Cadimage PLM

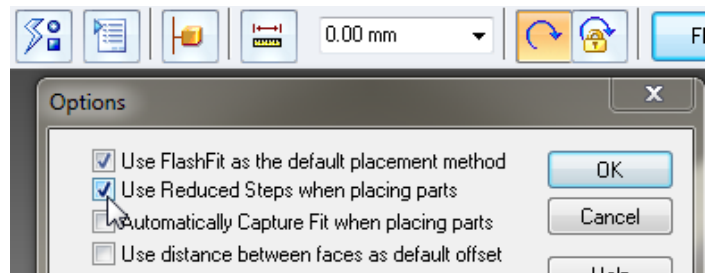product lifecycle management solutions

Tech Tip

Assembly – Part placement tools
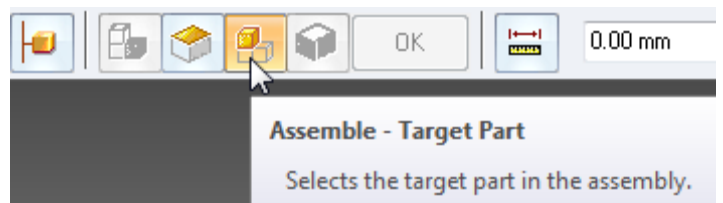
Assembly – Part placement tools

When placing parts in assemblies, there are two tools that can be useful in speeding the process – Reduced Steps and Capture Fit.

Reduced Steps

Reduced Steps is a function of the part placement that defines whether you need to select a target part or not. This is turned on by going into the Assemble – options button on the Smart step ribbon bar and clicking on the "Use Reduced Steps…" option.

If you are working in a small assembly, then you are probably better to have this turned on and you do not need to select the target part before selecting the face. When you get into larger assemblies, there are many more faces
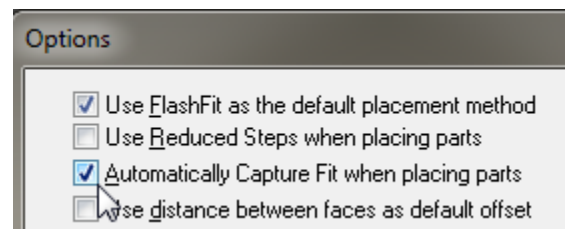

to choose from and selecting the correct face becomes a lot more difficult. By turning off the reduced steps option, you will be forced into selecting a part before selecting the face on the part. The advantage of this is that only faces on the target part will be selectable – flat faces for mates and aligns and rounded faces for axial aligns and as such, far fewer faces to choose from.

Capture Fit

The Capture Fit tool is ideally suited to parts that are used in numerous assemblies, such as fasteners. The tool is intended to store the assembly relationship type and face with the part so that when you place the part again into the assembly you will only need to define the faces on the target part.

In the Assemble options dialog box you will find some options that allow you to "Automatically Capture Fit when placing parts" so that each time a part is placed in the assembly, its relationships are stored as well and these will be used the next time the part is placed.
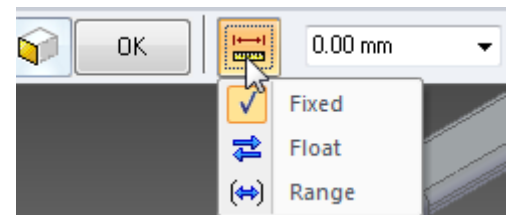
If you want to be more selective in which parts the capture fit is used, you can select a part that has already been placed and then select the Capture Fit button from the Relate section of the Home tab. A dialog box is then displayed which shows you which relationships it found for the part and you then have a choice of whether you choose all to be saved on only certain ones.

Relationship Types

When placing certain types of relationships (predominantly linear types) you will find some options available on the smartstep ribbon bar which define where the part is actually placed. For example, when placing a mate relationship, the **Fixed** offset implies that the faces of the part being placed and the face on the target part will be at a fixed distance apart, as defined by the offset value. The **Float** option has no value assign, but defines that the faces must stay parallel. The **Range** option, which is new in ST4 allows you to specify a maximum and minimum limit through which the parts can move in relation to each other.

Construction Display

Sometimes you may need to see and use more than the basic model geometry when placing parts (ie you may need to use reference planes from a part to set the correct orientation of a revolved part). When working with either the placement or target parts you can choose to display normally hidden aspects of the part:

- Coordinate systems
- Reference planes
- Sketches
- Reference Axes
- Surfaces
- Curves
- Simplified/Designed Parts

Activate Part

Also on the assemble smart step ribbon bar is the activate button . Depending on your settings, you may have assemblies set to be placed as inactivated when opening. When you place a sub-assembly into the assembly, this setting is used, so that you will be unable to select part faces in the sub-assembly for your mates and aligns. The activate button allows you to activate parts without having to exit the placement command.