**Q: What is DimXpert?**

A: DimXpert is part of the SWIFT (SolidWorks Intelligent Feature Technology) functionality found in SolidWorks. In SolidWorks 2008, DimXpert became available for dimensioning and tolerancing of parts in 3D. DimXpert for Parts allows you to completely detail designs without errors, automatically dimension “manufacturing” features in 3D (parts), check the dimensional completeness of your design and graphically display dimensional status, display dimensions created in 3D automatically on the drawing, apply +/- or geometric dimension and tolerances, display dimensions and tolerances in 3D based on rules per the ASME Y14.41-2003 standard.

DimXpert for parts provides the ability to dimension and tolerance the part model in 3D.

DimXpert for Drawings, which was introduced in SolidWorks 2007, remains available for dimensioning of drawings. DimXpert for drawings does not have geometric tolerancing capability.

**Q: Is DimXpert for Parts only beneficial for people who use geometric tolerances?**
A: No. Anyone who needs to detail their design can benefit from DimXpert. DimXpert can be set to provide +/- tolerances by default if desired. In fact most customers use +/- tolerancing.

Q: What are “manufacturing” features?
A: Manufacturing features are **NOT** SolidWorks features. Manufacturing features are defined in 1.1.12 of the ASME Y14.5M-1994 Dimensioning and Tolerancing standard as: “The general term applied to a physical portion of a part, such as a surface,…hole or slot.”

For example, if I import a part into SolidWorks and do **NOT** run feature recognition on the part, it would appear as one solid body in SolidWorks. If I then use DimXpert to dimension and tolerance the part in 3D, DimXpert would recognize certain types of “manufacturing” features like holes, slots, chamfers, etc. and dimension and tolerance them. But it does **NOT** convert these manufacturing features to SolidWorks features, it only uses this info to dimension and tolerance the part.

If I use a fully featured SolidWorks part and use DimXpert in 3D, DimXpert ignores the SolidWorks features and runs a manufacturing feature recognition routine, the same as it does on a non-featured SolidWorks part.

Manufacturing features that are recognized are displayed in the DimXpert FeatureManger.
Q: What manufacturing features does DimXpert for Parts recognize?
A: Plane, surface, cone, cylinder, boss, fillet, chamfer, simple hole, counterbore, countersink, slot, notch, and pocket. DimXpert has the ability to intelligently dimension and tolerance with prismatic (mill, drill operations) and turned (lathe operation) manufacturing features in mind. In addition, like manufacturing features can be automatically grouped for patterning schemes.

Q: What are the specific differences between DimXpert for Parts and DimXpert for Drawings? What are the similarities?
A: In SolidWorks 2008, DimXpert for parts became available for dimensioning and tolerancing parts in 3D. DimXpert for drawings, which was introduced in SolidWorks 2007, remains available for dimensioning of drawings.

Main differences:

DimXpert for parts:
- Automatic, intelligent dimensioning and tolerancing of “manufacturing” features in 3D
- Geometric and plus/minus type tolerancing which meets the “ASME Y14.5M-1994 Dimensioning and Tolerancing” standard
- Geometric and plus/minus type tolerancing which is displayed in 3D per the “ASME Y14.41-2003 Digital Product Definition Data Practices” standard
- Visual feedback is provided for dimensional completeness – tells you if the model is completely dimensioned, and identifies manufacturing features that are under or over-dimensioned
- These dimensions and tolerances can be used later in TolAnalyst stack-up analysis
- These dimensions and tolerances can be automatically displayed in a drawing
DimXpert for parts provides the ability to graphically check if the model is fully dimensioned and tolerated.

DimXpert for drawings:
- Intelligent dimensioning of “manufacturing” features in 2D drawings only (not 3D)
- Does **NOT** provide geometric tolerance capabilities
- **NOT** used by TolAnalyst for tolerance stack-up
- **NO** feedback provided to tell you if the drawing is fully dimensioned

Only similarity:
- Both DimXpert for parts and drawings automatically recognize “manufacturing” features.

**Q: Which DimXpert is better for detailing the design?**
**A:** DimXpert for Parts, which allows intelligent, automated dimensioning and tolerancing of models in 3D is more powerful. These dimensions and tolerances can be used in the stack-up analysis calculation in TolAnalyst. Finally using DimXpert for Parts allows the user to visually see if his model is fully dimensioned and tolerated.
Q: How would the designer typically use DimXpert when detailing the part in 3D?
A: The user would design as usual – sketches, features, etc. Instead of having to switch to a drawing to detail the model however, he merely has to create DimXpert dimensions and tolerances in 3D directly on the model using the automated DimXpert functionality found under the DimXpert Command Manager tab.

While working on the part in 3D you can access all the DimXpert functionality under the DimXpert tab in the Command Manager.

Q: What differentiates DimXpert for Parts from other 3D annotation products on the market?
A: The rules which drive the creation and display of 3D geometric dimensions and tolerances are based on the ASME Y14.5-1994 and ASME Y14.41-2003 specs for dimensioning and tolerancing creation and display in 3D. In addition, DimXpert for Parts has the ability to check the model for dimensional “completeness” and provide visual feedback as to whether the user is done detailing. These dimensions and tolerances can be displayed automatically in the 2D drawing and are automatically used in tolerance stack-up analyses in TolAnalyst.