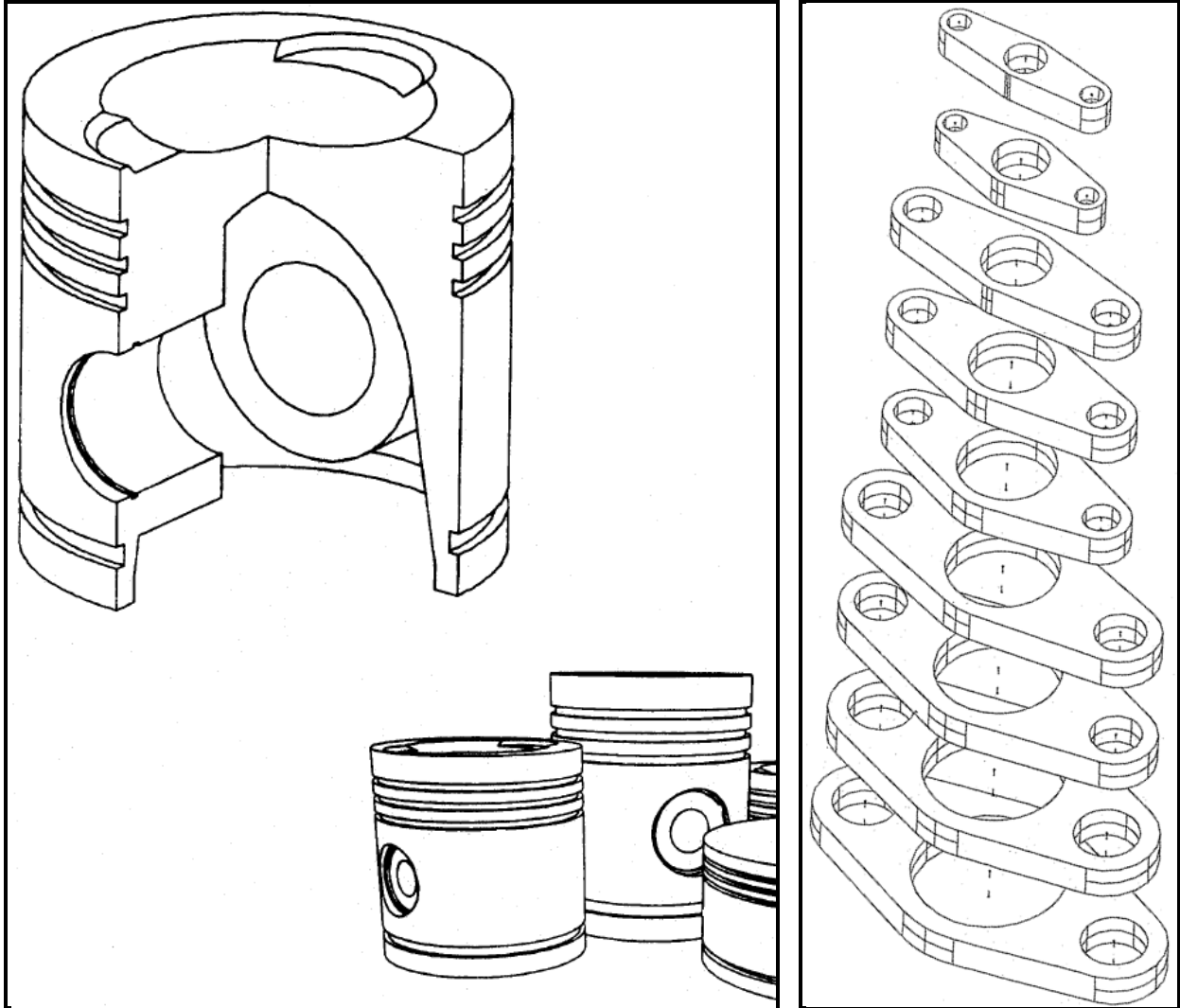


Design Intent

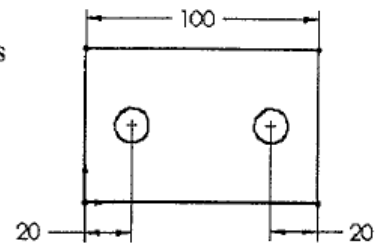
Parametric dimensions can allow a library of parts to be built from a single parametric design (perhaps with some features suppressed).



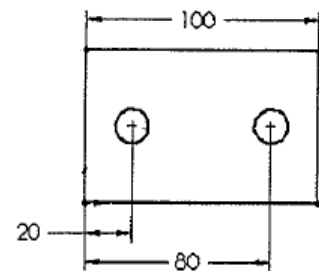
Examples of Design Intent

Some examples of different design intent in a sketch are shown below.

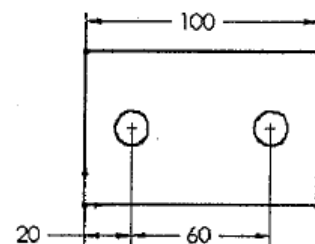
A sketch dimensioned like this will keep the holes **20mm** from each end regardless of how the overall plate width, **100mm**, is changed.



Baseline dimensions like this will keep the holes positioned relative to the left edge of the plate. The positions of the holes are not affected by changes in the overall width of the plate.

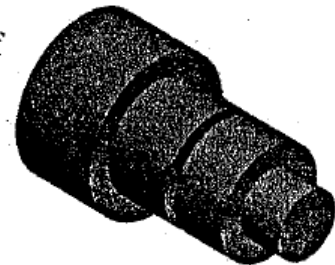


Dimensioning from the edge and from center to center will maintain the distance between the hole centers and allow it to be changed that way.



How Features Affect Design Intent

Design intent is affected by more than just how a sketch is dimensioned. The choice of features and the modeling methodology are also important. For example, consider the case of a simple stepped shaft as shown at the right. There are several ways a part like this could be built.



The “Layer Cake” Approach

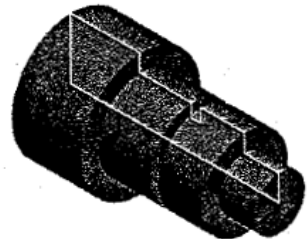
The layer cake approach builds the part one piece at a time, adding each layer, or feature, onto the previous one, like this:



Changing the thickness of one layer has a ripple effect, changing the position of all the other layers that were created after it.

The “Potter’s Wheel” Approach

The potter’s wheel approach builds the part as a single, revolved feature. A single sketch representing the cross section includes all the information and dimensions necessary to make the part as one feature. While this approach may seem very efficient, having all the design information contained within a single feature limits flexibility and can make changes awkward.



The Manufacturing Approach

The manufacturing approach to modeling mimics the way the part would be manufactured. For example, if this stepped shaft was turned on a lathe, you would start with a piece of bar stock and remove material using a series of cuts.

