Converting 2D Drawings to 3D Models Easily with ZW3D

When it comes using CAD, there are two general methods, 2D drafting and 3D modeling. But in the field of modern industrial design, 3D modeling is growing in popularity among designers. Compared with 2D drafting, it is more visual and proves to be easier to edit or modify.

In our work, however, we sometimes need to use 2D drawings. So, for many designers the concern is how to quickly convert 2D drawings to 3D models. Fortunately, they can do this easily with ZW3D from ZWSOFT.

The ZW3D software program has two big advantages that help designers to do this work:

(1) Powerful data importation

(2) Hybrid modeling and direct editing

Power Data Importation

ZW3D can open DWG and DXF files directly, and more importly it retains the design intent, including layers, dimensions, and line types. (See figure 1, left.) The DWG and DXF formats are the most common ones in which to create 2D drawings.
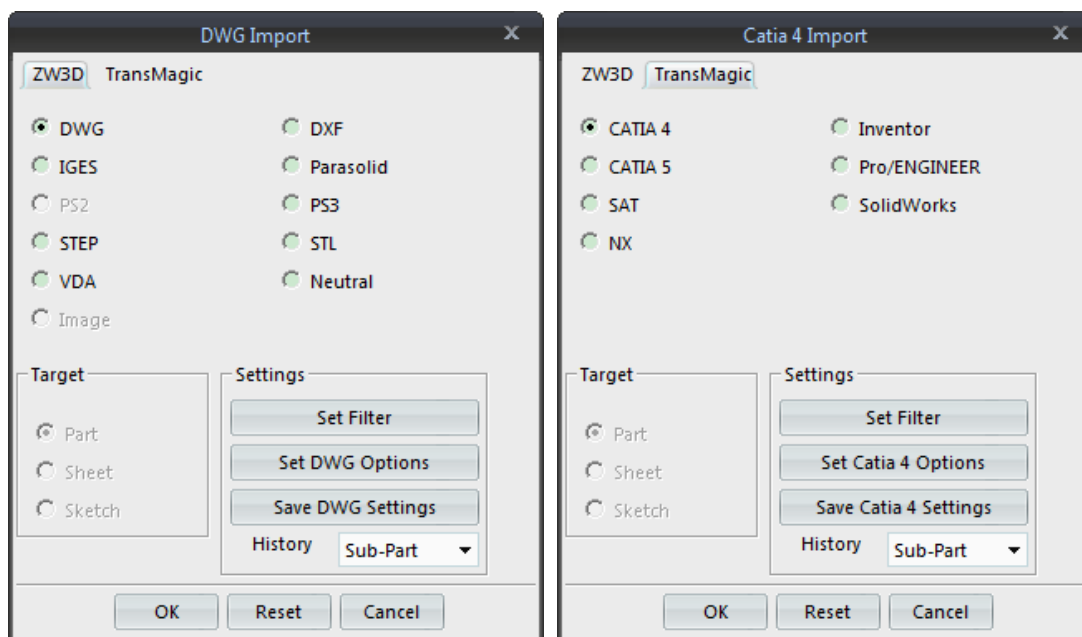

Figure 1. Powerful data exchange options

In addition, ZW3D supports many standard file formats, such as STEP, IGES, Parasolid, and STL. It also reads and edits proprietary 3D model files from Catia, NX, Solidworks, Pro/E and Creo, and Inventor. (See figure 1, right.)

Hybrid Modeling and Direct Editing

Once a 2D drawing (See figure 2.)is opened in ZW3D, you can convert it to 3D. Follow along with me as I show you the steps for doing this.
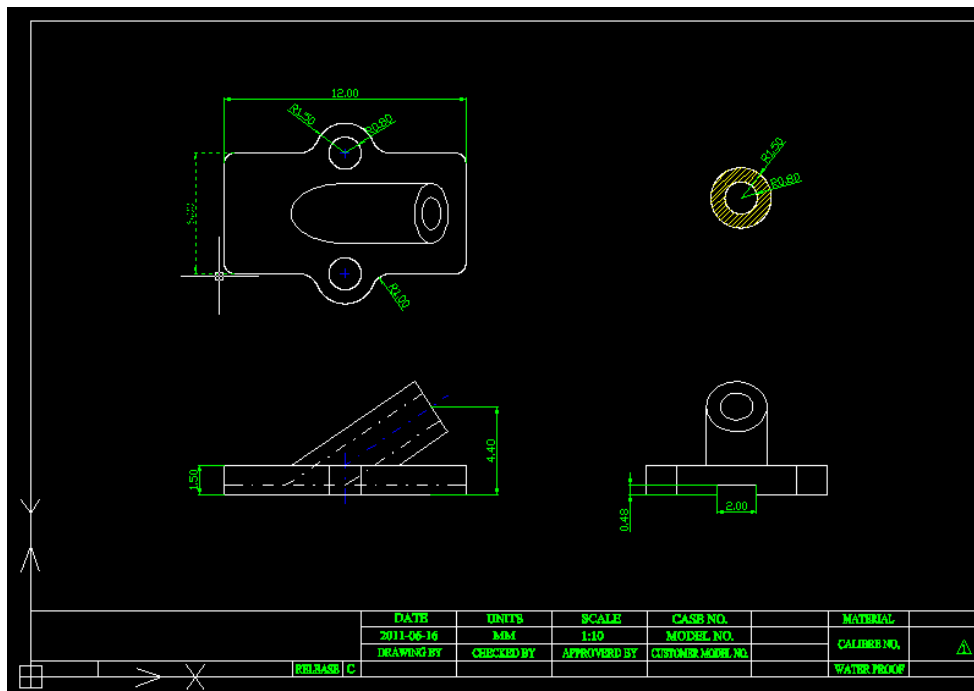

Figure 2. A typical 2D drawing

Step 1. Using direct editing, you can move the elements of the 2D drawing dynamically into positions suitable for converting them into 3D views. (See figure 3.) This step is important for building the 3D model, because a good beginning makes for a good ending.
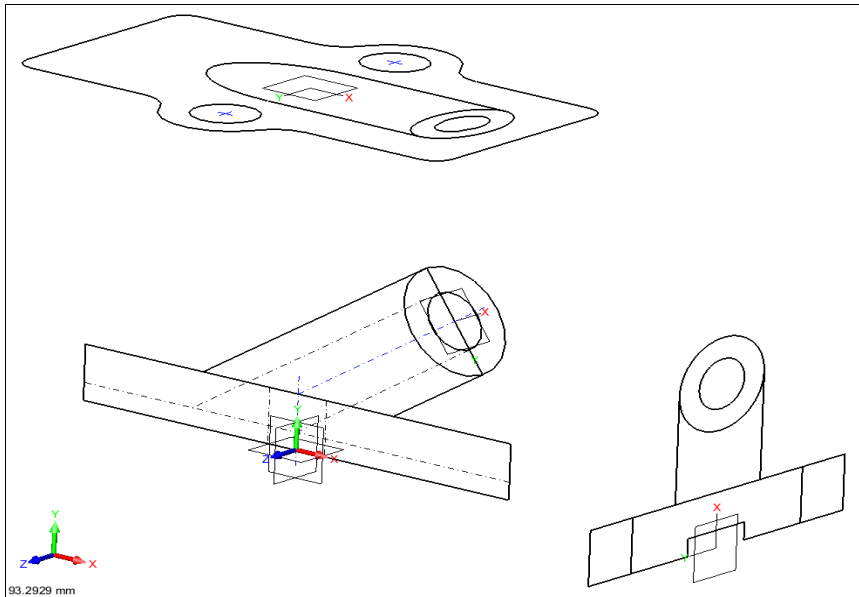
Figure 3. 3D views from 2D drawing

Step 2. Now use modeling features, like extrude, revolve, and sweep, to quickly create 3D elements from the 2D drawing.

Step 3. Erase the 2D elements, or else freeze the layers upon which they reside. The completed solid model is shown in figure 4.
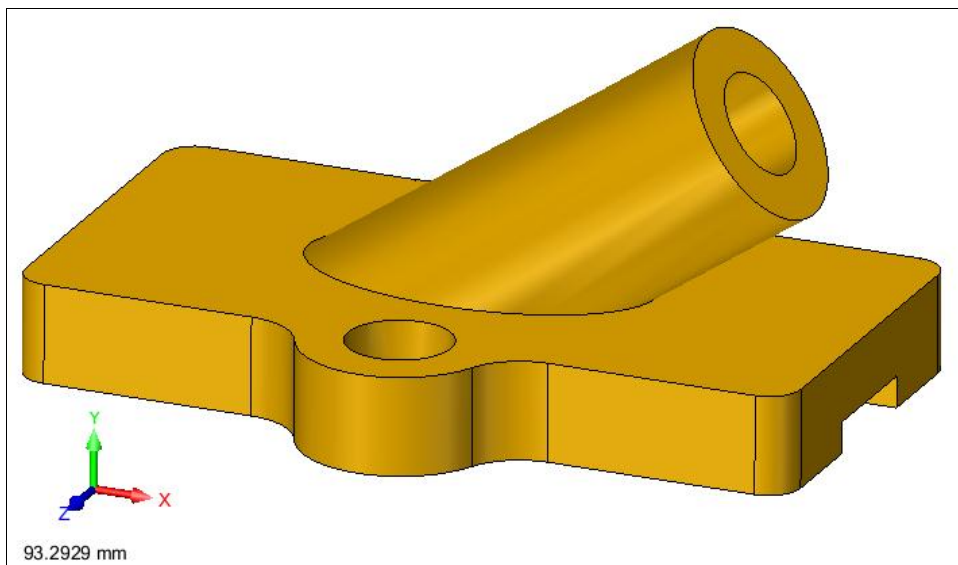

Figure 4. 3D Solid model made from 2D views

Since ZW3D has hybrid modeling technology with OverDrive^TM Kernel, designers can focus on the freedom of modeling design. Surface and solid work together well. What is the difference when creating 3D surfaces, instead of 3D solids? To create a 3D surface model, follow these

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hints:

First, build a 3D wireframe based on the 2D drawing views. Sometimes, it might be necessary to draw some reference curves to get a high quality sureface. (See figures 5 and 6.)
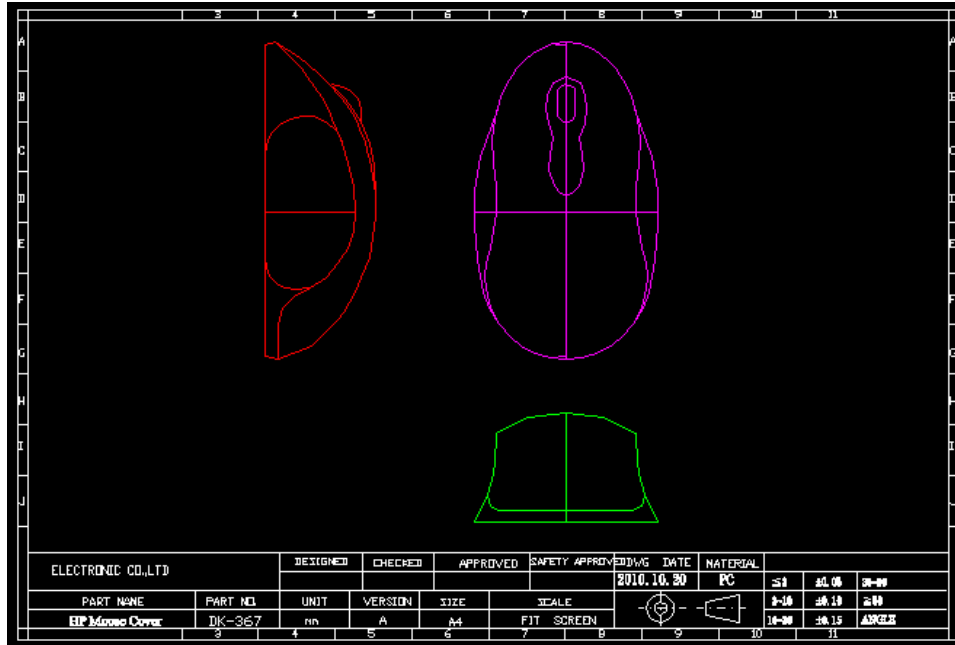

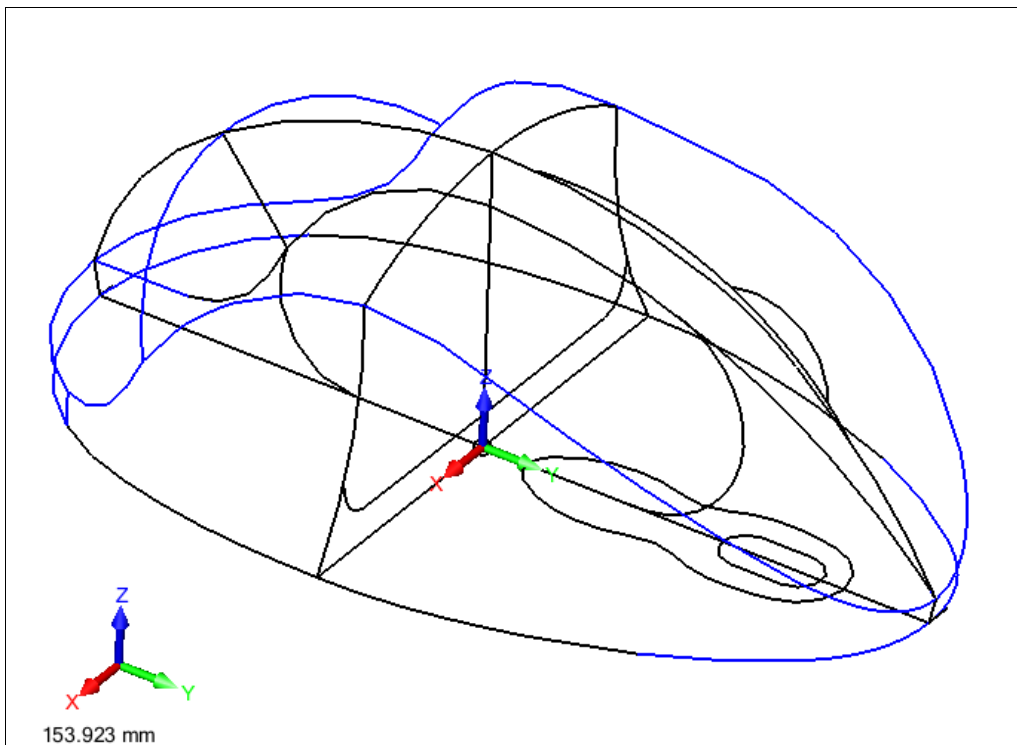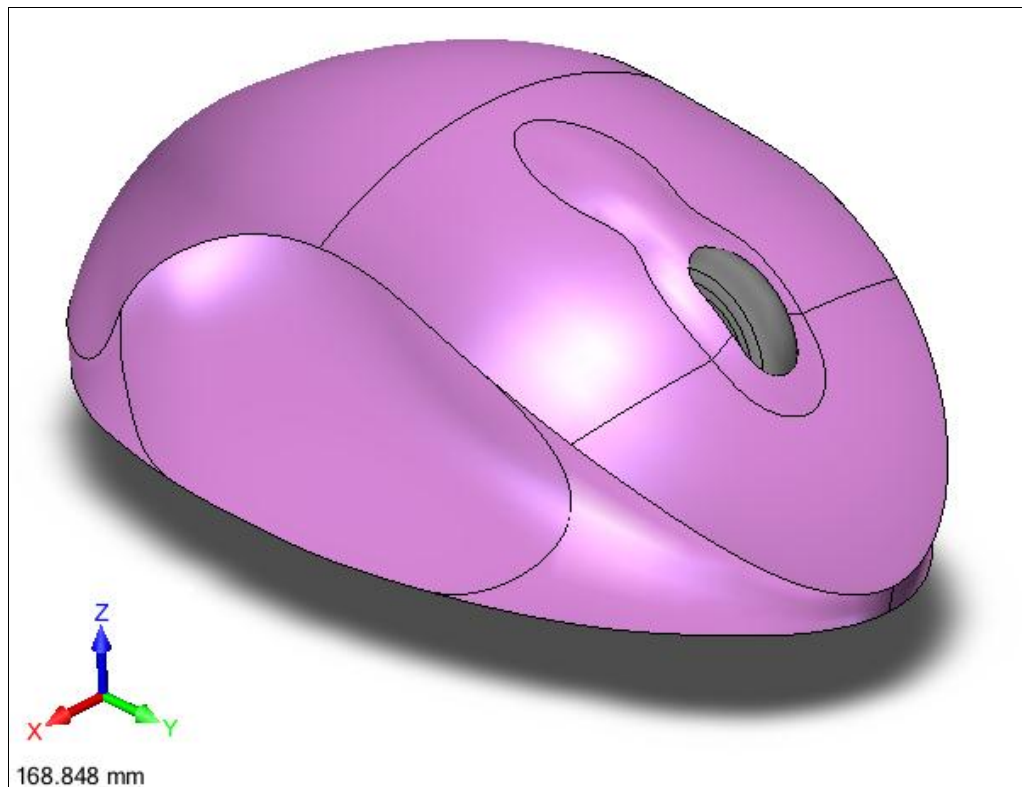*Figure 5. Adding reference curves to 2D drawings*

Figure 6. 3D wireframe made from 2D views

Many powerful surface commands are avaliable in ZW3D, such as UV-curve meshes, FEM patches, lofts, and morphs. These make it easy to obtain a good surface model, as shown in figure 7.

Figure 7. Completed 3D surface model

If you are a 2D designer looking for a good method to convert 2D drawing to 3D models, then we invite you to try ZW3D. We believe that with its advantages and efficient features, ZW3D will provide you with satisfying results.

Short Description
ZW3D has two big advantages for easily converting 2D drawings to 3D models. Firstly, it has powerful data exchange capabilities that let designers reuse data efficiently. Secondly, it has hybrid modeling and direct editing to allow designers to focus on modeling. Solid and surface models can work together seamlessly in ZW3D.

Key words:
ZW3D, 2D drawing, 3D model, Solid/Surface modeling, Data convert, Data exchange

About ZW3D
ZW3D is all-in-one, affordable CAD/CAM which enables concept to finished product design in

an integrated, collaborative environment. The proprietary Overdrive™ kernel delivers 3D part and assembly modeling, 2D production drawings, reverse engineering, motion simulation, mold design and integrated CNC machining, simplifying the design process from concept to completion. Experience ZW3D 2012, where the only limit is your imagination. Please go to www.zwsoft.com to download a free 30-day trial today.

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