Adding Tolerances to Sketch Dimensions in Inventor

Dimensional tolerancing is an integral part of your design process and is ultimately displayed on drawings. One thing many users do not know is you can use tolerances in your Inventor 3D model and use them to understand the fit of parts at a higher level. Tolerances are set at the sketch or parameter level, and you’ll be surprised to learn what you can do with them.

This tip will show you how to add tolerances to your sketch dimensions, and you’ll learn a few tricks for using them.

Tolerances can be applied while you add dimensions.

When placing the dimension, all you need to do is select the right arrow on the dialog box of the value cell and select Tolerance.

The following dialog box will be displayed.
Using the pulldown list below the Tolerance Type, choose the style of tolerance you desire.

Enter the appropriate values in the dialog box next to the Plus/Minus area.
Select OK to apply the tolerance but leave the actual measure at the inputted values. (1.000 for our example.)

If you would like to evaluate the various limits of the set tolerance you can edit the dimension and access the dialog box in the manner listed above. From here using the area titled “Evaluate Sizes” choose the appropriate value to evaluate.

The options are listed below.

- Upper level of the Tolerance Range
- Lower level of the Tolerance Range
- Median Value of the Tolerance Range
- Return to the Nominal Value

When you apply an override to the nominal size the dimension will be underlined giving you a visual que the dimension is not at its nominal size.

Depending on the setting for dimension display you could see it as displayed above, nominal with the tolerance values or as the evaluated value as shown below.
Now the best part about using tolerances at the model level is you can do a maximum and minimum study using the parameters dialog box. This is great to understand how your parts will fit together under extreme conditions.

Using the tolerance column, a designer is able to adjust each individual dimension to the minimum, maximum or median value. To reset all dimensions at once (great for resetting) use the Reset Tolerance Area along the bottom of the Parameter Box.