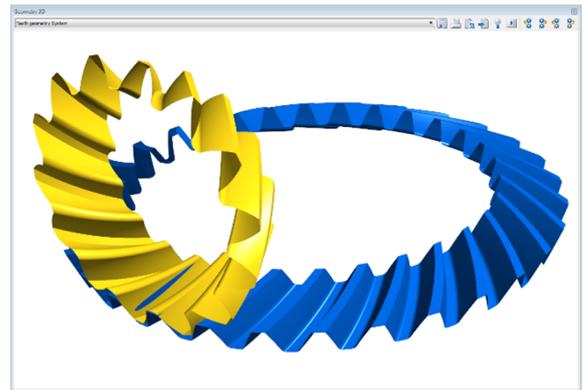
have been calculated using a protuberance tool and the required measure.



### Bevel gears

- Straight/helical and spiral toothings
- Klingelnberg and Gleason
- VH check at the simulation stage

Bevel gears with straight and helical toothings (apexes not in one point) and spiral teeth are available here. The cutting methods specified by Klingelnberg (cyclo-paloid®) and Gleason ("face hobbing" and "face milling") for spiral teeth are provided here. The load-free contact characteristics can be checked on the skin model display.



If you are working with bevel gears, you can modify the length and profile crowning (asymmetrically, if required), and the meshing, perform a helix angle modification, and modify the twist, for either the driving or driven flank, just as you require. All these modifications are then applied to the 3D display.

The preliminary treatment steps can also be output as a model.

The option of modifying the predefined pinion/bevel gear assembly and the offset now makes it possible to run the widely used VH check at the simulation stage of the design process.

### Spiral-toothed gears

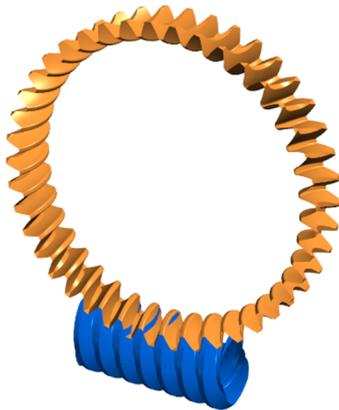
The 3D models used for spiral-toothed gears have the same functionality as those for cylindrical gears.

### Worm gears

- Globoid worm gears
- Calculation acc. to ISO/DTR 10828.2
- Worm wheel cutter modifications

The program outputs 3D models with a cylindrical worm wheel for globoid worm gears. The tooth forms are calculated according to the standard ISO/DTR 10828.2. This standard is the first one to provide a uniform description of the tooth forms ZA, ZI, ZN, ZK and ZC (Cavex).

The flank modification process includes an option for inputting a larger worm wheel cutter, and modifying the relative axis alignment to optimize the contact pattern, and therefore improve the running performance.



### Face gears

Face gears and pinions can also be output as 3D models. The 3D models used for pinions have the same functionality as those for cylindrical gears.

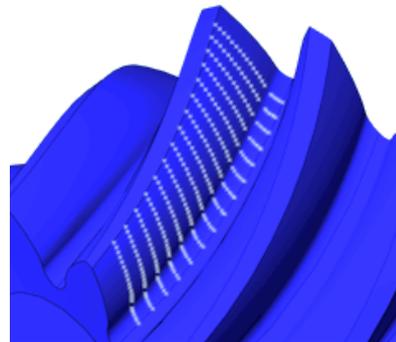
### Beveloid gears

- Strength calculation
- 3D models with modification options
- Taking load spectra into account

Beveloid gears now have their own new module in the KISSsoft system. Sizing and dimensioning of beveloid gears have been implemented based on cylindrical gear standards, which also enables you to take load spectra into account. The usual flank modifications, such as helix angle modification or negative crownings, are still available to help you optimize tooth contact in a 3D model. Tooth contact can then be verified using the graphical contact analysis method, and the models can be exported for various purposes, such as FE analysis, 5-axis milling, or output to a measurement grid.

### Measuring topology with measurement grid

Measurement grids have been provided to help you measure the topology of the flank and root areas of the tothing. These grids are output directly in the correct format for Klingelberg or Gleason measuring machines. The measurement grid calculation can be called for cylindrical gears, helical gears, bevel gears, and splines.



### 3D export options

The 3D models in KISSsoft are available in both STEP and Parasolid formats. The models for bevel gears, crossed helical gears, and globoid worm gears, can also be output simply as an individual tooth or as an individual gap.

If you are interested in acquiring a test license, simply send an e-mail to [info@KISSsoft.AG](mailto:info@KISSsoft.AG)