

Design at the Push of a Button – Your Gears in 3D

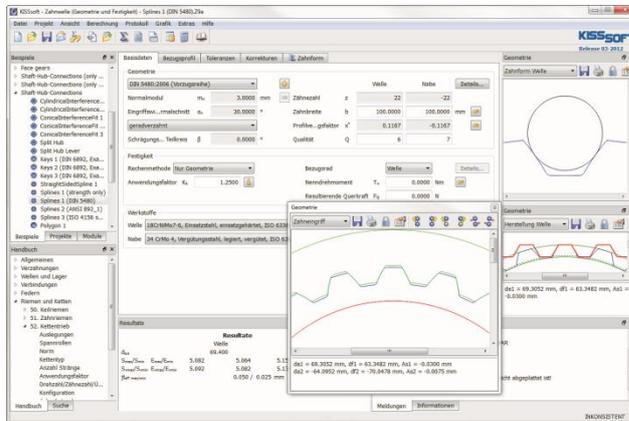


Figure 1. KISSsoft interface

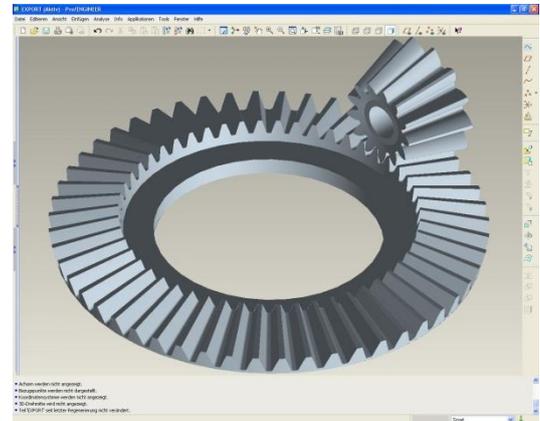


Figure 2. Bevel gears in contact in Pro/ENGINEER

The interface between computation and design is confronting engineers with increasingly complex challenges. Modern 3D CAD systems aid in the development of fast, precise and highly complex applications in all areas of modern industry. Design work is preceded by the use of high-performance calculation tools such as KISSsoft, which guarantee optimized, reliably designed machine elements and systems. Finally, these tools then transfer the calculations to the CAD system – all at the push of a button.

Whether the final product is to be an individual gear or an entire transmission system, the process begins with a targeted design, effective optimization and a review of calculations in keeping with applicable standards. The KISSsoft and KISSsys programs have been completely overhauled, giving designers the tools they need to perform sizing calculations for individual machine elements and entire transmission paths. The intuitive user interface recently developed for KISSsoft makes this process faster and easier.

The software provides a 3D export function used with modules that perform sizing calculations for gears. At the push of a button the software then transfers those calculations to the CAD system of your choice. As part of this feature, we have placed special importance on compatibility with a broad range of major CAD software providers. Other engineering design software packages only support a few CAD systems and allow you to do little more than generate cylindrical gears. KISSsoft, however, goes several steps further: this software provides the right tool for everyone thanks to interfaces with Solid Works, SolidEdge, Autodesk Inventor, Unigraphics NX, CATIA V5, Creo Parametric (Pro/ENGINEER), Think3 and recent integration with Creo Elements/Direct (Co-Create).

Additionally, the 3D tooth forms and systems can be exported from the Parasolid viewer using Parasolid format or the neutral format STEP.

The following table provides an overview of the current range of capabilities of individual interfaces. These interfaces, of course, are constantly being expanded.

Feature/CAD											
Version	2012-2016	2012-2016	ST4-ST8	NX7-NX10	Wildfire 5, Creo Parametric 1, 2 and 3	V5 R14-R20	2008.1	2006-2008, Creo Direct Mod. 18.0	V13 and V14	2010-2015	
Cylindrical gears, spur-toothed/spiral	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cylindrical gears, internal/external teeth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Worm/helical gears	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rack spur-toothed/spiral	✓	✓	✓	✓	-	-	-	-	✓	✓	✓
Bevel gears, spur-toothed	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bevel gears, helical and spiral	-	-	-	-	-	-	-	-	-	-	✓
Face gears	-	-	-	-	-	-	-	-	-	-	✓
Splines (shaft-hub)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Toothings on a existing shaft	✓	✓	✓	✓	✓	✓	-	-	-	-	-
Shafts	✓	✓	✓	✓	-	-	-	-	✓	-	✓
CAD add-In menu	✓	✓	✓	Menu driven only	-	Selection menu	✓	-	-	-	-
Manufacturing data	✓	✓	✓	✓	✓	✓	✓	-	-	-	-
64 bit version	✓	✓	✓	✓	✓	✓	-	✓	-	✓	-

Figure 3. Available interfaces and gear types

The KISSsys software add-on and the new GPK calculation tool for industrial transmissions allow designers to perform all transmission sizing calculations. This means that all individual calculations are combined and represented as a single unit for the entire transmission, with gear, shaft and bearing calculations performed simultaneously. An interface in neutral format (IGES, SAT or STEP) makes it possible to take the generated models and export them into the 3D system of your choice. This allows, for instance, to draft and adjust the design envelope for the housing, which illustrates just how closely calculation and design are linked together.

Fast Calculation – Down to the Detail

When designing and performing calculations for machine elements, the software draws upon all current, recognized standards such as ISO, DIN, BS and AGMA, as well as other recognized calculation methods, such as VDI, FKM, etc. An entire universe is at your disposal when performing gear sizing calculations starting with presizing up to various optimization features with regards to noise, safety, weight, modification of tooth form etc. From cylindrical gears to bevel gears, this software can perform and display all calculations including load-dependent contact calculations. In this way the software also satisfies concrete needs for in-depth analyses.

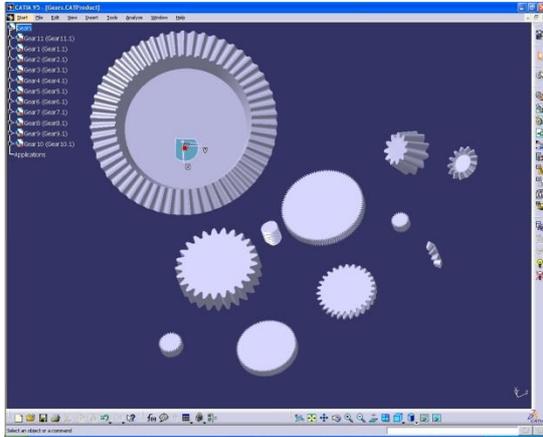


Figure 4. Gears modelled in CATIA that began with KISSsoft calculations

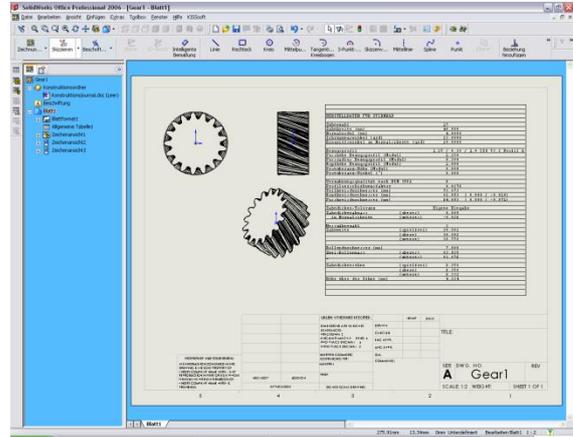


Figure 5. Drawing with manufacturing data generated in SolidWorks

All in One: Calculation, Output and Manufacturing Data

Calculation data is attached to the generated 3D parts; the advantage to the user here is that the manufacturing data can be exported directly to the CAD tool along with the 3D model and the calculation can be called up at any time. This function ensures that all of the required information designers need - from presizing to manufacturing - is always accessible readily processed.

For most of the CAD programs, an add-in menu also makes it possible to call up all other software modules directly from the 3D system. Gear cutting tools can also be exported in 2D as DXF or IGES files.

KISSsoft users can also toggle between different systems of units and seven different languages, making this software suitable for use around the globe.

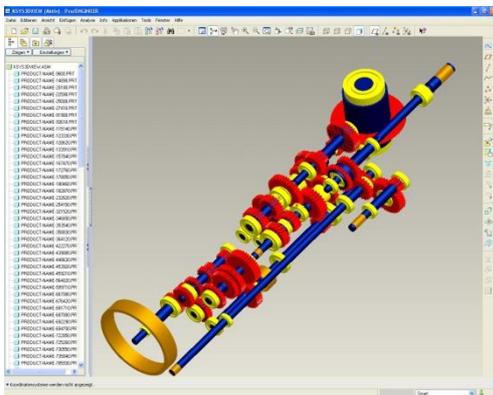


Figure 6. A tractor transmission imported from KISSsys into Pro/ENGINEER

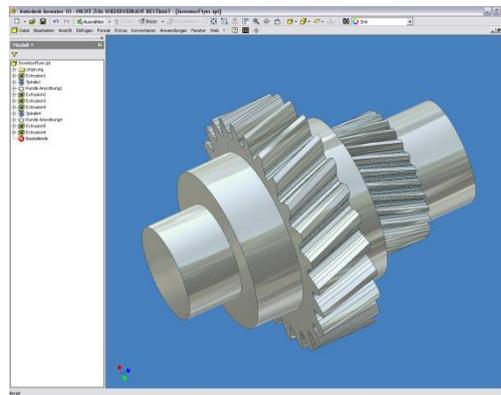


Figure 7. Gear mounted on a shaft, displayed in Inventor

As Precise as You Want

The tolerance band for generating gears can even be determined down to the micrometer, allowing the software to meet the precise demands of production. The model can then be generated in the 3D system using either polylines, arc of circle approximation or splines.

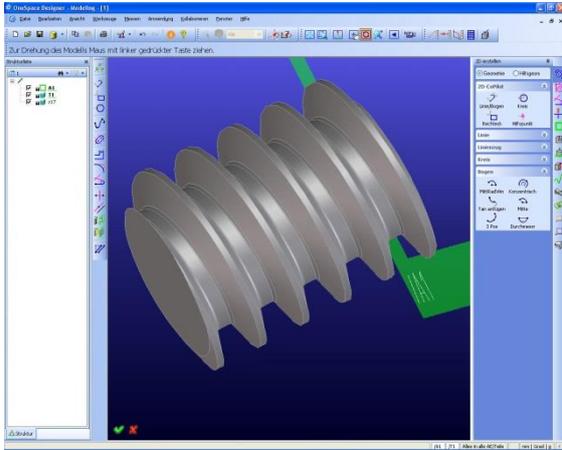


Figure 8. Worm cylinder imported from KISSsoft and generated in Co-Create Modeling

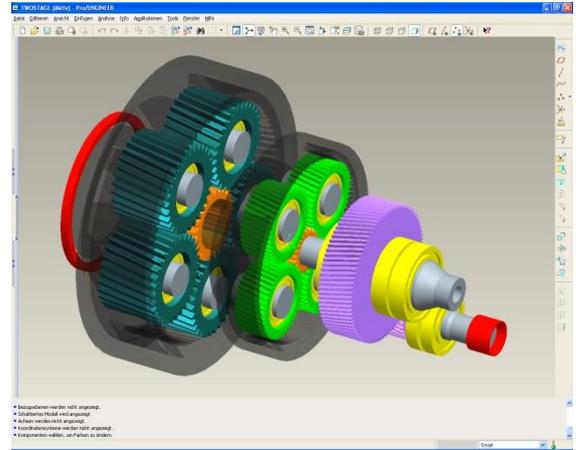


Figure 9. Wind turbine gearbox in Pro/ENGINEER

The Software: Simple (and) Brilliant

The software itself is easy to install and can, thanks to its modular structure, be perfectly adapted to your needs. The complexity of the new dynamic user interface adapts to the job at hand, making KISSsoft the right tool for anyone - from the occasional user up to the expert - who needs accurate and reliable calculations.

KISSsoft is available in stand-alone and licensed network versions. Licensing can be limited to a single office or various locations of a company.

KISSsoft does more than offering you its almost 30 years of expertise in engineering design software – we also share that expertise with you through our transparent services. Our worldwide network of users includes now more than 3000 clients in every field of mechanical engineering, with an emphasis on drive technology. Nowadays, modern software is used every day and everywhere by creative designers and engineers in order to reduce development times and to perform calculations that are more precise and comparable than ever before.

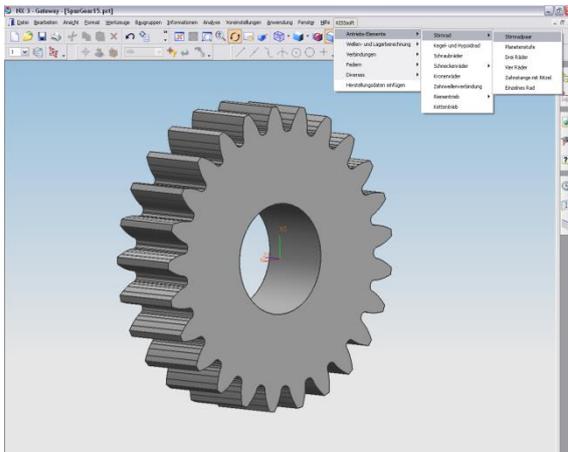


Figure 10. Cylindrical gear in NX with the KISSsoft menu

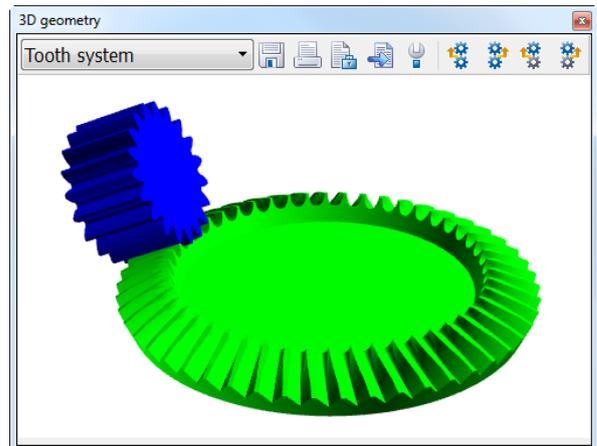


Figure 11. Helical face gear in the Parasolid viewer