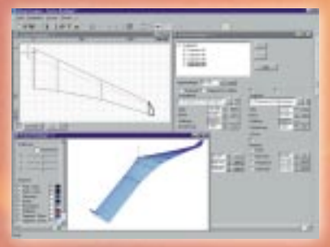

WING
designet
The
New Standard
for
Wing Design
More
than 1100 airfoils
included

Experience a New Era in Wing Design!

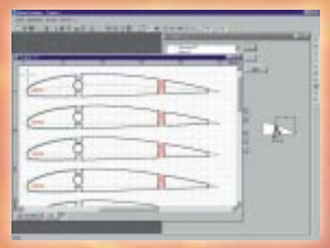
It is amazing how fast wings can be designed with the aid of this new program. The S4WD (Step-Four Wing Designer) is not the adapted version of some CAD program or airfoil editor, but a unique program that has been specifically developed for model building.

In spite of its versatility and huge range of features, the program is easy to use, even for amateurs who have little CAD experience. Operation is as usual, except that the drawing board and pencil have been replaced by the computer screen and mouse. Views that can be switched on and off enable you to constantly keep an eye on the contruction process. As a result, you can rotate, move and scale a wing within a 3D window and so get a clear idea of what the finished product will look like in reality.



If various airfoils are shown for tapered wings, all the intermediate airfoils are modified corrected. Such modifications can even include several tapered wings. You can also substitute another airfoil later. Simply click with the mouse and all the data are adapted to suit the new airfoil. This means that a wing can be provided with various airfoils and output within a very short time.
A selection of more than 1100 airfoils is available in the airfoil database created by Professor Selig. The database has been included in the Wing Designer software package.

As opposed to other CAD programs, in the WING Designer you will be working with familiar parts such as ribs, spars and sheeting, etc. Even complex wings can be 'built' directly on the computer with a great many components, including spars, wing joiners, leading and trailing edges, and sheeting etc.
Supposing you want to improve something when the construction of the wing is finished. This is no problem! Any parameter in the individual parts can be modified afterward.

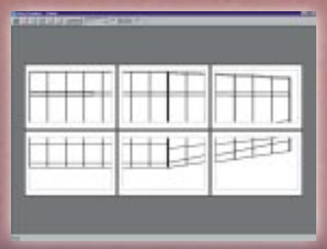


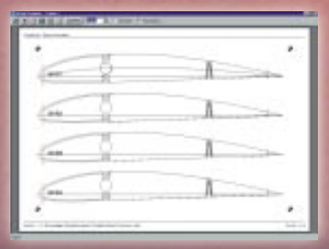
The output facilities are just as versatile and flexible as the contruction tools.

If you have a suitable plotter or large-scale printer drawings can be output 1:1. If instead the printer can only handle A4 or A3 formats, the drawing is divided into separate sheets with markings indicating where the sheets are to be joined up so that the drawings end up being to a 1:1 scale.

In addition to the top view, front and side views and also the complete set of ribs can be output.

Drawings can not only be output graphically, but all the wing data can also be printed as text. This gives you a complete, numerical overview of all the construction sizes used in a wing.



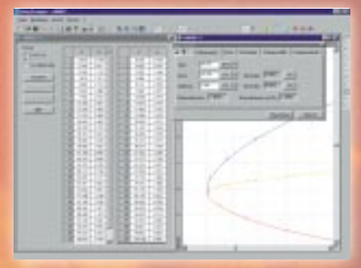


Optional Modules Extend the Application Range of the Wing Designer

Various optional modules are available for the Wing Designer to suit every user's tools and requirements. The user merely pays for the service that is really required. The software can be easily extended at any time by existing or new modules.

Airfoil Editor:

Perhaps the airfoil database does not contain the airfoil you are looking for – or perhaps you would like to designe and work with your own airfoils?
The airfoil editor caters for all tastes. Various numerical input formats enable the airfoil database to be extended rapidly by entering new airfoil coordinates. A powerful, smoothing algorithm, copying, inversion and point-editing functions are a great help.



You are probably aware of the problem caused by 'modified' airfoils in a drawing or wing root fairings. Usually there are no coordinate tables in such cases. Again, the airfoil editor will prove to be a wonderful tool. The drawing, the sample rib or traced wing root fairings are

scanned and stored as raster graphics in a bitmap format. The bitmap file is then loaded into the airfoil editor and vectorised quickly for practical purposes. After this the airfoil can be used just like any other airfoil in the database.

Milling and DXF Output:

If you already own a STEP-FOUR milling machine, you will appreciate the functions of this module. In addition to complete sets of ribs, leading and trailing edges acting as support fixtures or sheeting contours can be output as a STEP-FOUR milling file. As a result, highly complex rib wings can now be constructed with the greatest of ease.

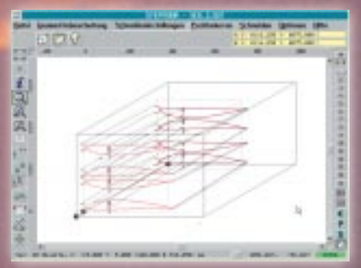
Users intending to use a wing created with the aid of the Wing Designer in other CAD programs, can output the data in a DXF format. The data is then

compatible with any CAD program. Even special parts, such as retractable landing gear or flap systems, etc. can be included.

Cutting Procedure:

With the cutting module, the Wing Designer can be implemented for cutting special wing cores.
The module enables the dimensions of the raw material to be indicated, and the cutting path, the entry and exit paths and the cutting method for mirrored cores to be defined.

The export filter allows a file to be created that can be transferred directly



into the professional STEP-FOUR cutting software, Version 3.

Range of Functions:

WINGdesigner

WING Designer Basic Module

- Creation of wings with any number of tapered sections.
- Import of wings from STEP-FOUR Standard Software V1.6x.
- Insertion of dihedral V-shape, sweep and wash-in/wash-out for every tapered wing.
- Modification of airfoils for one or several tapered wings.
- Individual modification of thickness and camber for any airfoil.
- Definition of various types of leading and trailing edges.
- Insertion of any number of joiners (round oder rectangular).
- Insertion of any number of spars.
- Insertion of flaps and ailerons.
- Definition of complete and partial sheeting for every segment.
- Automatic calculation of any number of inter-ribs.
- Construction using mouse to indicate dimensions and/or graphics.
- Display of geometric data in various views.
- 3D display of wing from any angle.
- Printed output of all views by any Windows printer.
- Print preview on screen.
- Output of overviews in current printer format.
- Output of drawing sections in sheets with markings to be joined up as 1:1 drawings.
- Airfoil database with more than 1100 airfoils (Selig database)
- Online help system and user manual.

Optional Module - Airfoil Editor

- Input of airfoils with various file formats.
- Input of airfoil coordinates in tabular and graphic form.
- Loading of sample airfoils in background.
- Input of bitmap images for scanned airfoils.
- Automatic smoothing of airfoils.
- Adjustment of depth, thickness and camber.
- Calculation of aerodynamic coordinates.
- Copying airfoil sides from top to bottom and vice versa.
- Mirroring airfoil sides.
- Undo and Redo Function.
- Storage as airfoil or HPGL file.
- Printed output of all airfoil-related data in a graphic and alphanumeric form.
- Print preview function on screen.

Optional Module - Milling and DXF Output

- Output of rib sets as milling contour.
- Output of individual objects in different layers (joiners, spars, ailerons, etc.).
- Output of sheeting.
- Output of L.E. and T.E. support fixture.
- Output of data as STEP-FOUR SMF milling file (for S4pro V3).
- Output as DXF file for further processing in CAD systems.

Optional Module - Cutting Procedure

- Definition of raw material parameters (block thickness, excess length, etc.).
- Positioning of tapered wing in block.
- Cutting path with or without entry radius in two separate cuts for upper and lower sides.
- Cutting path as a single cut from the rear of the core.
- Mirrored cut for left- and right-hand wing from one block.
- Output as STEP-FOUR SCF cutting file (for S4Cut V3)

System requirements:

- IBM-compatible Pentium PC
- Min. 32 MB RAM
- WINDOWS® 95/98
- Hard disk
- CD-ROM-drive
- Super XGA-card, 800 x 600 or 1024x768
- Mouse
- Parallel port for dongle

STEP-FOUR VertriebsgmbH.
Haunspergstraße 90 · A-5020 Salzburg
Phone: ++43 662 45 93 78 - 0
Fax: ++43 662 45 93 78 - 20
E-mail: office@step-four.at
Internet: www.step-four.at