
Conversion of AutoCAD Formats

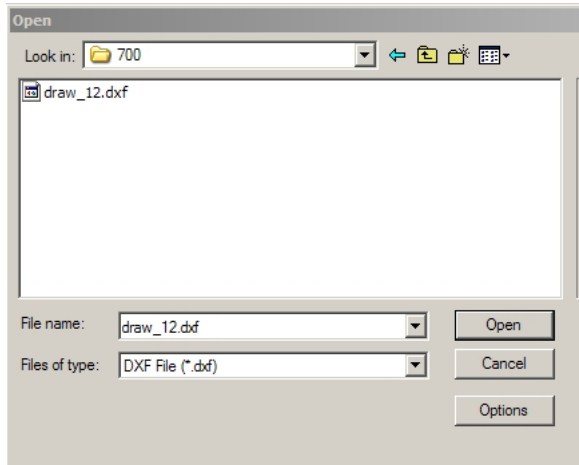
This webtraining task describes how to convert to and from the AutoCAD® formats (DXF™/DWG™). We will study how to work with various File Open Options to get the results we want.

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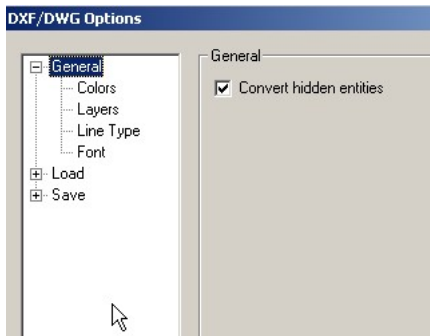
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1. 1. Setting options for drawing file

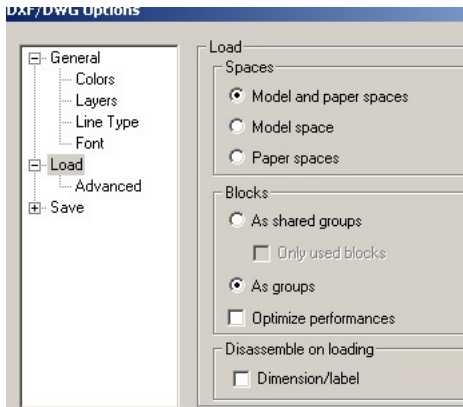
Load the draw_12.dxf file from the web task installation folder. Open the file dialog box. Under 'Files of type,' select the type of file you wish to convert by selecting the appropriate file format (".dxf").



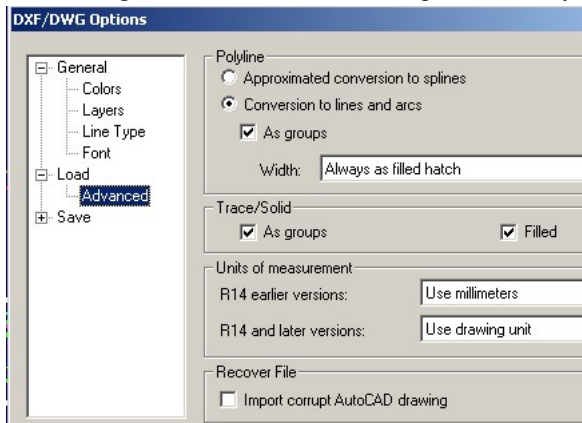
Before we open the drawing click on the Options button. Conversion to and from ThinkDesign is controlled by the parameters under General, Load & Save tabs of the DXF/DWG Options. Let us look at these options.



Under LOAD tab, there are settings for loading a file. If you do not know whether the dxf file that you wish to import contains model space and paper space or either of the two, check Model and paper spaces..

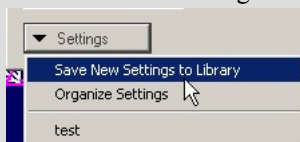


Under **Advanced** there are special settings such as Polyline Conversion and Unit of Measurement: Files saved as DXF in AutoCAD versions earlier than R14 do not have units information saved inside them. All such files when opened with ThinkDesign will have their units of measure set to inches regardless of the default unit of measure set when installing ThinkDesign. Files saved in later versions of AutoCAD have this "units of measure" information stored in them and ThinkDesign uses this setting to open files in their proper units of measure. With ThinkDesign version 9.0 and later it is possible that you can force the Unit of Measurement.

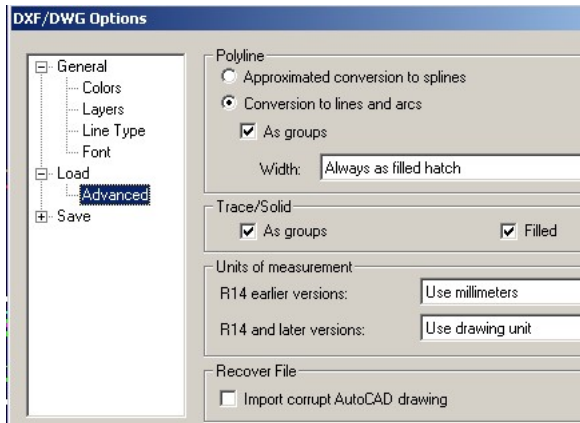


Force milimeters:-

While opening a DXF/DWG(created in ACAD R14 or higher) file in ThinkDesign, you might have come across a situation where all the entities are scaled by 25.4 times, especially opening a ACAD file having inches as Unit of Measurement. To avoid this, you can set the option Load > Advanced > Unit of Measurement to Force Milimeters. This option will take care of the scaling issue.This setting can be saved into the Library using Settings > Save New setting to Library command. Every time you open a DXF/DWG file this option will make sure there is no scaling of entities.

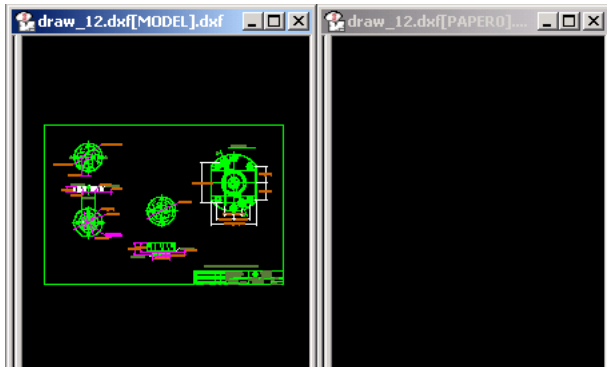


The Save group has settings for saving a file as DXF/DWG from ThinkDesign. Leave it as default.

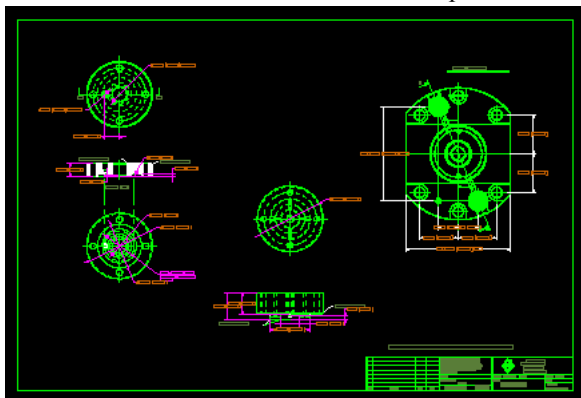


Select the file name, and click OK.

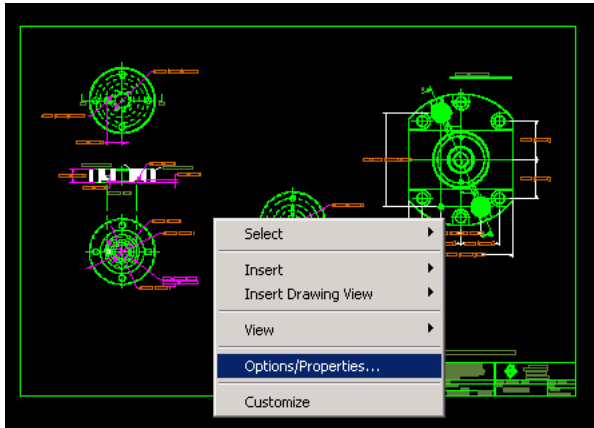
- Two drawings are loaded
- Draw_12[Model].dxf (model space)
- Draw_12[Paper0].dxf (paper space)



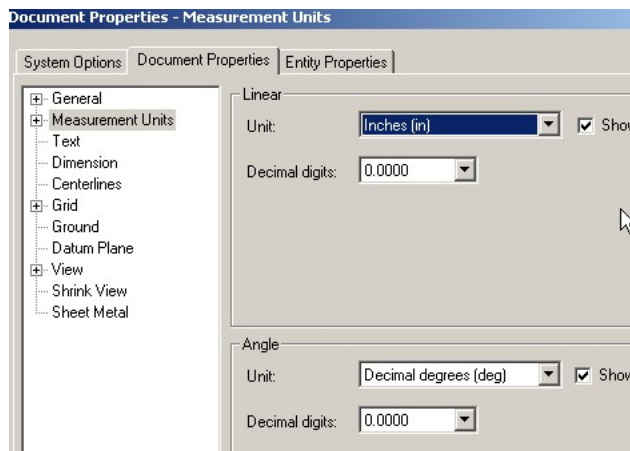
In this case, since there is no information in paper space you can close the file without saving. The drawing that we wish to work on is now in the model space.



- Right click in workspace for context menu and select **Options/Properties**
- Under the Document Properties tab check the current unit of measure under Measurement Units.



We see that the current Unit of measure is Inches according to the settings done while loading the DXF file.

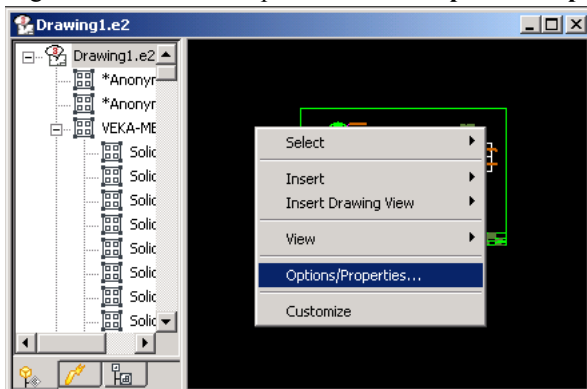


2. 2. Working with different Units on .dwg file

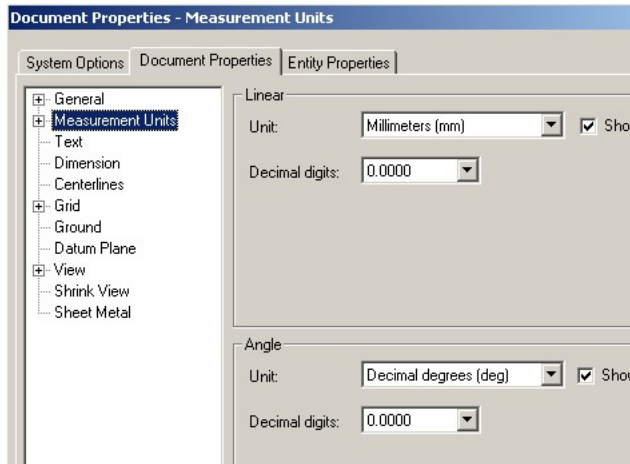
In this step we will convert the Unit of measure for the imported file from Inches to Millimeters.

In the previous step the unit of measure was set deliberately to Inches under Load -> Advanced options. The drawing loaded into ThinkDesign with every dimension in inches. If you aren't careful (or you don't know the AutoCAD version that the file came from) you could end up in this situation of wrong units. There are two ways to recover from this situation: obviously, the first one is to reload the drawing with alternate/correct unit settings (and lose precious time) or change the unit on the loaded file and rescale the drawing. The second option is possible from version 9 and later, you shall learn how to do it.

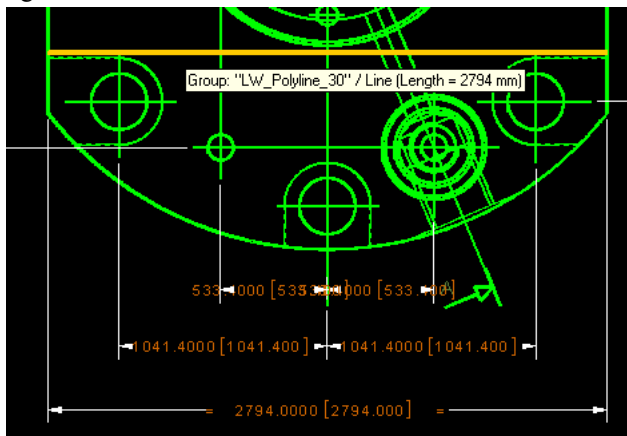
Right click in the workspace and select **Options/Properties** from the context menu.



Change the Unit of measure from Inches to Millimeter



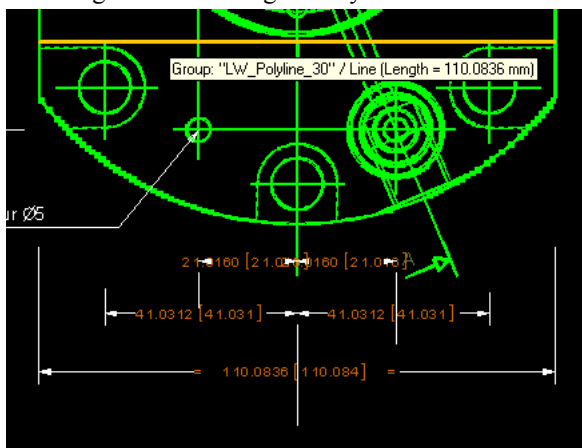
It is important to note the effect of this simple change. As you can see in image below, the length of the highlighted line is 2794 mm instead 110 mm. We need to re-scale the drawing to get the correct dimensions.



To correct this start the **Edit** \rightarrow **Scale** command

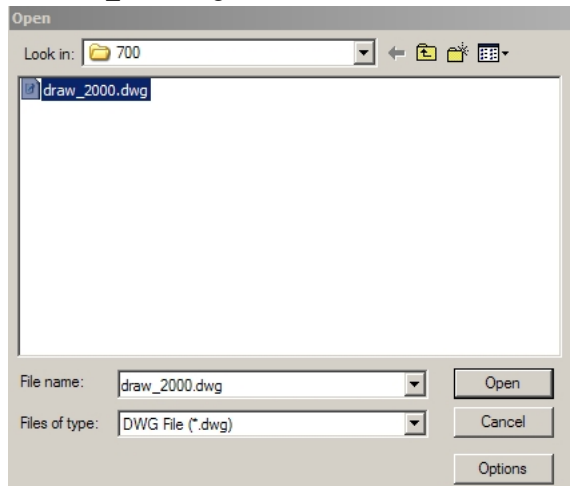
- Select the entire drawing
- In scale minidialog insert the value 1/25.4 (ThinkDesign will calculate the result)
- Hit OK

Check again the line length and you will notice that it is now correct!

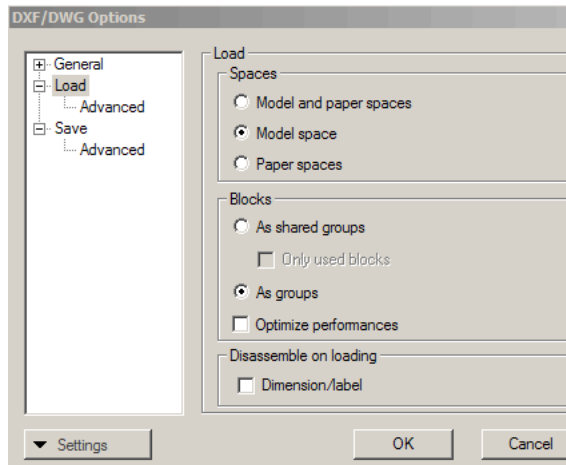


Now let's load a similar file -- this one saved in AutoCAD version 2000. Set the 'Files of type' to DWG and se-

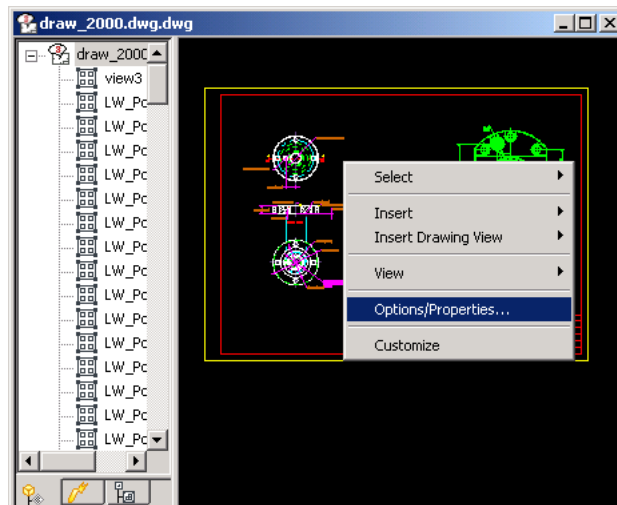
lect draw_2000.dwg.



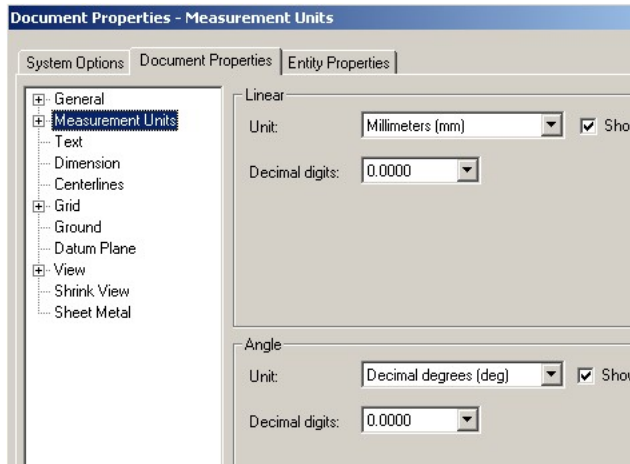
We'll open only the Model space, so under the File Open Options – in the Load group set Spaces as Model space. If you open the Load branch and select Advanced you will notice that the units is set to "Use drawing unit" for R14 and later versions.



Select OK. The drawing opens in ThinkDesign. Check again for **Options/Properties** and we have the unit of measure set to Millimeters.

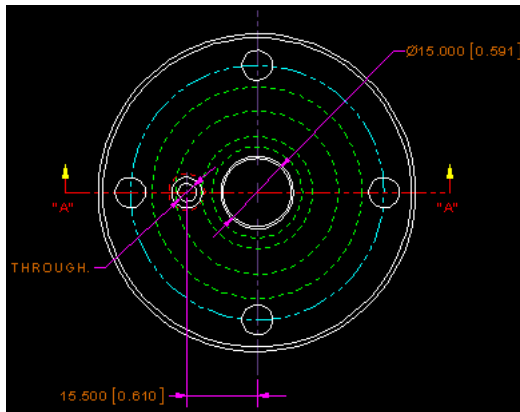


So the unit of measure in drawing files saved in AutoCAD versions later than R14 is coded into the drawing file and ThinkDesign DXF/DWG translator automatically takes care of the units for such files.



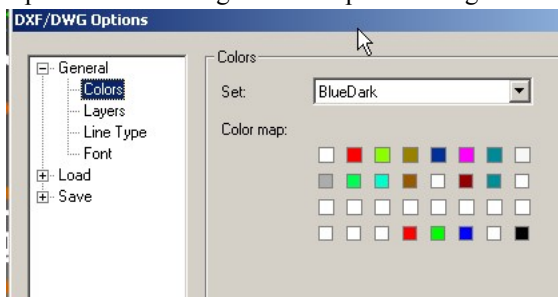
3. 3. Changing Color, Line types & Fonts

In this step we will study how to change Colors, Line Type & Font when importing a DXF/DWG file.

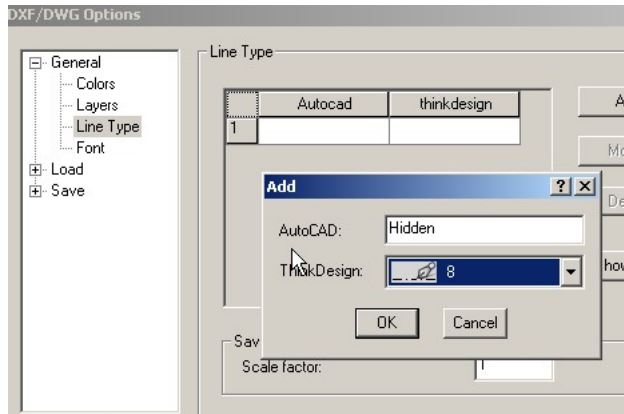


With File open Options set to default, we find hidden lines are of type 2 and the background color set to AutoCAD or Black and WhiteZebra depending on what was your last setting for a DXF/DWG file. Now we are going to change the background color to BlueDark, the Hidden line type to 8.

Open draw2000.dwg file with option settings with color as BlueDark.



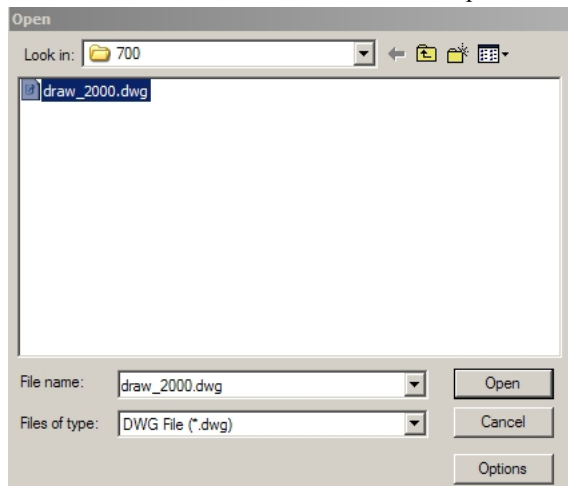
Then go to Line Type and click on Add button. Now enter the Autocad equivalent value for ThinkDesign line type as HIDDEN and 8 and say OK for add table.



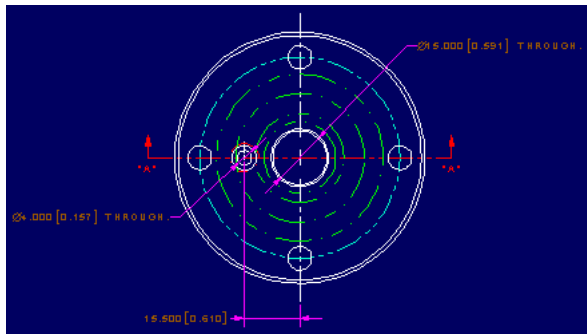
Note

The value entered in the Save > Scale Factor, controls the scale factor applied to all line types when SAVING to DXF/DWG formats. The default value is 1. The necessity to specify this value arises due to the fact that think3 line types are zoom-independent, while AutoCAD line types are zoom-dependent. The user may intend to apply a scale factor to get more similar aspect of the drawing when opened in AutoCAD.

Click on OK to set the selection and now open the draw_2000.dwg file.



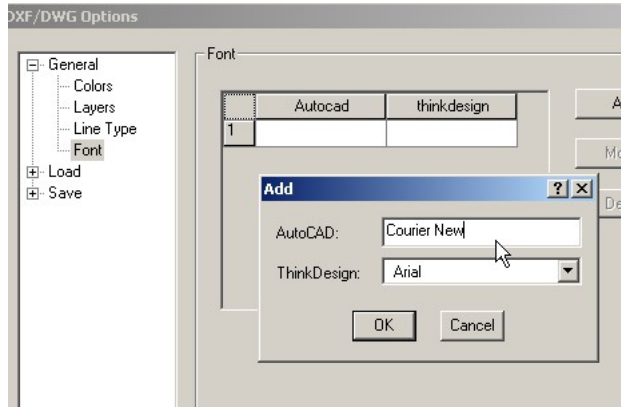
Now background Color and line types are updated to dark blue and line type 2 is changed to line type 8 of ThinkDesign.



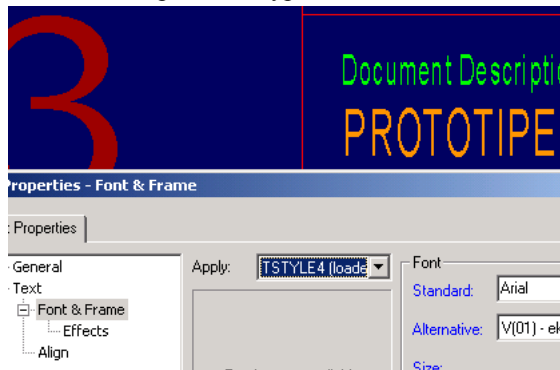
Now, let's check the font of the titleblock entities. If you right click on word PROTOTIPE and select Edit Properties, you can read the current entity font by Text under Text branch. It reads Arial and we will change this to Courier new font and save the file as say draw_2000_font.dwg.

Let's reopen the new file draw_2000_font.dwg file with option settings for Font.

In the file open Options, select Font under the General branch and hit Add button. Using this Add feature we can map ThinkDesign font for AutoCAD fonts. We will set AutoCAD "Courier New" to ThinkDesign "Arial" and see how this effects translation into ThinkDesign.



Click OK and now open draw_2000_font.dwg file. Check the font of the word PROTOTYPE and you will notice this that it is updated to type Arial.



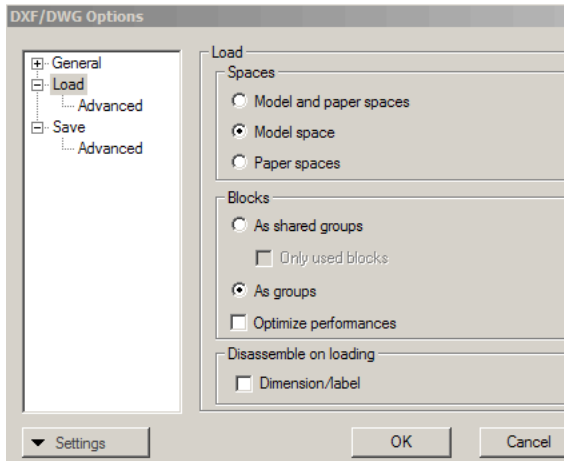
NOTE: Layer Mapping

From ThinkDesign version 2008.1 significant enhancement has been made in Layer management. With this new layers functionality it is possible to assign alphanumeric values as Layer names. AutoCAD® also manages the layers in the same way, so the Layer Mapping option under DXF/DWG open options has been removed.

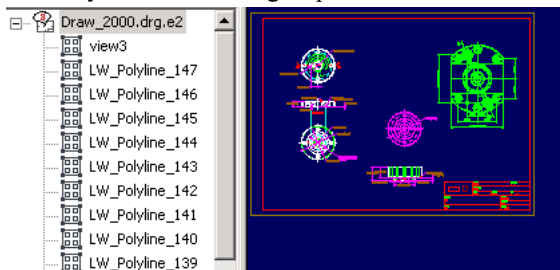
4. 4. Load, Advanced and Save Options

Now let's explore Load Options. **Open** draw_2000.dwg file

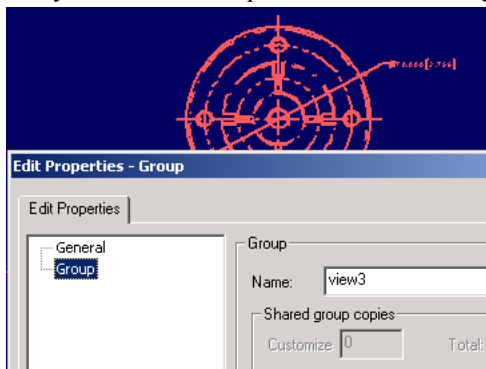
Select Model space for Spaces under Load option and As groups under Blocks.



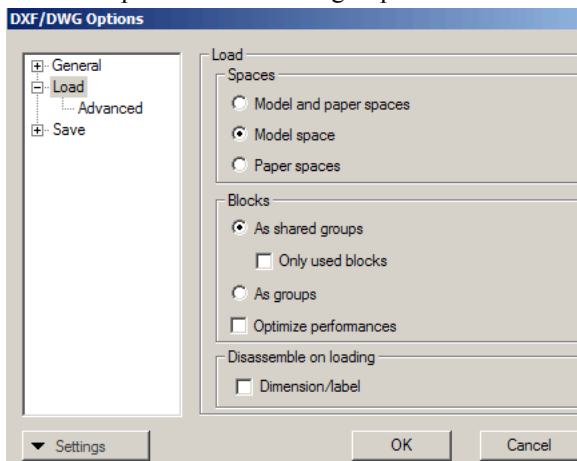
The .dwg model opens only with model space and the paper space will not appear. All AutoCAD polylines are correctly converted into groups as this is the default setting under Load -> Advanced Options.



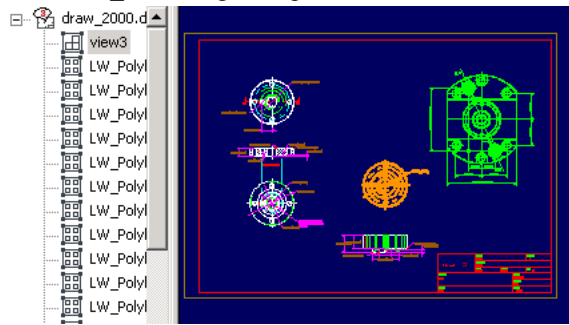
The first group view3 is an AutoCAD Block entity. If you check its Entity Properties you will see that this block entity came in as Group and not as a Shared group.



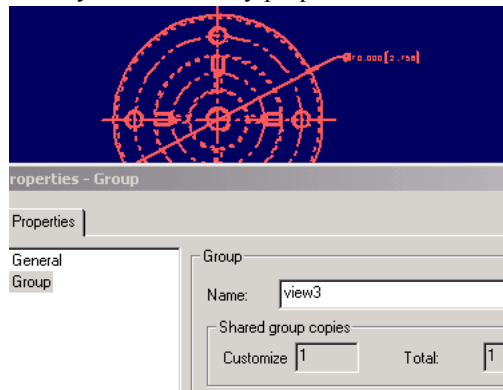
Let's once again use DXF/DWG file open Options to convert AutoCAD block entities into Shared Groups. Under Load option set As shared groups under Blocks



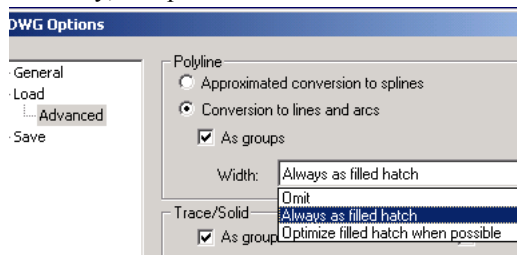
The draw_2000.dwg file opens with view3 as shared group.



and if you check Entity properties of view3 it is indeed a shared group.

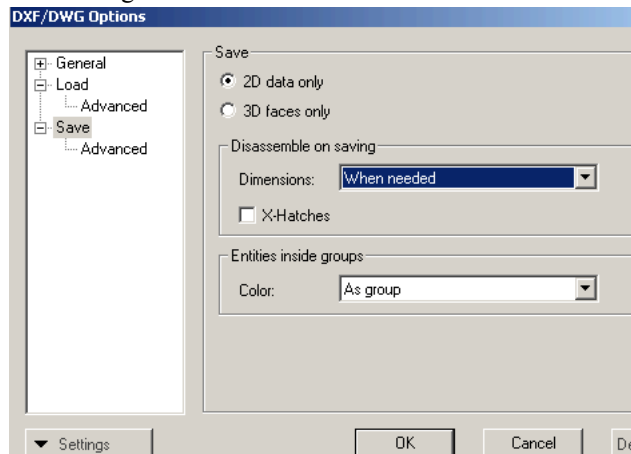


Similarly, it is possible to use Advanced Load options to control Polyline width.



Let's now look at the various possibilities for Save Options.

Under Save option you can either select 2D data only or 3D faces only. This setting enables conversion of ThinkDesign files into DXF 2D or DXF 3D formats.



Note:

ThinkDesign can save a 3D file into 3D DXF format but cannot load/Open DXF 3D format. The page will open with no entities.

Settings

In ThinkDesign it is possible that you can save all the settings you do while opening a DXF/DWG file. After setting all the necessary options, click on the Settings button on the lower left corner of DXF/DWG options dialog and select the command Save new Settings to Library.

The settings saved in the library are written to a file under USER CONFIGURATION FOLDER (For EX:- C:\Documents and Settings\

Congratulations on completing this task !!