# Pictorial voice

## Page0

This section will cover the different types of pictorials and how to draw isometric and cabinet oblique pictorials. A pictorial is a 2D drawing that looks 3 dimensional. Pictorials really help when trying to read an orthographic projection.

## Page1

Pictorials are 2-dimensional drawings that look 3-dimensional. They are a very effective way of communicating design ideas. It may be cliché, but a picture is worth a thousand words.

Not everyone is capable of interpreting an orthographic projection. Adding a pictorial to your orthographic projections helps the reader to visualize the part.

Assemblies are also effectively illustrated using pictorials.

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There are three classes of pictorials: Axonometric, Oblique, and Perspective. Within each class there are pictorials that look different put use the same projection method. The most common axonometric projection is the isometric pictorial. The most common oblique projection is the cabinet oblique pictorial. We will look at these two types of pictorials in more detail later on.

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There are 3 different types of axonometric projections: Isometric pictorial, Dimetric pictorial, and Trimetric pictorial. Look at the figure and let’s see what is the same and what is different between the types of projections. All of the pictorials have one vertical axis and two axes that are oriented at some angle above the horizontal. What makes these pictorials different from each other is the angle at which the two axes are above the horizontal. Take a look at the figure and note the angle differences. Also, scale along each axis in an isometric pictorial is equal. This is not true for the other two.

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There are 3 different types of oblique projections: Cavalier, Cabinet, and General. Look at the figure and let’s see what is the same and what is different between the types of projections. All the pictorials have a front face that is true size. The features drawn on the axis that is at an angle to the horizontal can be at different scales. In my opinion, the cabinet oblique is the most realistic.

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Perspective projections use vanishing points. The number of vanishing points determines the type of perspective projection.

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Visualization is the ability to picture things in your mind. For example, can you picture the 3D part by just looking at the orthographic projection, or picture the orthographic projection just by looking at the 3D part. This is a very important skill. You may think that since your CAD program automatically creates a 2D drawing based on your 3D part, visualization is not a necessary skill. This is not true. You need to be able to inspect the 2D drawing for mistake. Computers are only as good as their programmers and I guarantee that the programmers are not experts of the ASME standard. You should also develop your visualization skill because you may run into the situation where you need to model a part based solely on the orthographic projection.

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Preexisting

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Preexisting

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A cabinet oblique pictorial angles its depth axis by 45 degrees above the horizontal. Also, the depth dimensions are drawn at half scale. To draw a cabinet oblique pictorial, use the following steps.

Step 1: Draw the oblique axes as shown.

Step 2: Draw the defining box. The front plane dimensions, that is the height and length of the box are drawn full scale. The depth of the box is drawn at half scale. That means that the box will measure the maximum height and length of the object and the depth will be half of the maximum depth of the object.

Step 3: Draw the linear features of the object that are parallel to the axes. Remember that the depth dimensions are half scale.

Step 4: Add any linear features that are not parallel to the axes. There are none in this case.

Step 5: Add the circular features. The circular features that are parallel to the front plane are drawn true size and shape. The circular features that are not parallel to the front plane are not true size. You will have to draw a defining box with the depth dimension drawn at half scale.

Step 6: Erase all unwanted lines.

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