GearEngineer

A New Gear Technology Provides More Flexibility!

The GearEngineer is a powerful software for the calculation of the accurate 3D geometry of gearings. This geometry provides the basis to manufacture gears in conjunction with multi-axis machining centers.

Advantages and New Opportunities

Using the CNC machining centers to manufacture gears offers the following advantages and new opportunities:

- More flexibility to obtain an optimal gear design, e.g., a freely selectable module, the 20° pressure angle can be customized as needed, special gearings (e.g., full-depth gears and stub tooth gears) or double helical and herringbone gears (with and without space in the center), bevel gears
- More compact workpieces, a tool runout is not necessary (e.g., from a hob)
- Tooling optimization (reducing the number of tools), the gears can be manufactured using standard cutting tools
- Manufacturing of complex workpieces with gearings possible in one clamping position, e.g., workpieces with external and internal gearings
- No gear cutting machines are necessary
- Larger dimensions and larger module ranges are possible, e.g., for external spur gears up to a maximum diameter of 16.000 mm, for internal gears up to a diameter of 3.000 mm or bevel gears up to a maximum outside diameter of 4.000 mm (according to the machining center type)
- Dry processing
- Soft and hard cutting
- Suitable for single item production and small batch production (from module 3 or 4 and up)
- Depending on the requirements, the efficiency and manufacturing lead times are similar and even better than the previous manufacturing process (particularly for a larger module range)
- Gears can be machined to DIN 4 gear quality or better, it is possible to obtain a surface finish as smooth as the surface finish that can be obtained by grinding

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Necessary Requirements

The following requirements are necessary in order to use the CNC machining centers to manufacture gears:

- CNC machining centers that comply with the requirements in terms of gear accuracy, boundary conditions for machinery installation have to be considered (e.g., foundation) as well
- Machining technology and machining strategy have to be coordinated with gear manufacturing
- Accurate 3D geometry of the given gear tooth form is used as a starting point for CAM programming

GearEngineer - A Short Overview

The GearEngineer software allows the calculation of involute cylindrical gears, for example:

- External and internal gears
- Spur and helical gears

Spur gears as well as involute splines (shaft and hub) can be manufactured based on the accurate gear tooth form. The manufacturing of double helical and herringbone gears (with and without space in the center) is also possible.

Furthermore, different types of bevel gears can be calculated, for example:

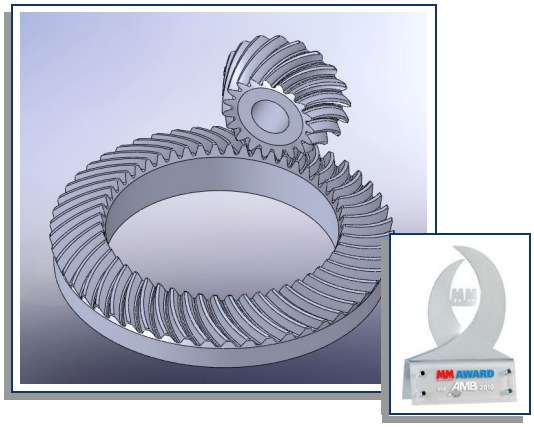
- Straight and helical bevel gears including different forms of the tooth depth
- Spiral bevel gears

The accurate 3D gear tooth form for Klingelnberg´s Zyklo-Palloid® bevel gears is available. Furthermore, the calculation and output of the tooth form of straight and helical bevel gears with constant and tapered (angles intersect in common point) tooth depth is possible. The output format of the 3D geometry is STEP and IGES.

For the documentation, a single mouse-click is enough to create a calculation report in HTML and PDF format. The software is a single-user version (multi-user license on request) and available in German and English.

System Requirements

- WIN 2000, XP, VISTA or WIN 7
- JAVA 1.6
- USB port
- Web browser (Internet Explorer or Mozilla Firefox)



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