

## Requirements for DXF Auto Programming

Originally “DXF” was an AutoCAD term, which meant “Drawing Exchange File.” However, all DXF files are not the same. With the availability of a variety of new and innovative CAD programs, the term “DXF” has mutated, becoming generic to the point that the definition (and substance) varies.

The “DXF” extension in OPTEK terms still means “drawing” and pertains specifically to the **outline** of the specific feature or features to be “measured”. This is closest to the AUTOCAD version 1.0 DXF export.

The following is an overview of the basic criteria required by the OPTEK QC4000 and QC5000 systems.

For a more comprehensive discussion, refer to your OPTEK VideoMic Manual, Chapter 6 “Programming from CAD Files” or reprint #19 on CAD file conversions.

### Some Basics

The OPTEK is a measuring system. As such, it requires feature details to be in an appropriate geometric form (arc, circle, line).

**Note:** In stipulating appropriate features, a “point” has no measurable detail in terms of size or shape.

To be relevant, the features to be measured must have “substance” or “structure”. That is, they must have the capacity to be illuminated (by any of the available light sources – surface, profile, on-axis) so that the “edge” can be defined by a “gray scale” threshold level.

The DXF data, to be acceptable, must present the feature detail outline as a 2D “wireframe” – in single layer.

**It cannot be 3D. It cannot be a solid; and, it cannot be a combination of layers or multiple layers.**

The best way to prepare files for import to the OPTEK system is to coordinate with the CAD operators and have a measurement layer created with only the relevant features on it.

Export this layer as an AutoCAD version 1.0 DXF file and import it to the OPTEK.

### Check the imported file on the OPTEK

Check the datum. Do CNC gotos. If the datums are the same on all files the OPTEK will drive to the selected feature location.

Check that the hole locations and diameters are the same.

Check the overall dimensions of the part to verify the correct export from CAD. If data does not match check if the tool width has been accounted for by the CAD export.