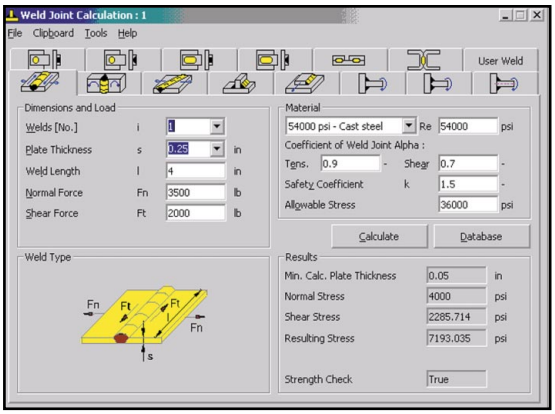
SOLID EDGE
Engineering Handbook

Engineering Handbook

The Solid Edge Engineering Handbook is an add-on application that delivers a comprehensive set of tools for custom machinery engineers and designers. Developed by MechSoft.com, Inc., the Engineering Handbook is fully integrated with Solid Edge and is designed to intelligently, accurately, and correctly safeguard the engineer's specified design intent. The Engineering Handbook includes:

- Calculations
- Calculation Driven Parts Generator
- On-line Engineering Handbook



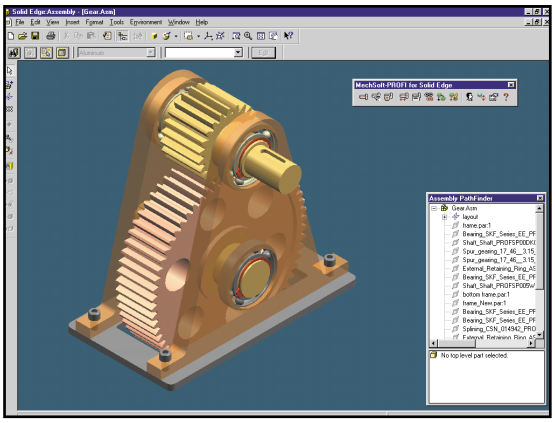
The Solid Edge Engineering Handbook provides calculations that use standard mathematical formulas and physical theory.

Calculations

The Solid Edge Engineering Handbook provides a collection of calculations – representing standard mathematical formulas and physical theories – that determines the feasibility of designs and revisions. An on-line design rules checker constantly monitors changes and reports feedback to the mechanical engineer or designer. Most engineering calculations automatically create a parametric part that is placed in the Solid Edge assembly. Remaining calculations can be inserted into the Solid Edge assembly and linked to other parameters in Solid Edge.

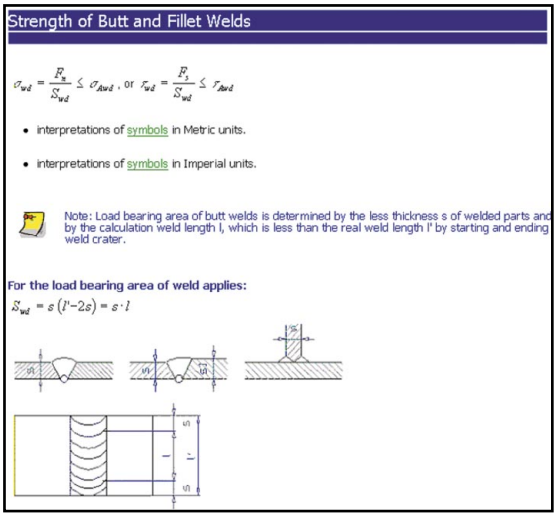
The Solid Edge Engineering Handbook includes a number of calculations to improve your productivity, including:

- **Beam Calculation** calculates straight bars of any section laying on N, (max. 10) supports.
- **Plain Bearing Calculation** designs and checks statically-loaded radial plain bearings working under hydrodynamic lubrication conditions.



Solid Edge parts are automatically modeled from calculations in the Solid Edge Engineering Handbook.

- **Rolling-contact Bearing Calculation** calculates a bearing which satisfies properties demanded by the user or calculates a bearing selected by the user.
- **Belleville Spring Calculation** is intended for designing Belleville springs according to the BS standard.
- **Spur Gearing Calculation** is designed to calculate dimensions and strength check of external and internal gearing with straight and helical teeth.
- **Intended Belt Calculation** is designed for calculation of transmissions with intended belts of arbitrary section. The design calculation proposes a belt type which satisfies properties demanded by the user. The check calculation tests the strength of a belt type selected by the user.



The Solid Edge Engineering Handbook provides an on-line reference that documents the formulas, algorithms, and theory of calculations.

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Unigraphics Solutions®

Solid Edge Engineering Handbook

- **Joint Calculation** designs and performs a strength check for separate hub joints, one-side hub joints, or cone joints.
- **Key Calculation** automatically designs key joints and performs their strength check when the depressed state is checked.

- **Pin Joint Calculation** calculates and designs pin joints and performs a strength check for four typical pin joint types.
- **Pressing-on Joints Calculation** contains calculations for geometric parameters of hot or cold pressing-on joints, minimal fit, standard- or actual-fit, and pressed-on parts material selection.
- **Shaft Calculation** generates the shape of a shaft, followed by the shaft calculation.
- **Spline Calculation** is intended for parallel side spline calculations and designs. It designs splining shafts and provides a strength check.
- **Involute Splining Joint Calculation** calculates and designs involute splining joints. A separate calculation calculates and designs involute spline joints according to the ANSI B.1-1970 standard.
- **Tension Spring Calculation** can select or calculate standard tension springs providing maximum stress value, shear stress in full load, buckling security check, spring self-exciting frequency, critical speed, limited test strength of compression spring, and stress check during coil touching.
- **Solder Joint Calculation** checks a range of typical solders stressed with different types of load.
- **Helical Torsion Spring Calculation** is used to design and check helical torsion springs manufactured from a cold-formed wire or rod from the circular section.
- **V-belt Calculation** is designed for calculation of transmissions with V-belts of standard sections and of narrow N-belts.
- **Weld Calculation** designs and strength checks plugs, slots, spots, fillets, and butt weld joints. This calculation is applied for the design of joints of mechanical structures made from carbon steels.

Calculation Driven Parts Generator

The Calculation Driven Parts Generator represents mechanical engineering knowledge and rules that contain machine design theory. The generator actually models Solid Edge parts based upon calculations that are supported by the Solid Edge On-line Engineering Handbook.

On-line Engineering Handbook

The Solid Edge On-line Engineering Handbook documents the formulas, algorithms and theory that follow a calculation. If some specialized calculation is missing, you want to use your own algorithm, or if you need to control the part or assembly parameters using a table, you can utilize the Solid Edge Engineering Handbook to enter your own calculation in the form of a Microsoft Excel table.

System Requirements

The Solid Edge Engineering Handbook is delivered with Solid Edge as a separately licensed application and shares Solid Edge system requirements:

Minimum System Configuration:

- Intel Pentium or AMD Athlon processor-based PC
- Windows NT® 4.0, Windows 2000 or Windows® 98 Second Edition
- 128 MB RAM
- 330 MB of disk space for installation
- Minimum Resolution: 1024x768, 65K colors
- CD-ROM (local or network) for installation

Recommended System Configuration:
Windows NT 4.0, Intel Pentium II or Pentium III or AMD Athlon, 256 MB or more RAM, OpenGL Accelerator with 65K colors

For information, contact your Solid Edge Reseller:

www.solid-edge.com

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