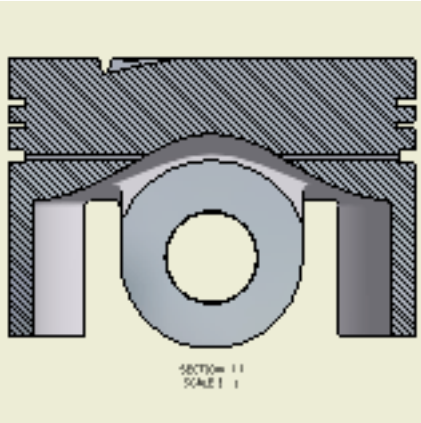
Autodesk **Skill Builders**

A Skill-building Exercise

Section Views

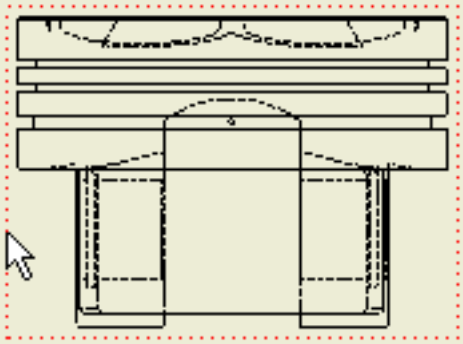


In This Exercise

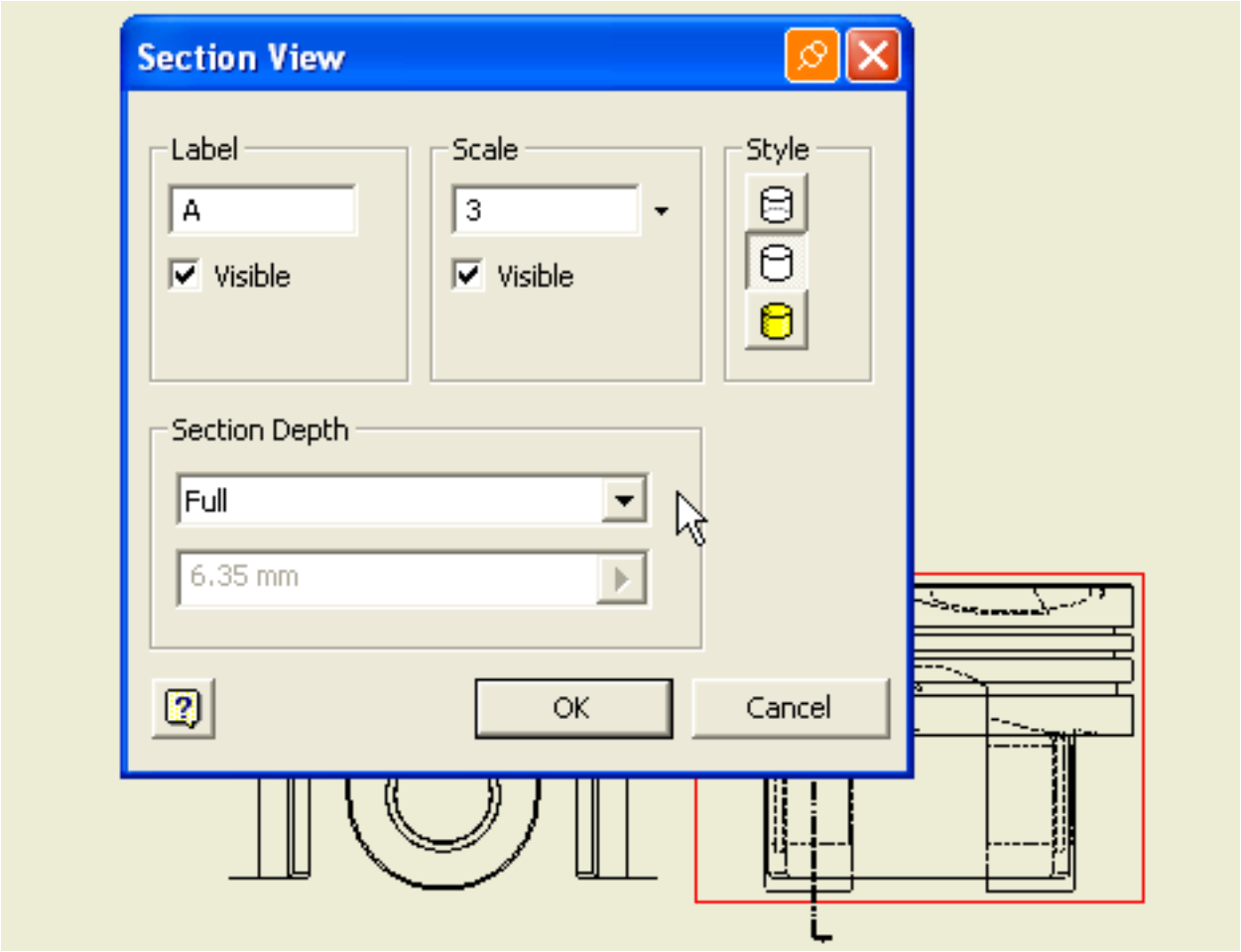
This Skill Builder demonstrates how to take advantage of some of the features built into Autodesk Inventor section view functionality.

Basic Workflow - A Quick Review

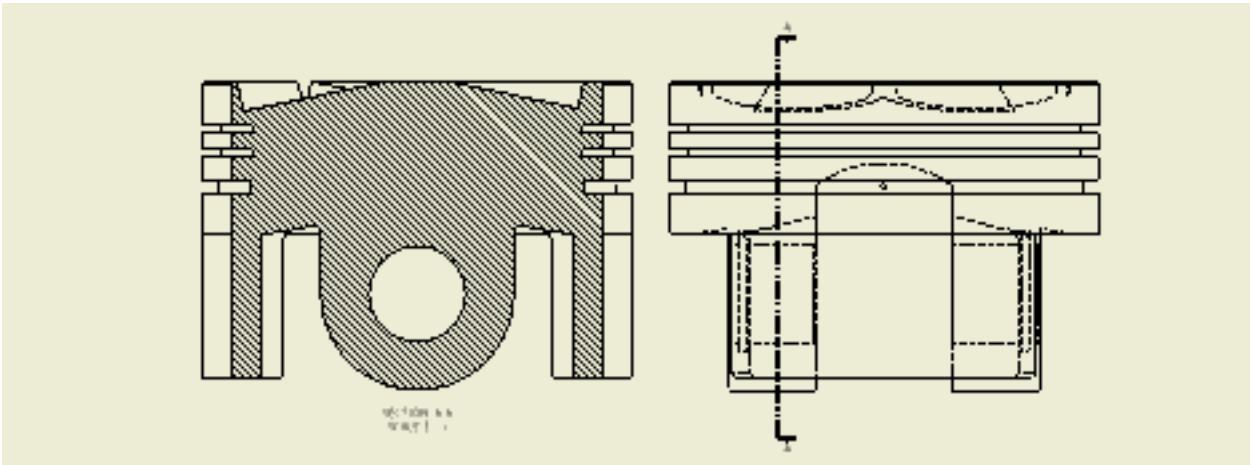
Click the Section view tool, and then select the view to section.



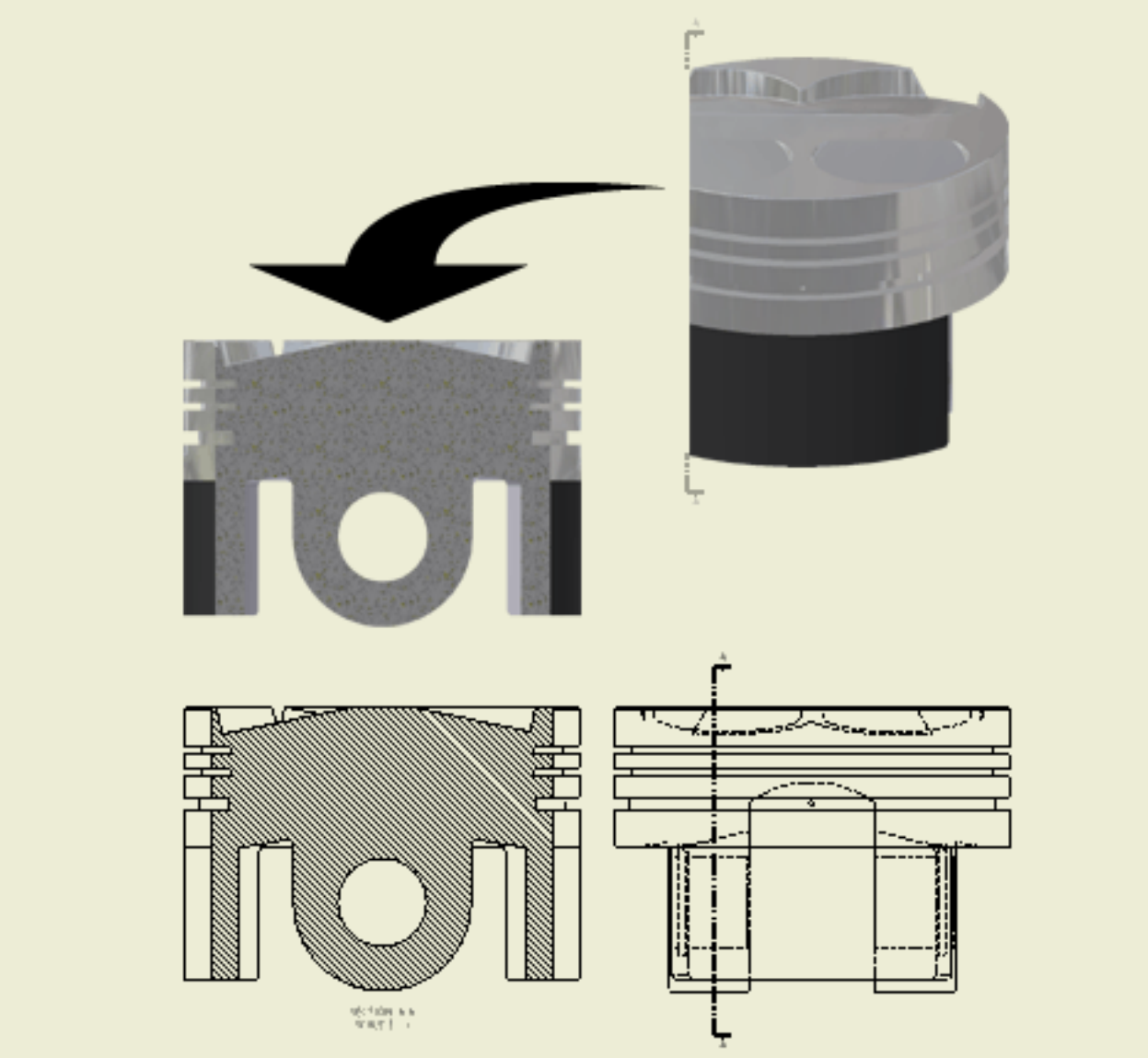
Set the section line start and end points, right-click and select Continue, and then set options in the Section View dialog box.



Click in the graphics window or click OK to place the view.

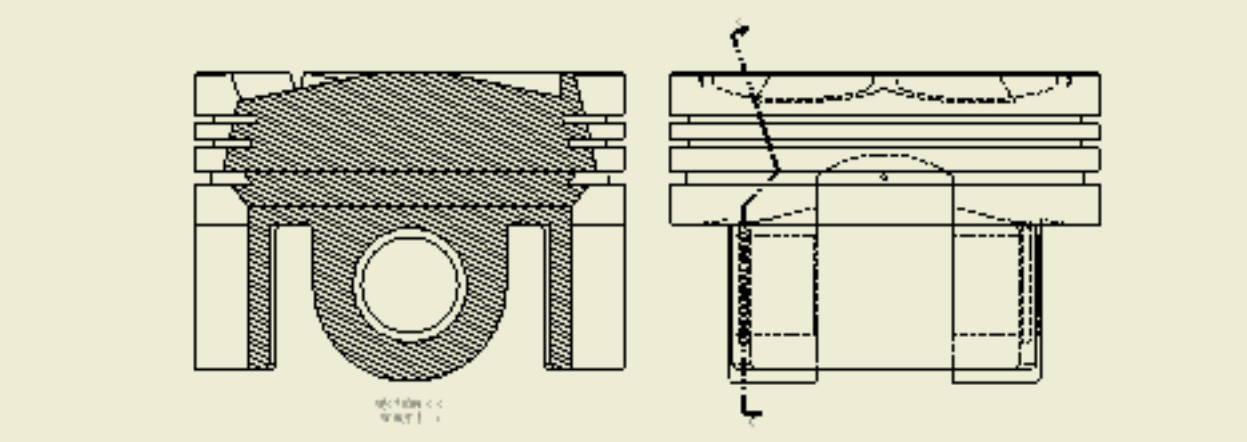


The view direction arrows indicate view direction. Any material opposite or behind the arrow direction is removed in the section view. The section view is rotated 90 degrees about the vertical axis, relative to the parent view.

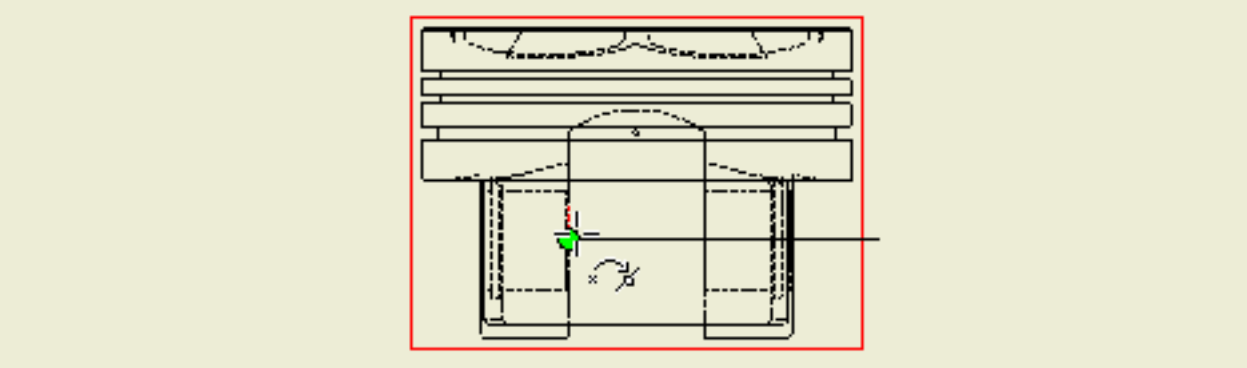


Section line variations and edits

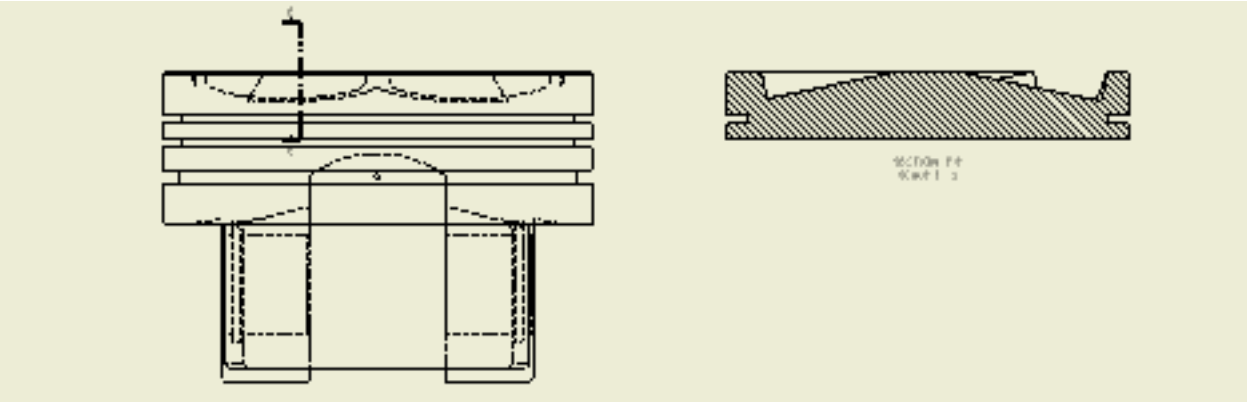
The section line can consist of as many vectors as needed. The section line can be something other than horizontal or vertical.



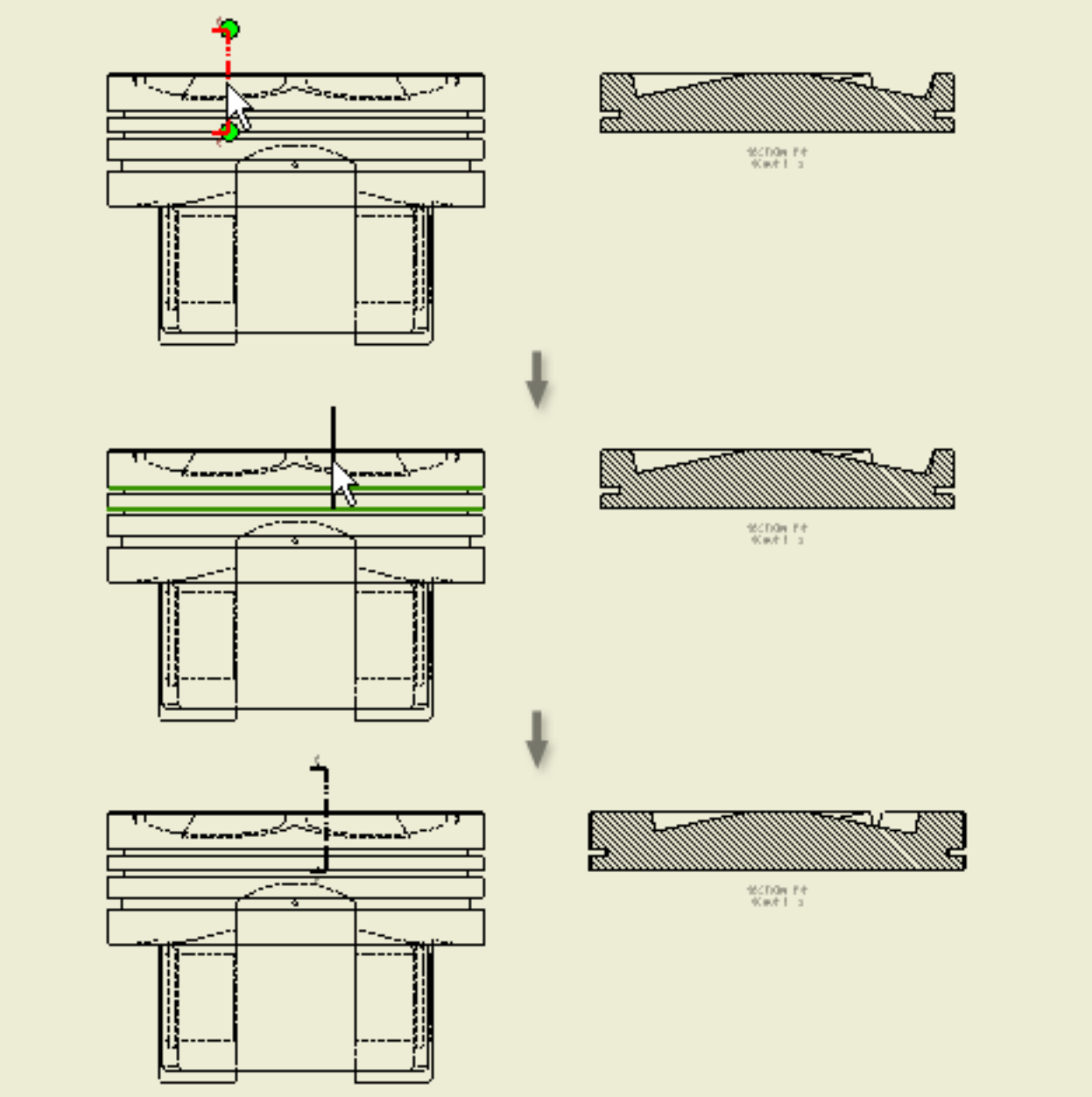
You can create constraints between the section line points and view geometry as you draw the section line. The constraint is inferred when you pause over a line, line endpoint, line midpoint, or sketch point and is created when you click. If the constraining view geometry changes, a constrained section line moves or resizes per the change.



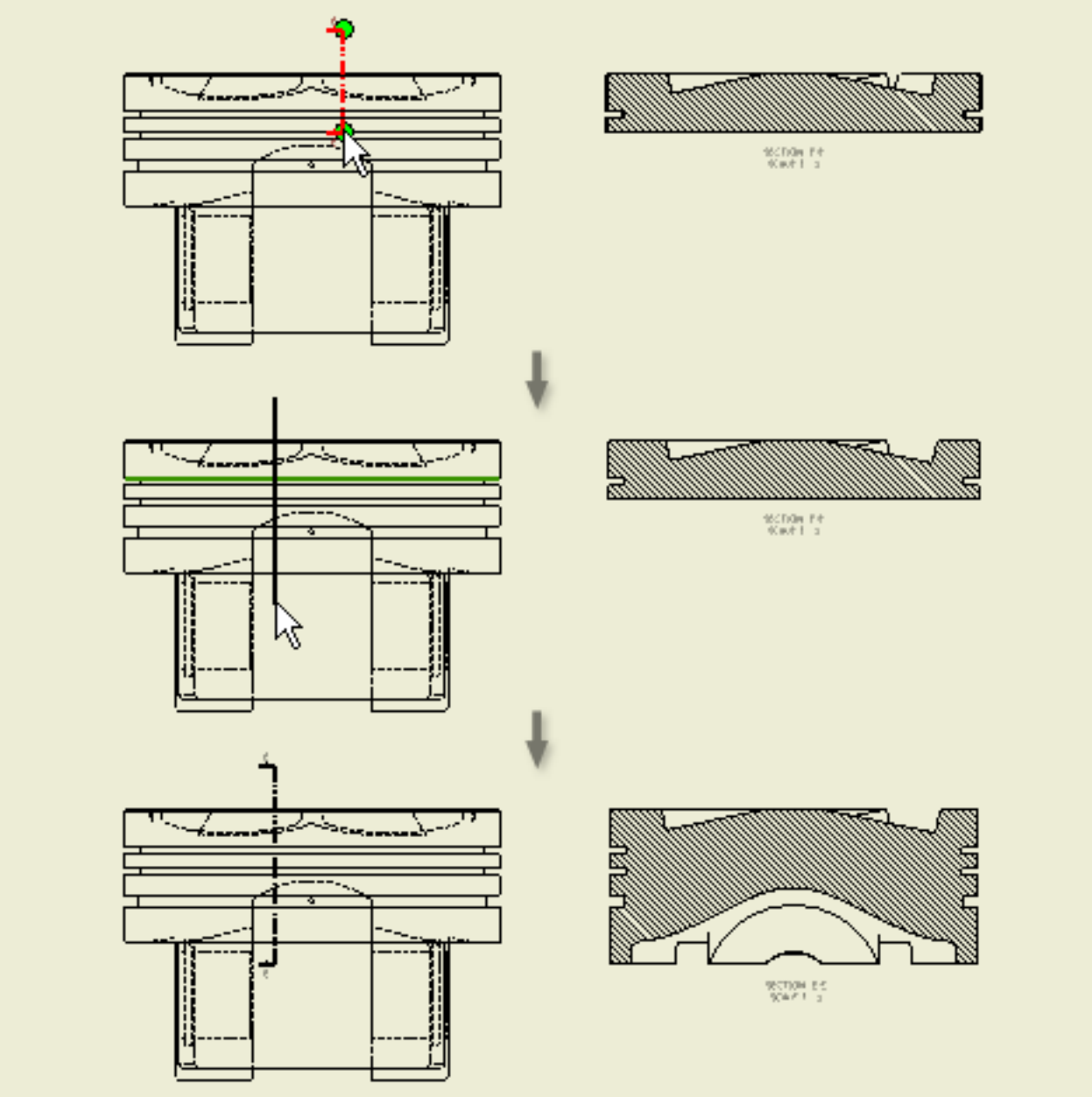
The section line need not fully transverse the view. Any geometry outside the area enclosed by the direction arrows is not included in the section view.



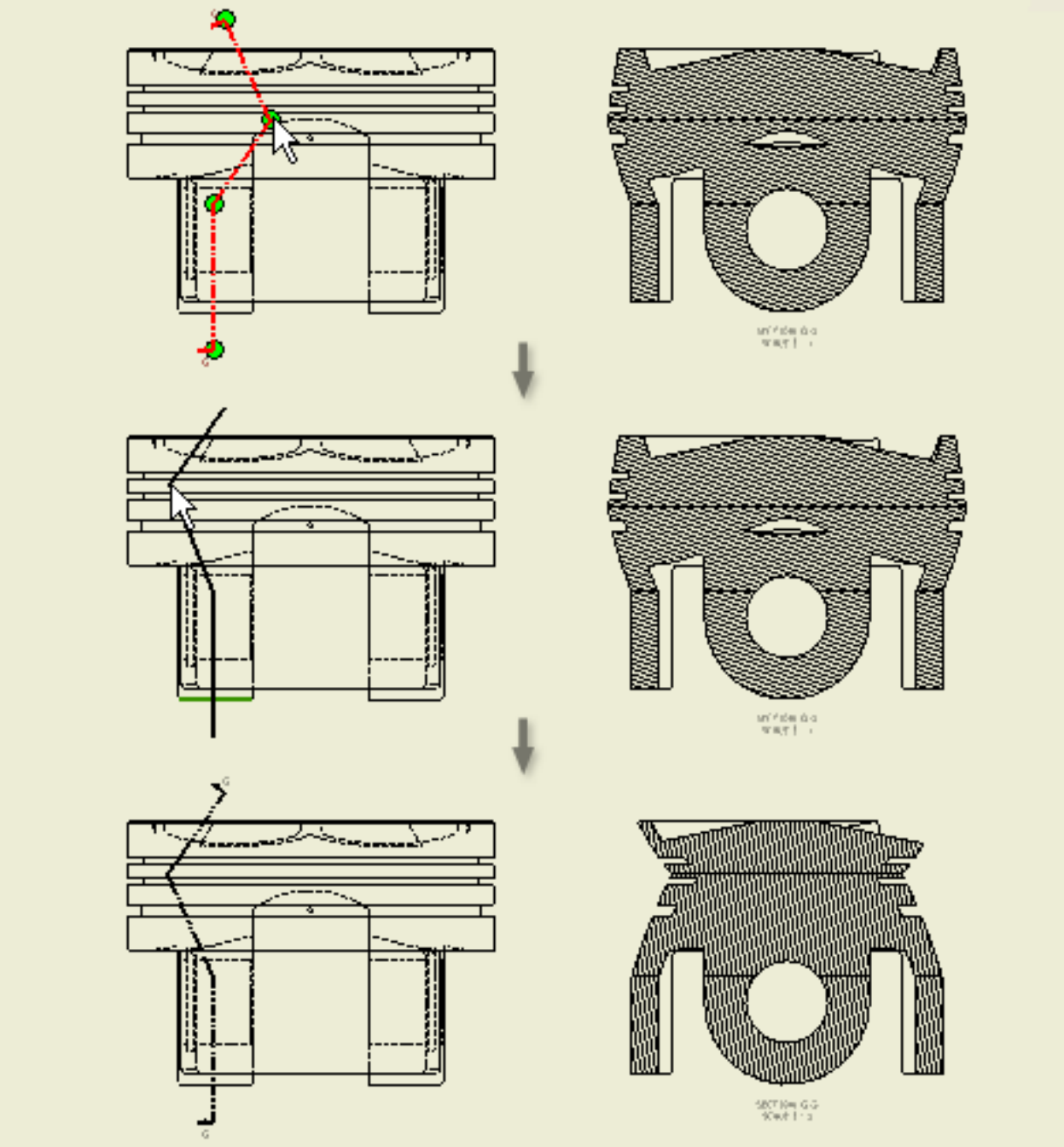
You can move the section line on the fly. Click and drag the line. The move direction is perpendicular to the line vector.



Click and drag one of the grips to simultaneously move and resize the line.



When you drag the grips for intermediate section segments, the affected vectors pivot about the adjacent points.

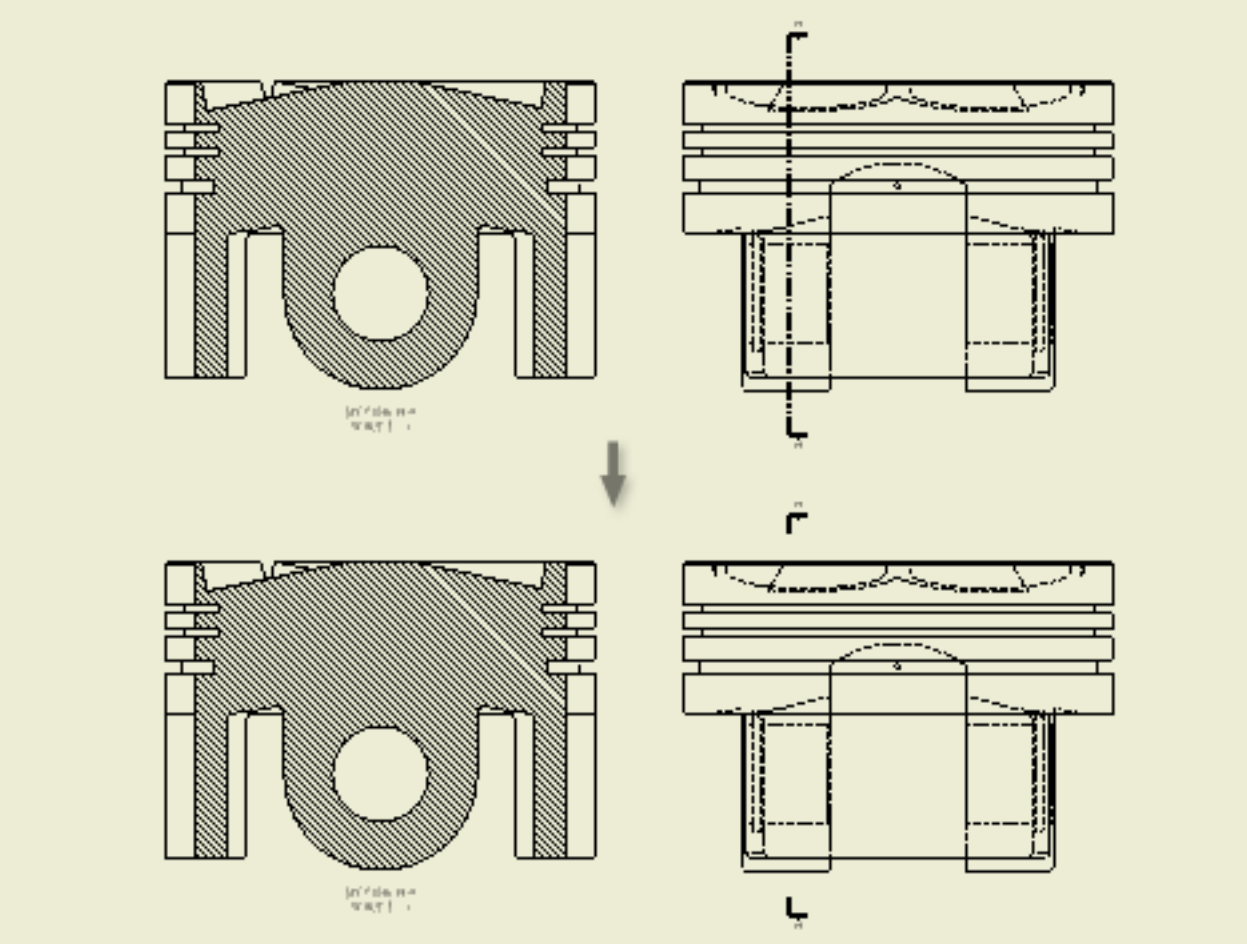


Right-click the section line

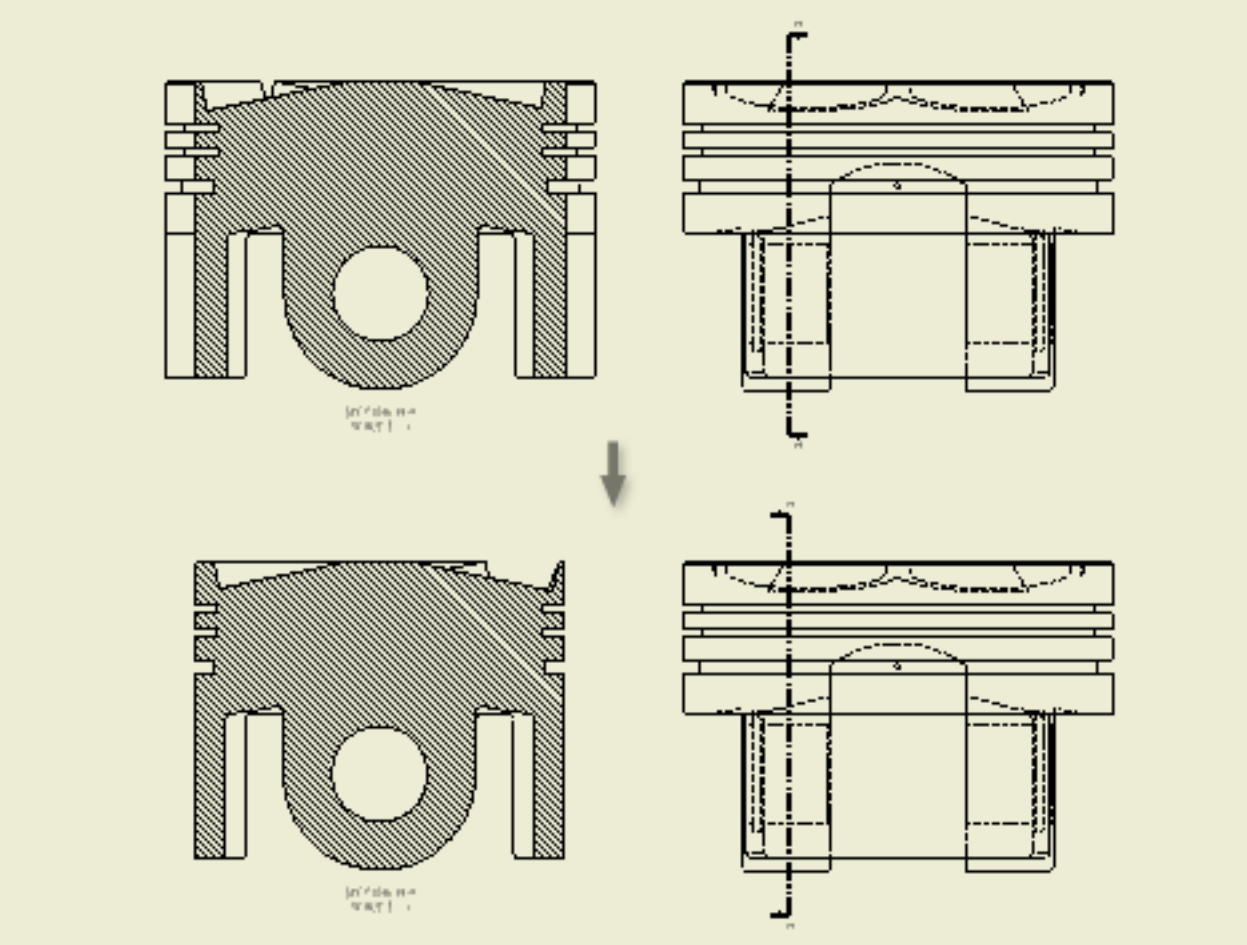
With Autodesk Inventor, it’s always a good idea to check the context menu to see what functionality or options are available in a given workflow or file state. You may find functionality that is available on no other menus. Such is the case with section views.

Right-click the section cutting line and notice several options. When you remove the check mark from Show Entire Line, only a small segment of the cutting line and the direction arrows remain. If the cutting line happens to create visual interference with other annotations or view geometry, it helps to remove clutter

from the view. This is a graphical change to the section line annotation only and has no affect on the section view itself.

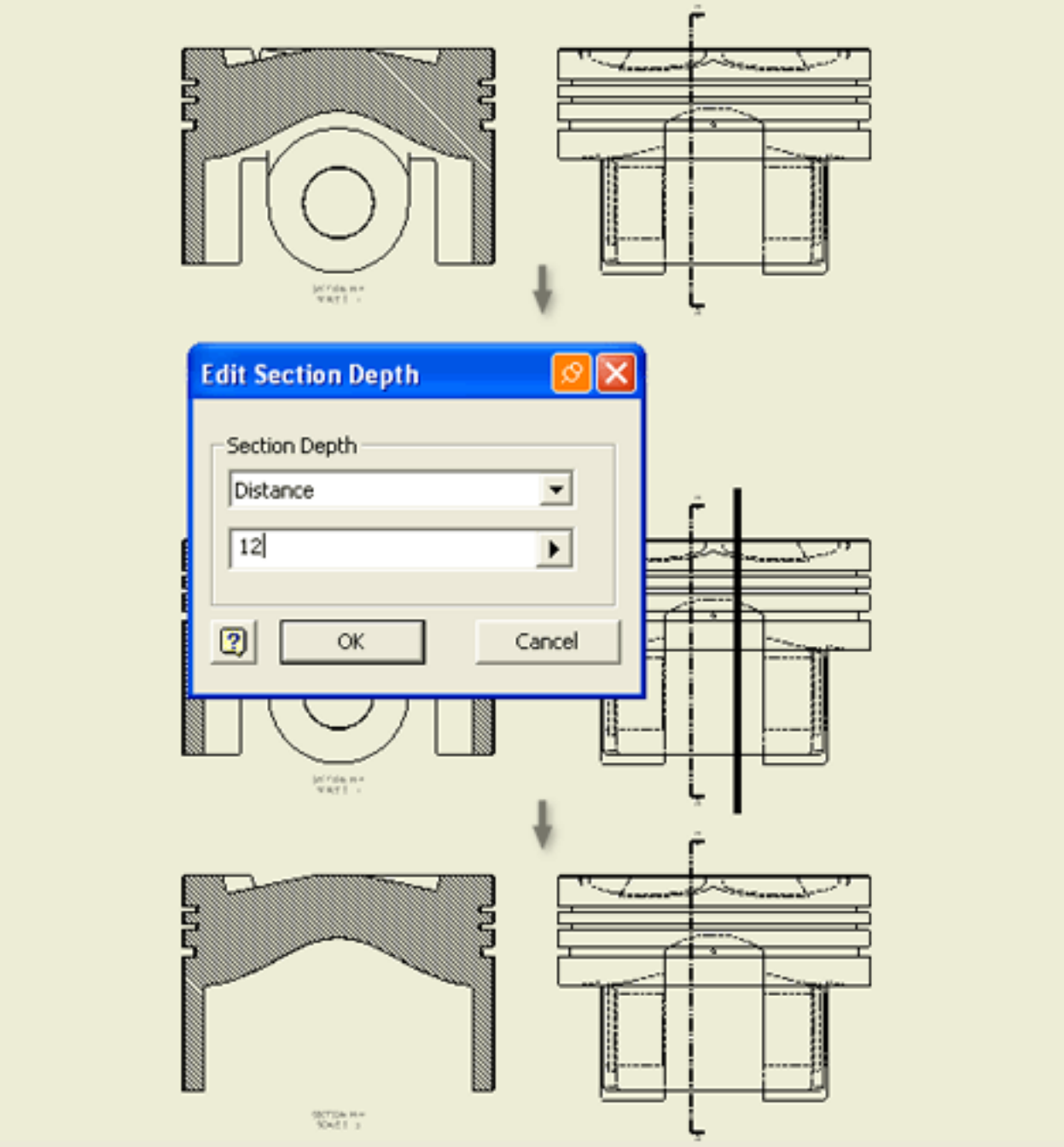


Reverse Direction flips the view direction.



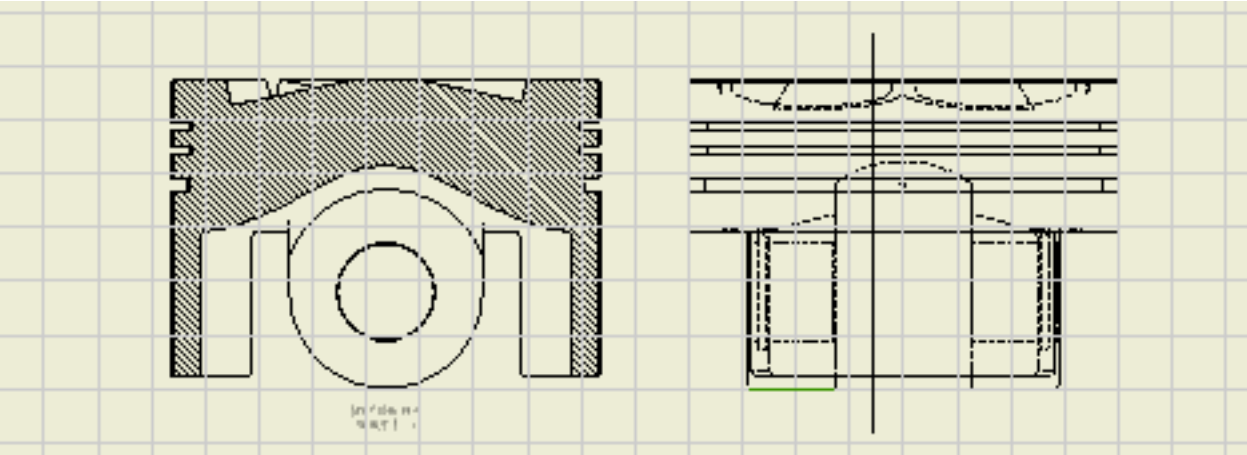
Edit Section Depth controls the distance, or “thickness,” so to speak, of the geometry included in the section view. By default, the section depth is set to Full, which means that all geometry on the arrow side of the cutting line displays or is accounted for in the section view.

When you set the section depth to Distance, only a slice of the view geometry appears in the section view, per the distance, or depth, you specify. This is useful to more clearly indicate the area of interest, reduce visual clutter, or to reduce view regeneration or plotting times.

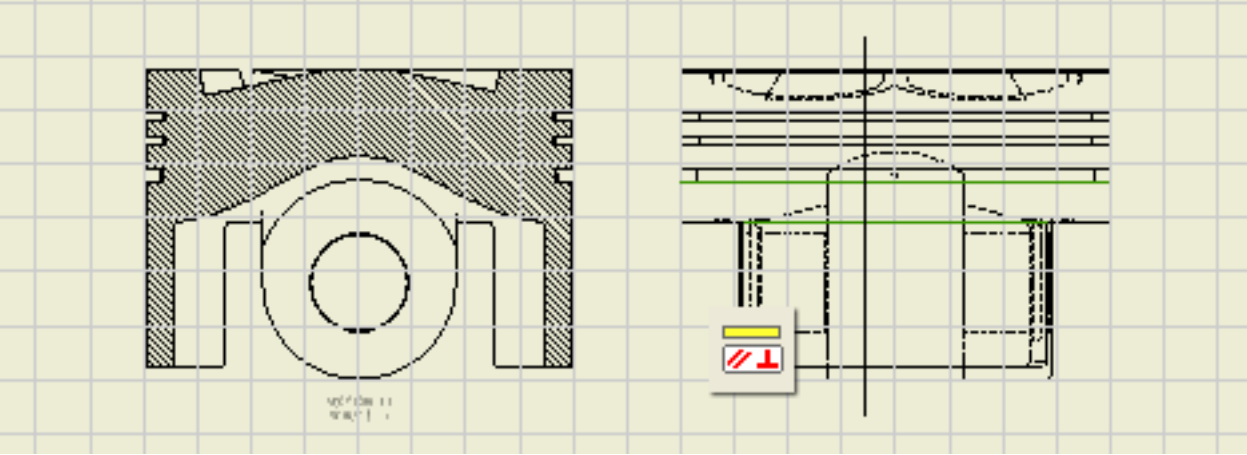


The Edit option provides a wide range of possibilities for refining and building intelligence into the section view.

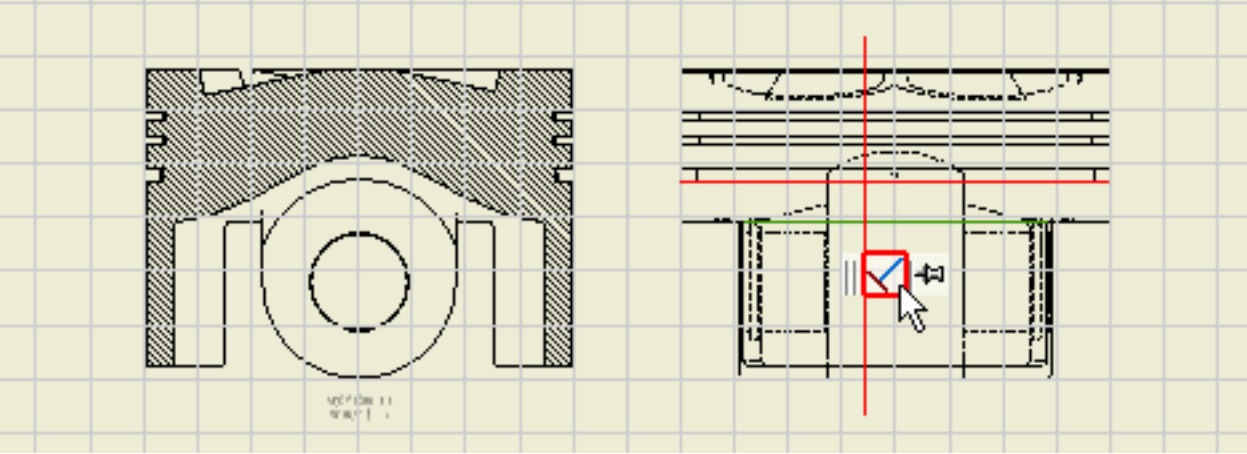
Selecting Edit activates the drawing sketch mode. The section line is a line within the sketch and can be manipulated accordingly.



Use the Show Constraints tool to view any constraints you created when drawing the section line.

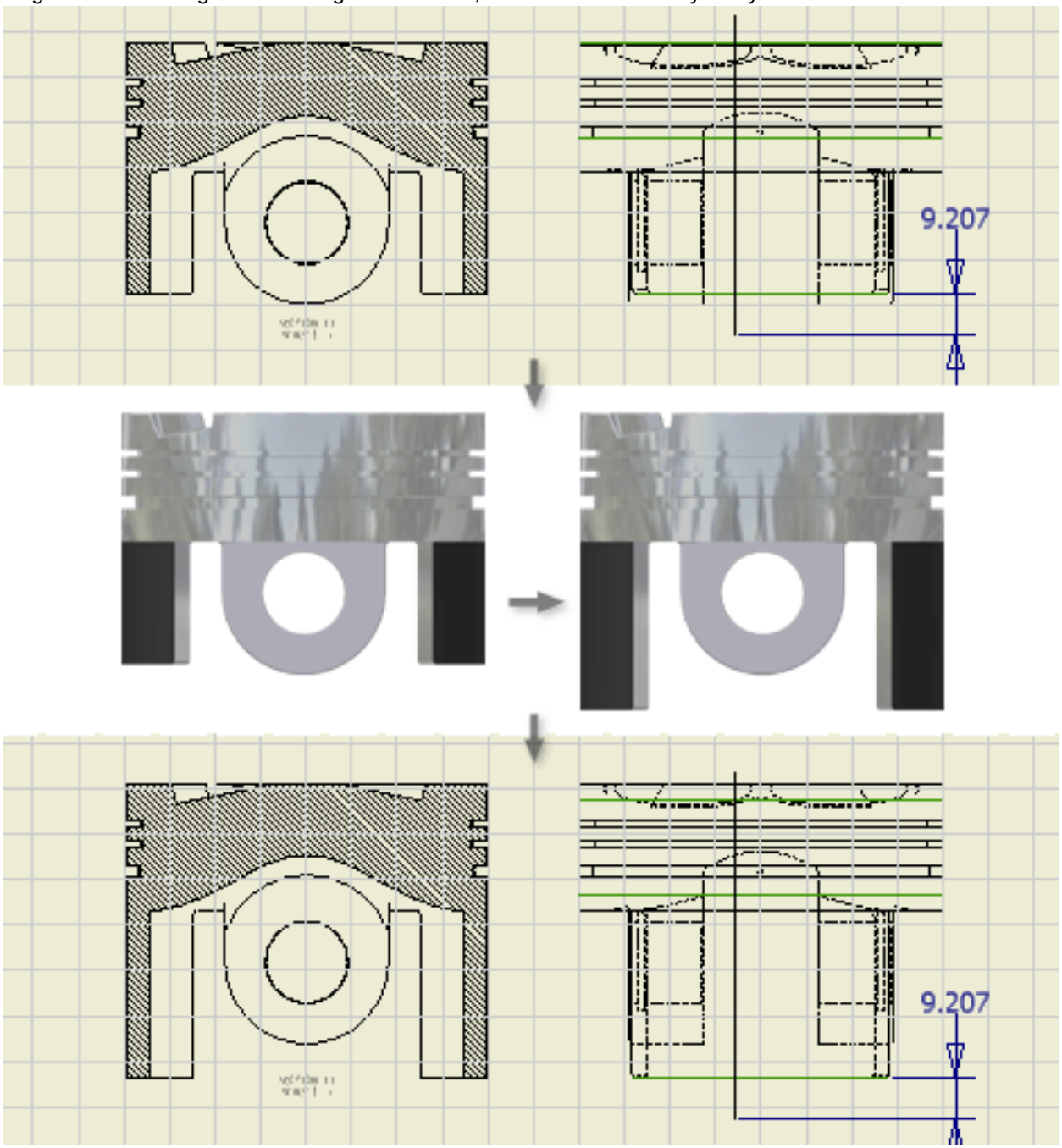


In this example, a perpendicular constraint was inferred and created between the section line and the lower line of the oil ring groove.

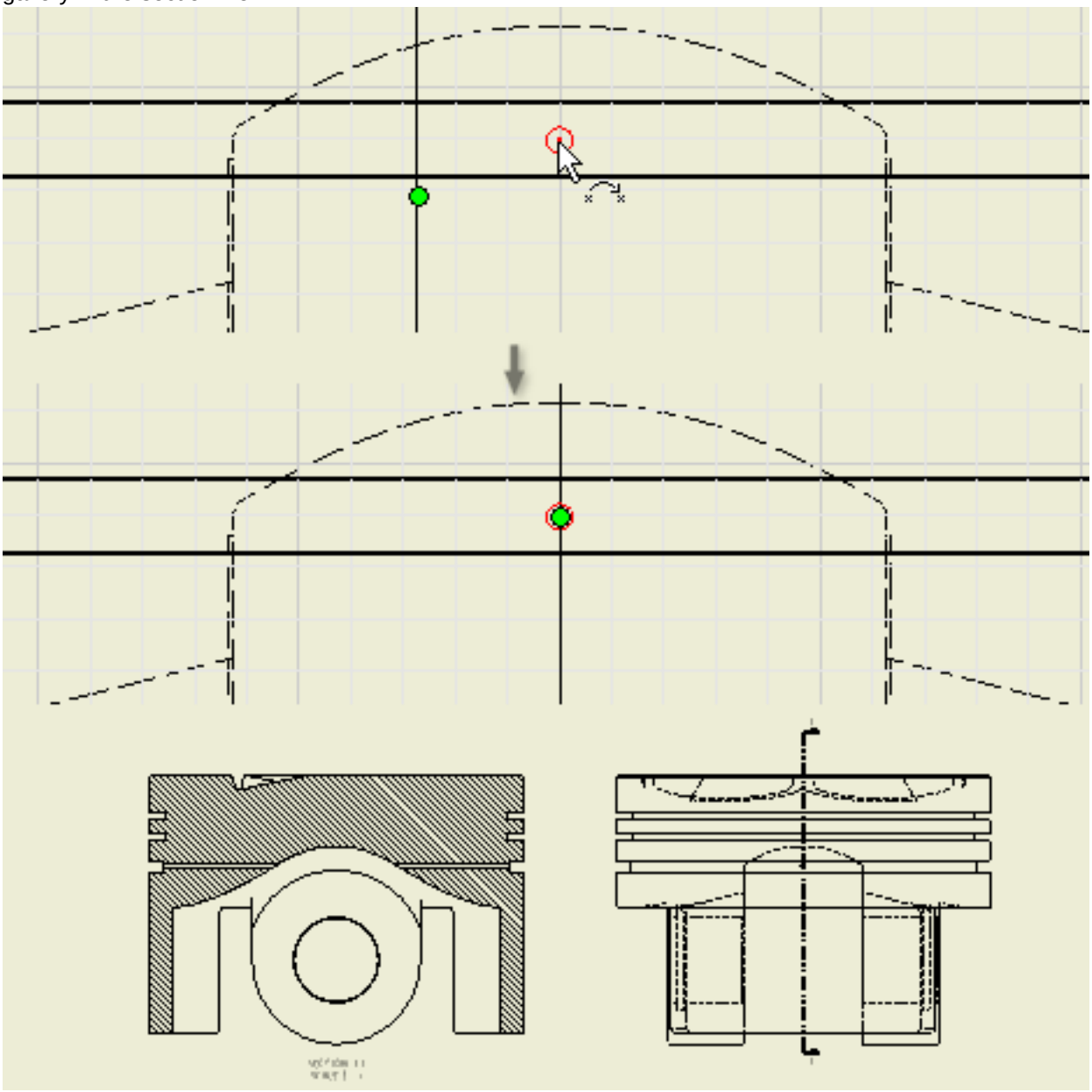


You can constrain the section line to projected geometry. Click the Project Geometry tool, select the geometry, and then select Done.

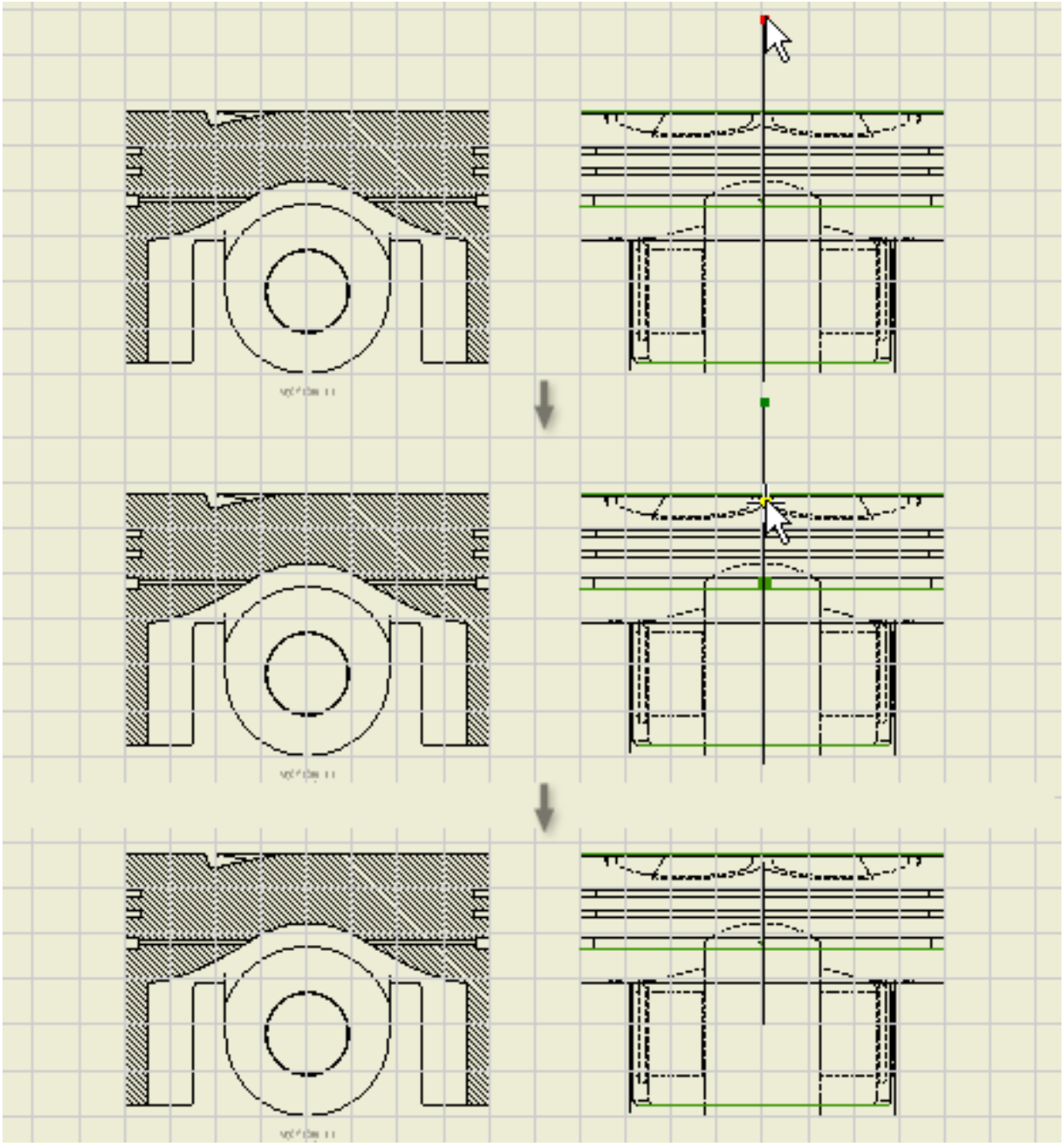
In this example, the section line endpoint is constrained with a dimension to the bottom of the piston skirt. Regardless of changes to the length of the skirt, the section line always fully transverses the skirt.



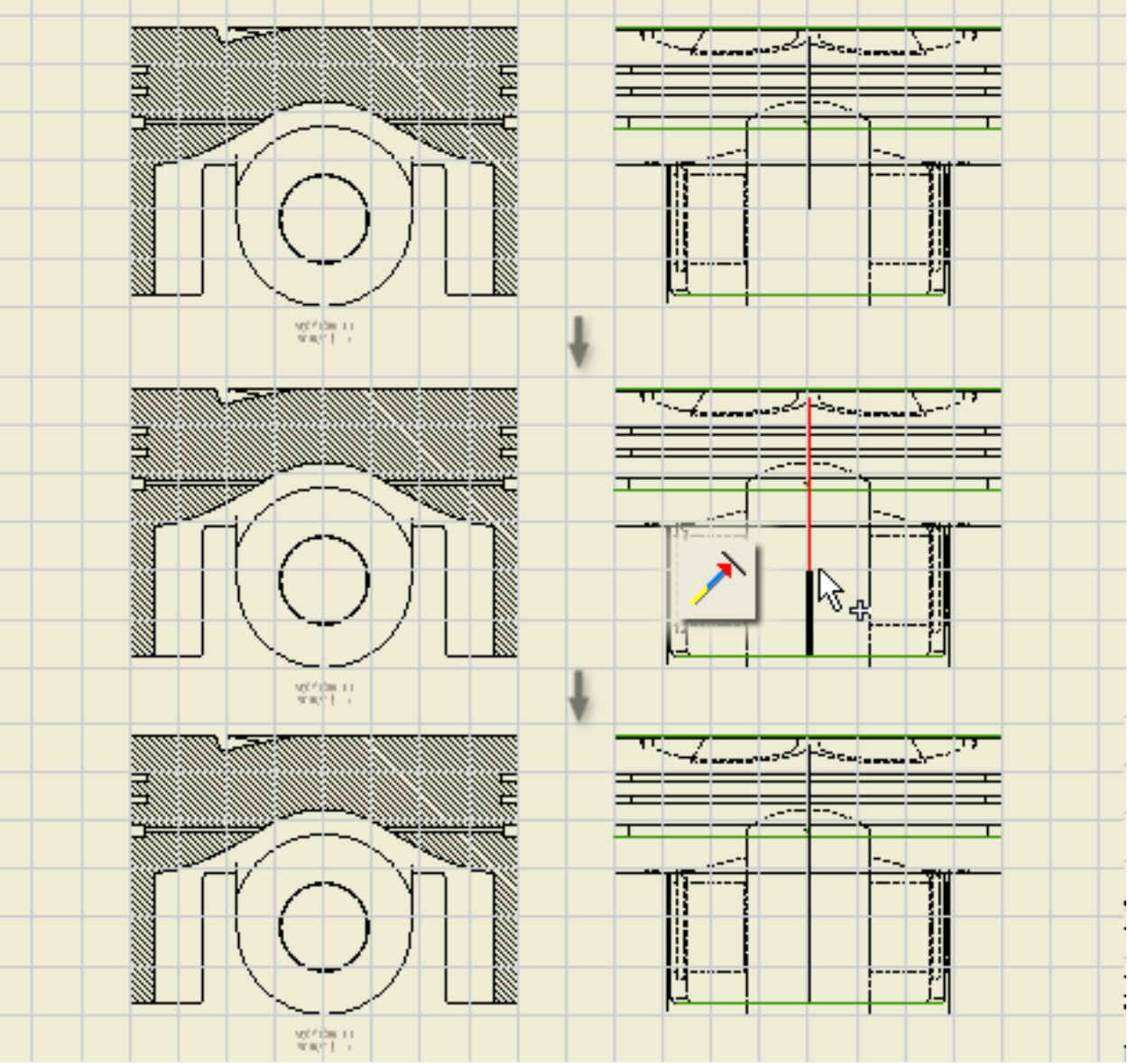
In this example, the section line midpoint is constrained to the projected hole center point to reveal the oil gallery in the section view.



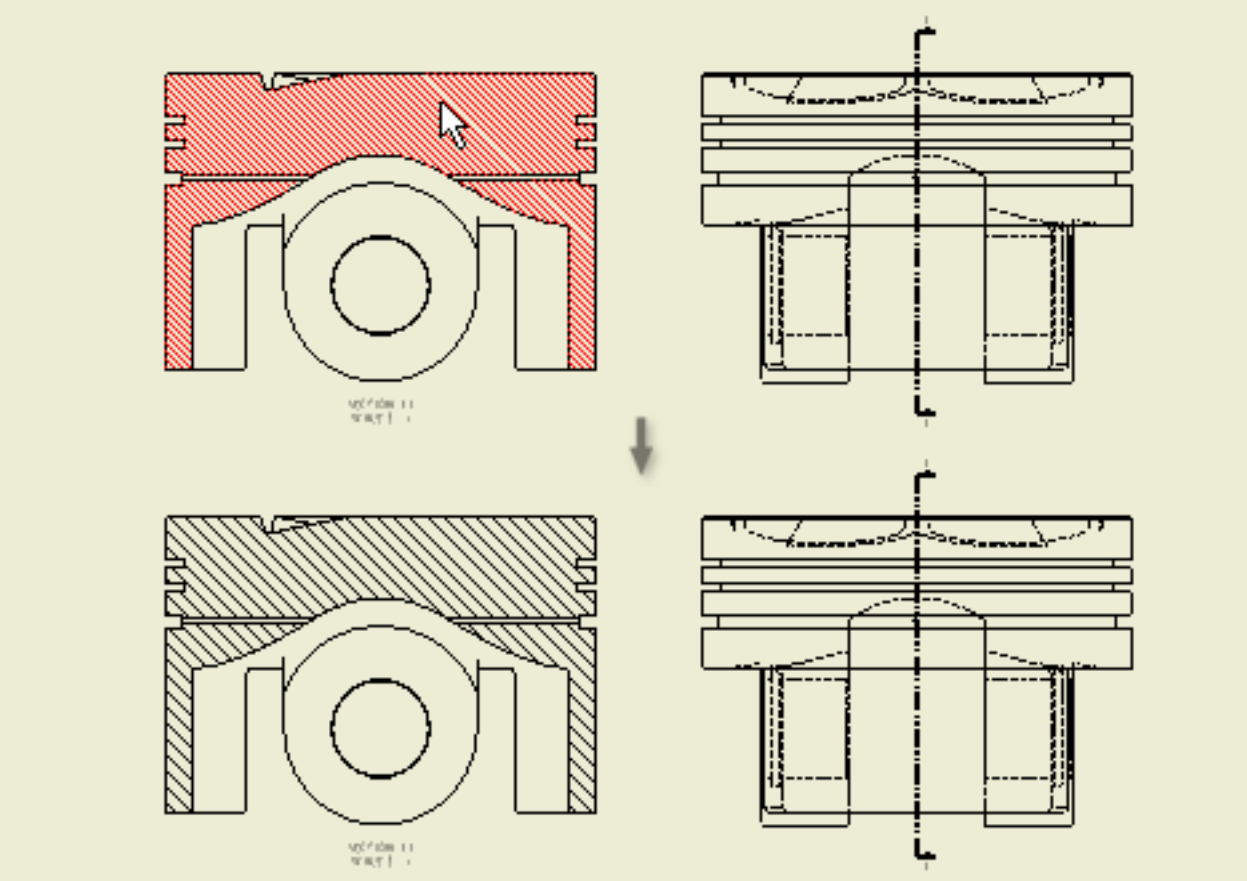
Notice that like a regular sketch line, when the section line midpoint is constrained, the line is symmetrical about the midpoint: moving one endpoint moves the other equally.



You can trim or extend the section line. Trimming or extending creates a constraint between the section line and the bounding geometry.

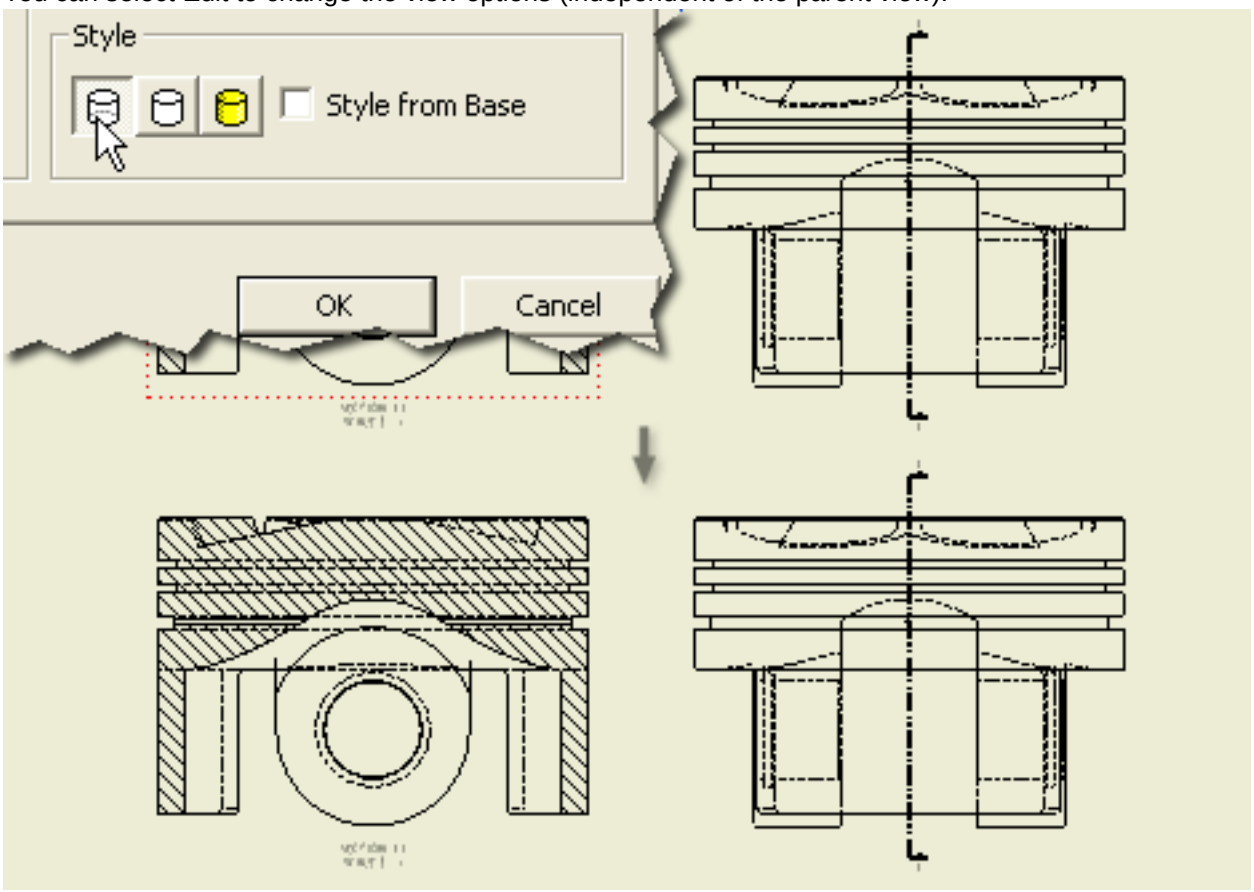


Right-click the section view hatch and notice you can modify or hide the hatch.

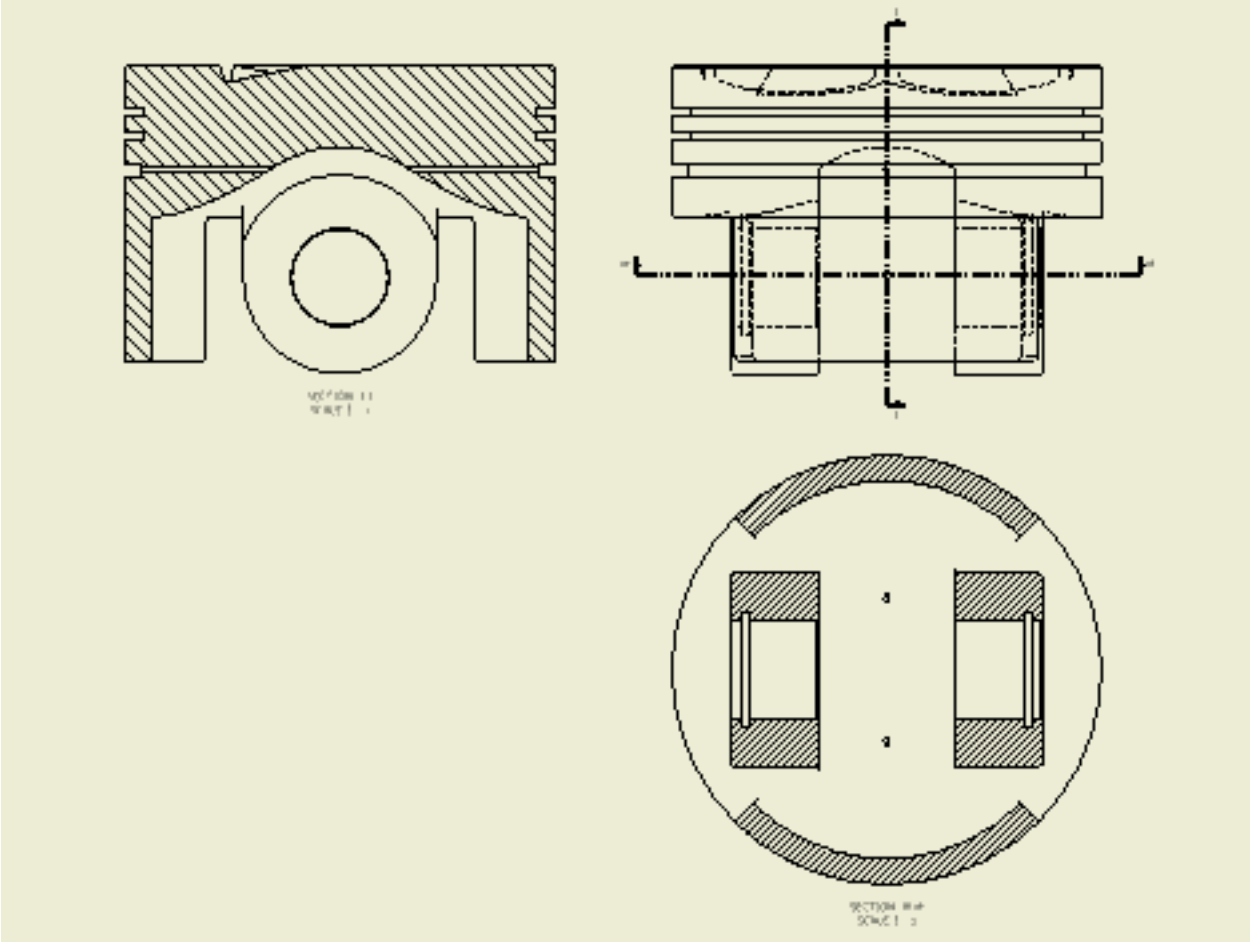


Right-click the section view and notice the options on the context menu.

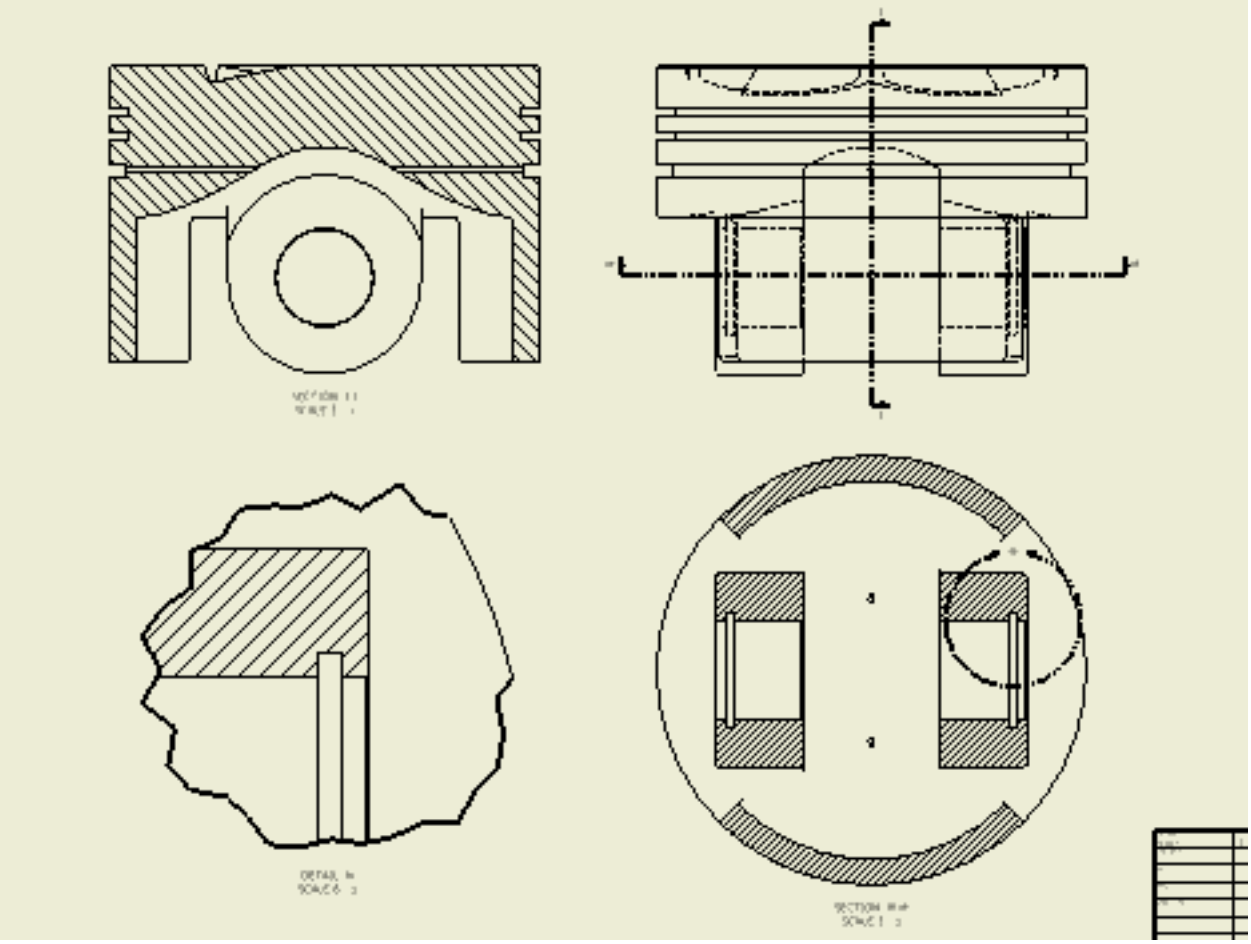
You can select Edit to change the view options (independent of the parent view).



You can create multiple section views from a single parent view.



You can create a detail view from the section view.



You can even create a section view from a section view.