

# .STL Files

The industry standard 3D CAD file transfer is the .STL file, a file extension that stands for Stereolithography. Basically, it's a file that uses a mesh of triangles to form the shell of your solid object, where each triangle shares common sides and vertices. Most CAD packages will allow you to export to the .STL file format, and providing AMS™ with good files will assure you a speedy quote turnaround, and good quality models.

- An .STL file is a mesh of triangles wrapped around a CAD model. CAD system settings specify how closely the .STL mesh conforms to the actual surface geometry of a part. A mesh with triangles that are too large will create a small .STL file, but the working model made from it will have visible facets. It is important that the mesh with triangles approximate the size of the layers produced by the laser sintering system to generate a working model with the best fidelity.
- The relative coarseness or smoothness of a curved area is called a feature's faceting. Faceting is controlled by the output settings of the CAD package being used, the most common variables are deviation or chord height, and angle control or angle tolerance.
- Good quality faceting is just detailed enough so that features build to the file dimensions, while being simple enough to maintain a manageable file size, without a superfluous amount of detail. The chord height of an .STL file (the maximum distance a point on a triangle can deviate from the true surface of the part) should be between 0.025 and 0.075 mm.
- Either ASCII or binary formats can be assigned. The ASCII format is capable of supporting multiple solid parts and multiple names per part; binary formats can only support a single solid part with no naming.
- If your CAD package has the option, select 'Show .STL Info Before File Saving' or 'Preview' when making your .STL files. That way you get a glimpse of the output quality before saving the file. Better still, use a separate .STL file viewer to verify, to be absolutely sure.
- The .SLS (P 380i) or DMLS (M 250x, M 270) system software will automatically place the .STL file within the machine's build space, oriented for optimal surface finish and build speed.

# .IGES Files

IGES is a more complex file format than .STL, offering a vast number of different geometrical entities, ranging from lines and arcs to complex geometric solids such as cylinders and cones known as "constructive solid geometry." Increasingly, IGES is becoming the preferred format for DMLS system applications, in particular within the aerospace and automotive industries.