

File Preparation for CNC Machining

1. Build all files to theoreticals unless you are confident in your modeling skills. Poor surface development from incorporating fillets and radiuses are the main cause for gaps when attempting to stitch files.
2. When creating files (parts that will be assembled) remember to include design clearances. If you create your files line for line they will not fit together. For items that will require painting about .010-.012" per side should be sufficient. If pieces will be assembled with light sanding only approximately .005-.008" design clearance will be required.
3. When creating part geometry small details will be filled during painting. Design these areas to allow for paint buildup to maintain the desired finished appearance. In other words, make them deeper.
4. **Same folder/file naming conventions as rapid prototyping.**
5. All extra geometry must be removed (double surfaces, construction geometry and curves unless they are cut lines)
6. Organize file – All surface data must reside on one or more layers, cut lines must be on **one** separate layer (no surface data).
7. Many files contain blanked entities that are not required, delete all of this geometry to reduce file size thus reducing tool path generation time
8. **Make sure the scale of your file is correct!**
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All * .IGES files must contain the students name and be located within a folder (students first and last name) to be accepted for CNC machining.**

File structure/name conventions – example for submitting CNC.IGES prototype file.

Example:

Create Folder student's first and last name – Trans/Prod/ID/ etc.

Create IGES file John-Doe-car,cellphone,boat,ect..IGES

**Iges files must be in created folder as stated.
After students full first and last name keep
filenames as short as possible.**

Saving an IGES File in Alias for CNC Machining

1. *****MAKE SURE MODEL IS SCALED CORRECTLY*****
2. Select all
3. File – Export – Active as (click square icon) – File formats – Select IGES
4. Set output units to whatever units you built the model in (i.e. if you built model in inches, set to inches etc.)
5. Click next, save where you want it.

Saving an IGES File in Rhino for CNC Machining

Set file tolerances prior to building model

Set file tolerances under the UNITS settings:

Absolute	.001 units
Relative	.01 percentage
Angle	.1 degree

Select object

Save as – IGES (*.igs)

IGES Export Options - Detailed controls

Set IGES type to – Mastercam

Double Check IGES tolerance is set to .001

Click OK

Finishing of CNC Machined Files

1. For parts produced from the CNC machine - light cleanup and sanding will need to be performed before any primer is applied.
2. Files milled using 20lb. foam will require at least two coats of primer before painting.