YSWUG - 9/6/12
Dimensioning and Tolerancing Using DimXpert in Models and Drawings

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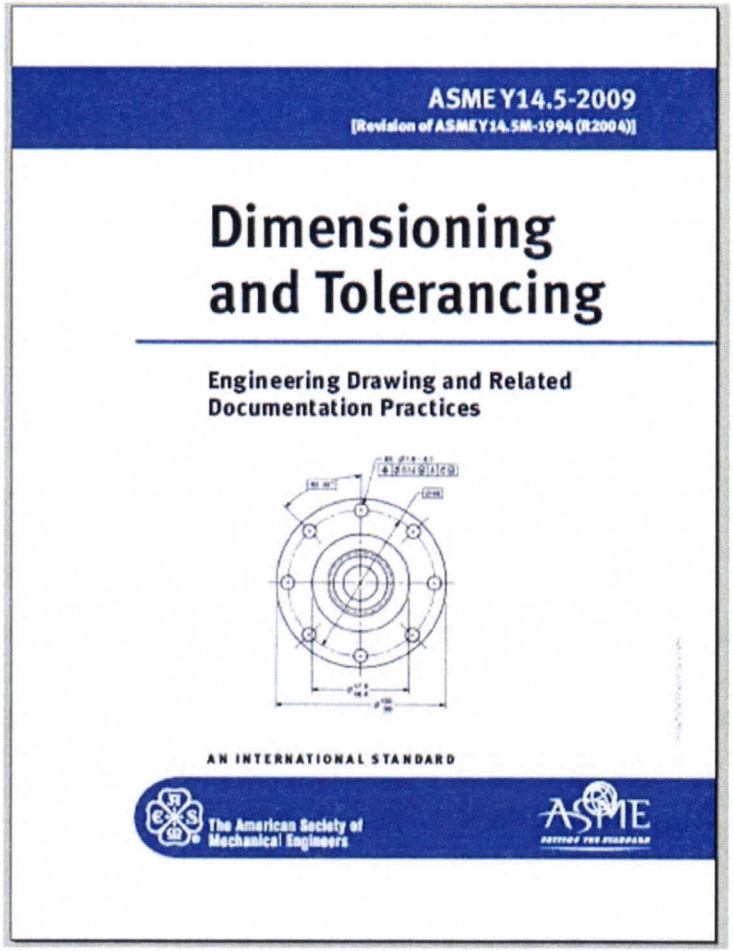
Agenda

- Introduction
- DimXpert Basics
  - ✓ Applicable ASME and ISO Standards
  - ✓ Digital Product Definition
  - ✓ DimXpert Benefits
  - ✓ DimXpert Functionality
  - ✓ DimXpert Options
- SolidWorks DimXpert Video
- Live DimXpert Demonstration

The Bible

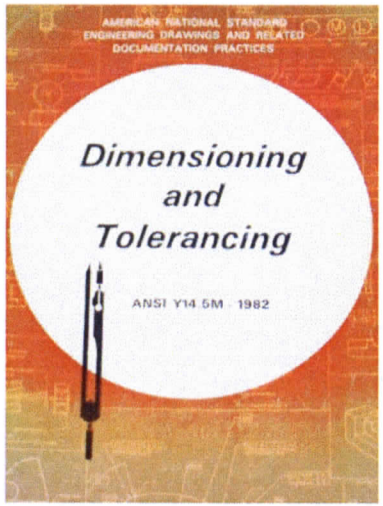

ASME Y14.5-2009
[Revision of ASME Y14.5M-1994 (R2004)]
Dimensioning and Tolerancing
Engineering Drawing and Related Documentation Practices
AN INTERNATIONAL STANDARD
The American Society of Mechanical Engineers
ASME

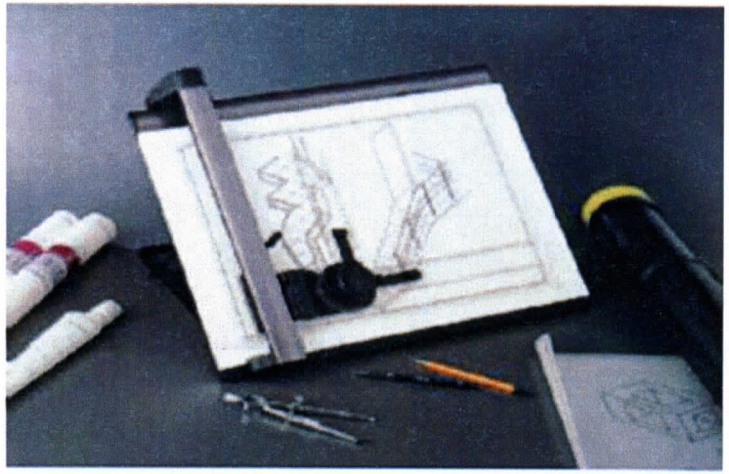
Contents of ASME 14.5 2009

- **Section 1** – Scope, Definitions, and General Dimensioning
- **Section 2** – General Tolerancing and Related Principals
- **Section 3** – Symbology
- **Section 4** – Datum Reference Frames
- **Section 5** – Tolerances of Form
- **Section 6** – Tolerances of Orientation
- **Section 7** – Tolerances of Location
- **Section 8** – Tolerances of Profile
- **Section 9** – Tolerances of Runout

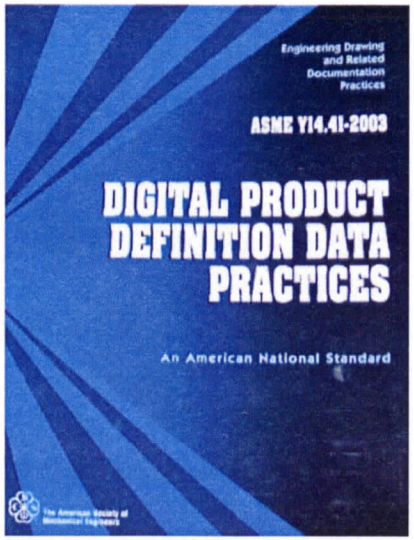
ANSI Y14.5 and ISO 1101: The Industry Standards

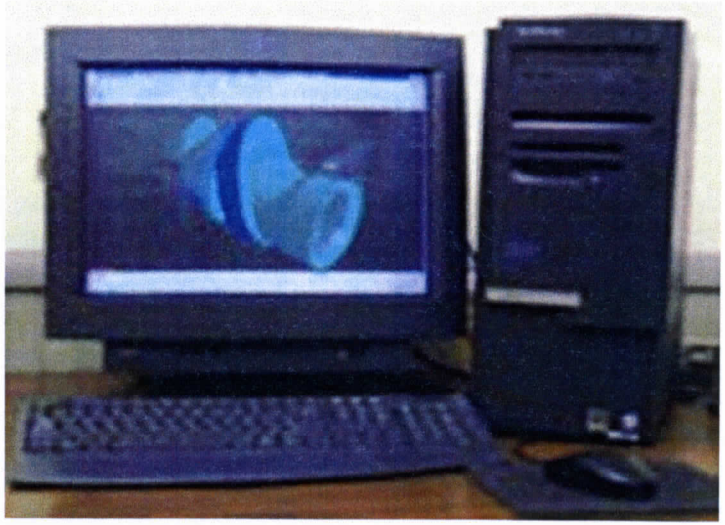
- Application of GD&T
  - Y14.5M-1994
  - ISO 1101



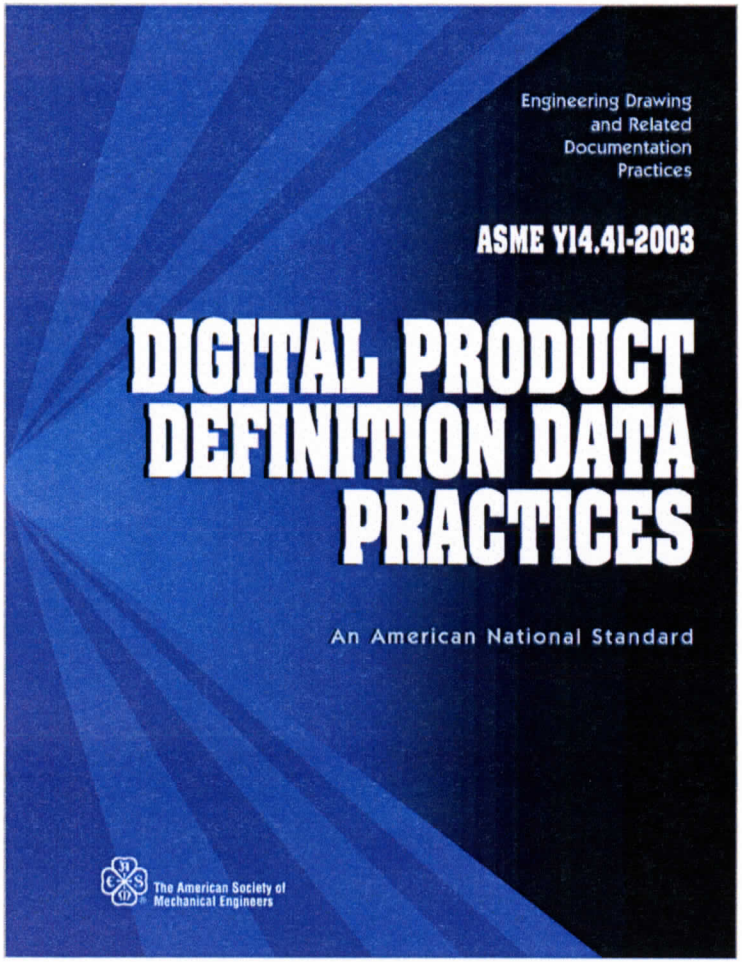


- Display of GD&T in 3D
  - Y14.41-2003
  - ISO 16792





Digital Data Practices

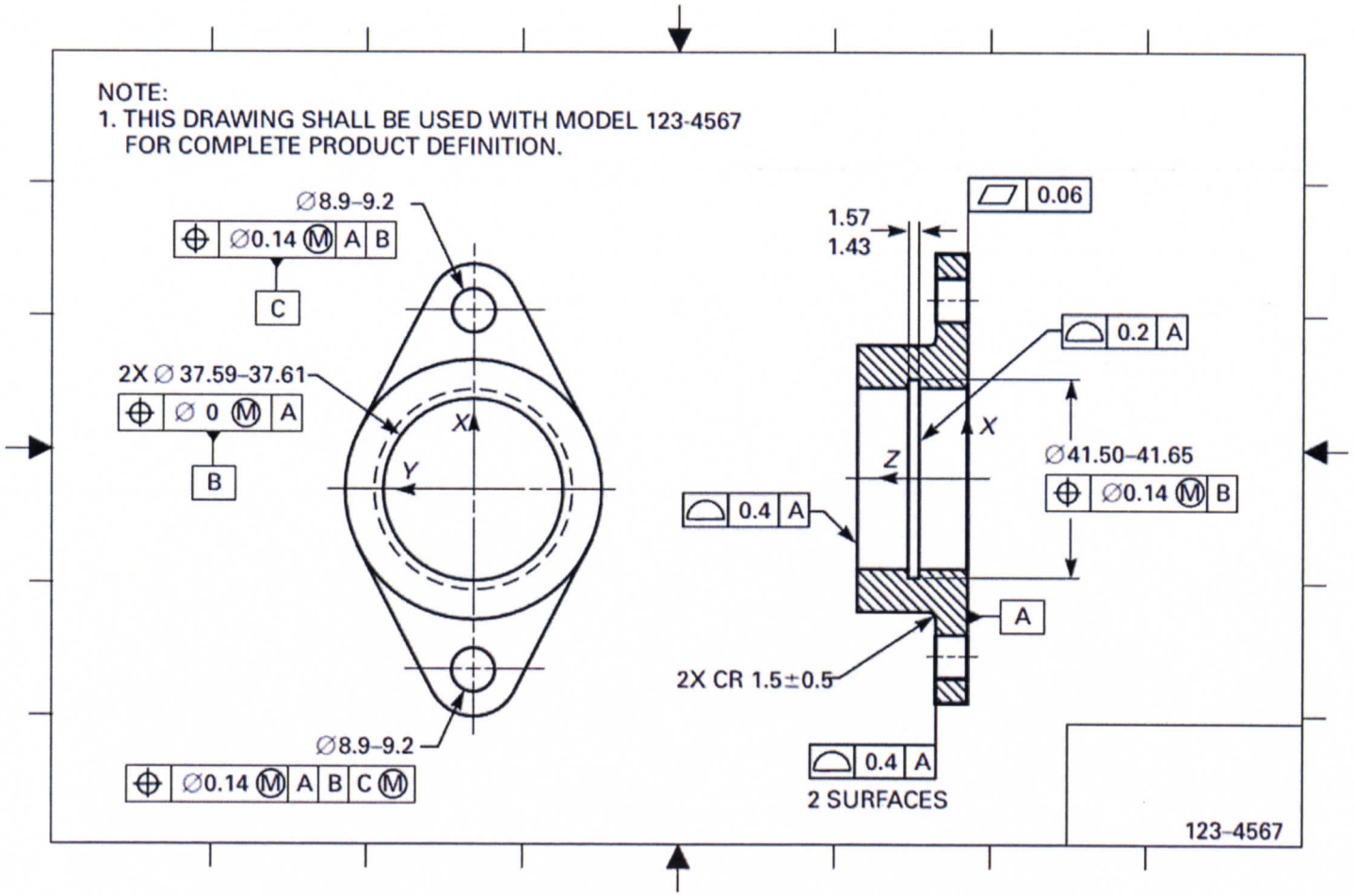


Uses: of Y14.41-2003

- Reduced Content Drawings
- Minimally Dimensioned Drawings

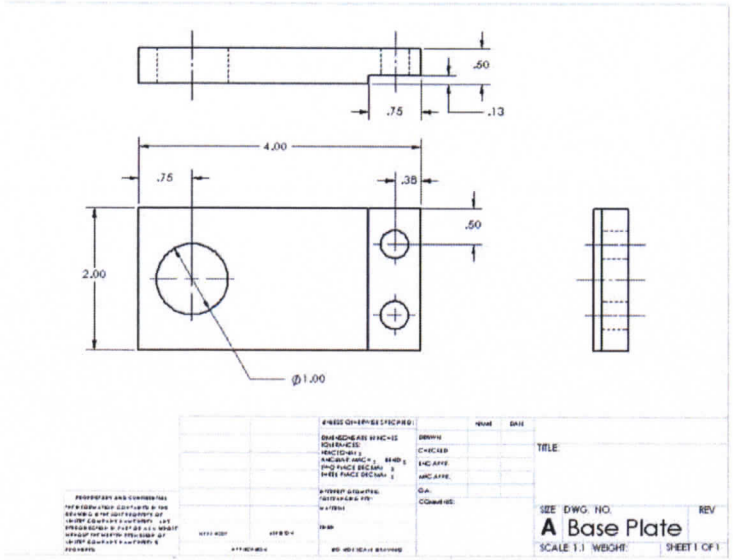
ASME Y14.41 standard is for any company with engineering, manufacturing, or inspection practices that contain or utilize CAD data

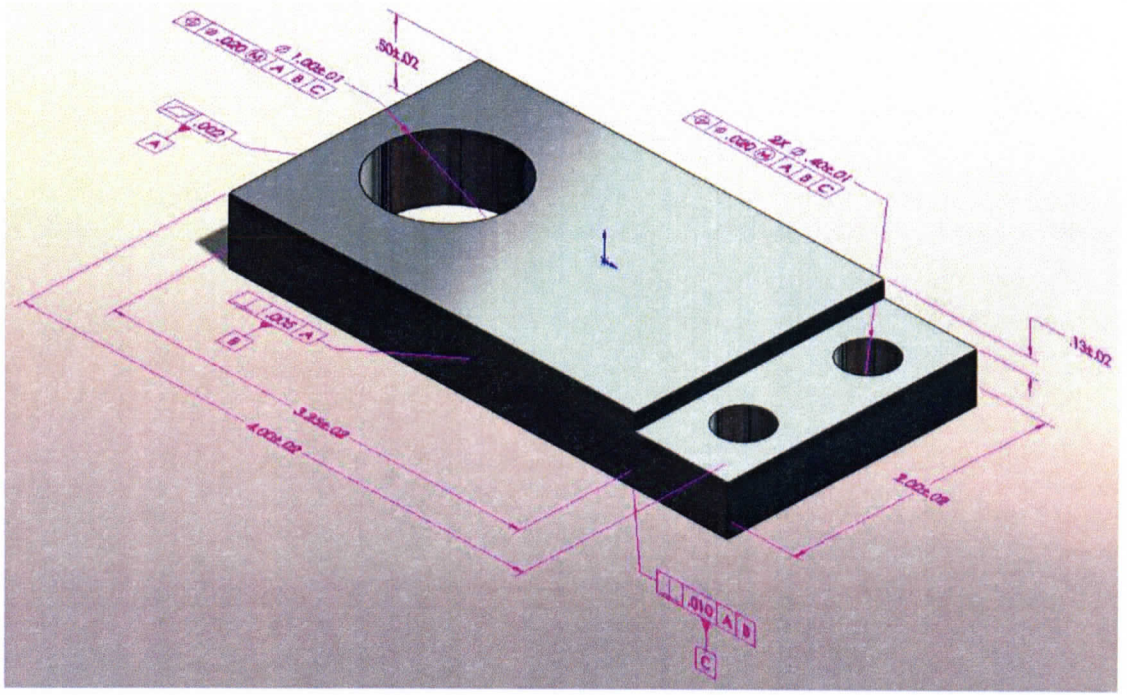
Example Control Drawing



DimXpert: [***dim**-ek-spurt*]-noun. **SWIFT** *Driven*

- A means to apply dimensions and tolerances to a part model based on the ANSI Y14.5 and Y14.41 GD&T standard or the equivalent ISO standards.
  - ANSI Y14.5 and ASME Y14.41
  - ISO 1101 and 16792 (based on ANSI/ASME standards)





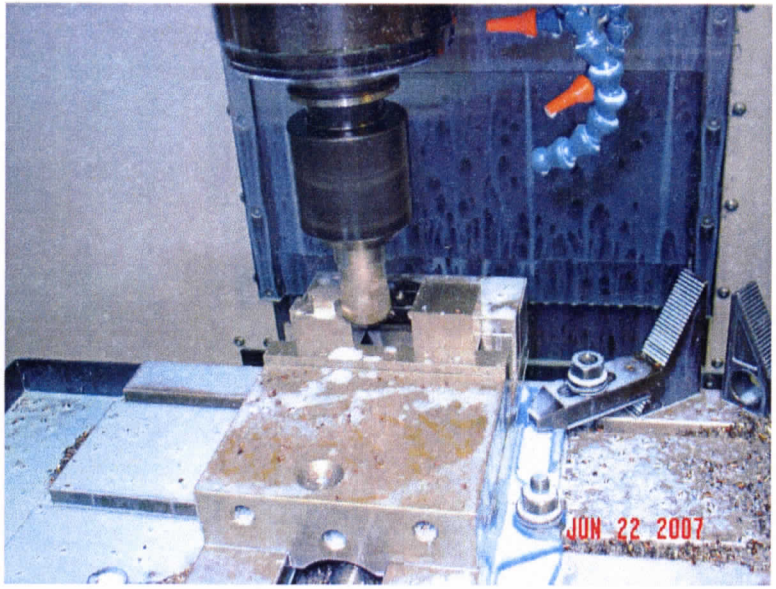
True Power of DimXpert

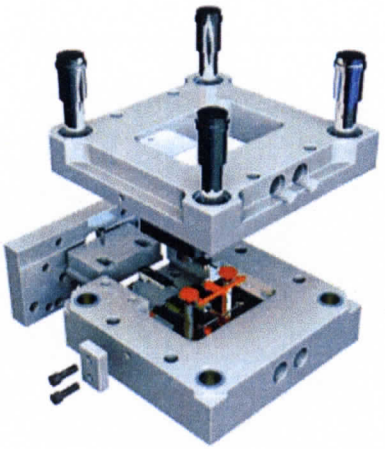
Different Than Model Creation

- Modeling – Uses dimensions to establish design intent
- Drawings – Uses models for manufacturing and Inspection

DimXpert: Benefits

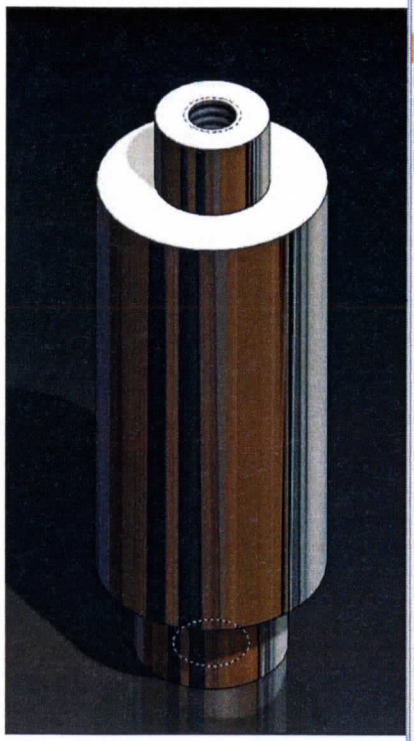
- No need for expert status on GD&T in order to produce compliant dimension/tolerance scheme.
- GD&T can produce lower manufacturing costs by allowing looser tolerances and reduce assembly fit problems.
- Fewer errors are generated and consistency is maintained using settings for plus/minus and GD&T in the options page.

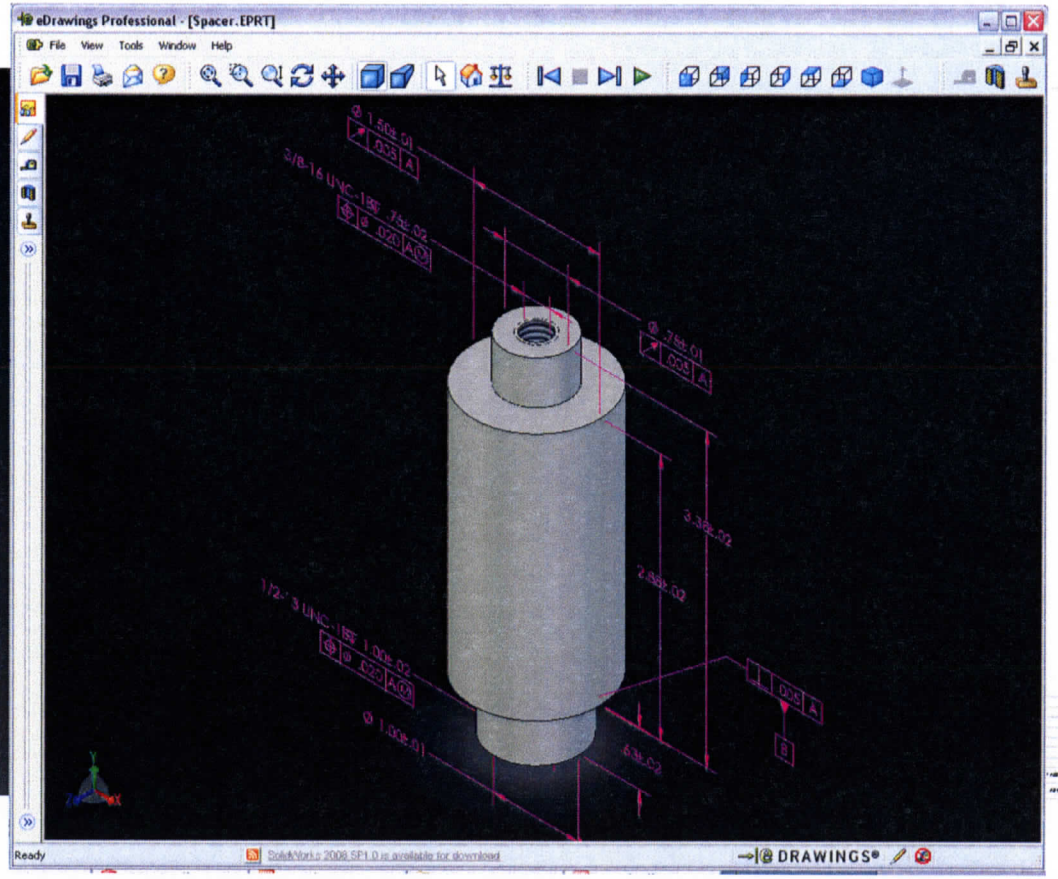


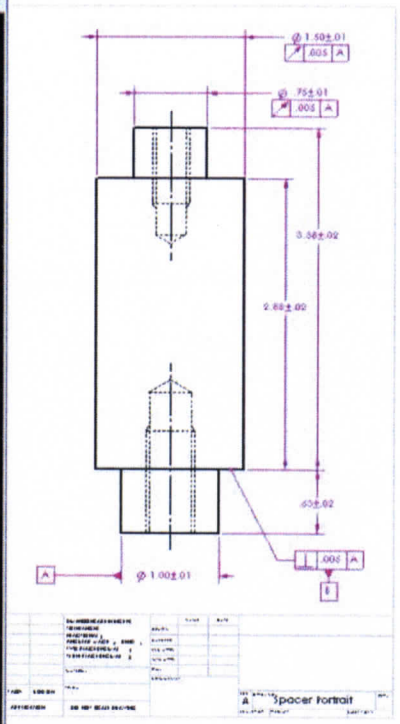


DimXpert: Benefits

- 3D Models are fully annotated and can be viewed with EDrawings.
- Creation of 2D drawings is faster and easier utilizing DimXpert dimensions.

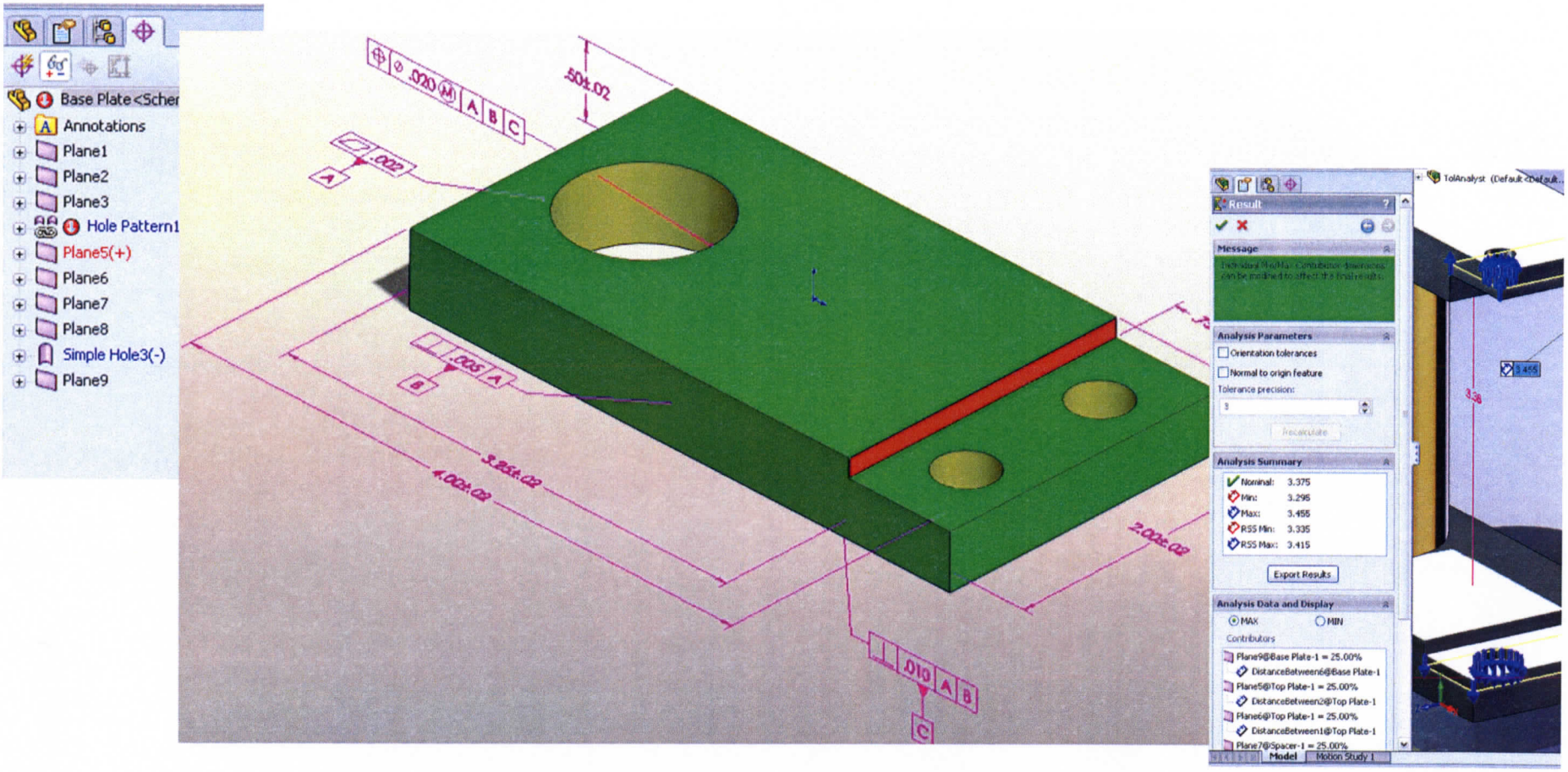






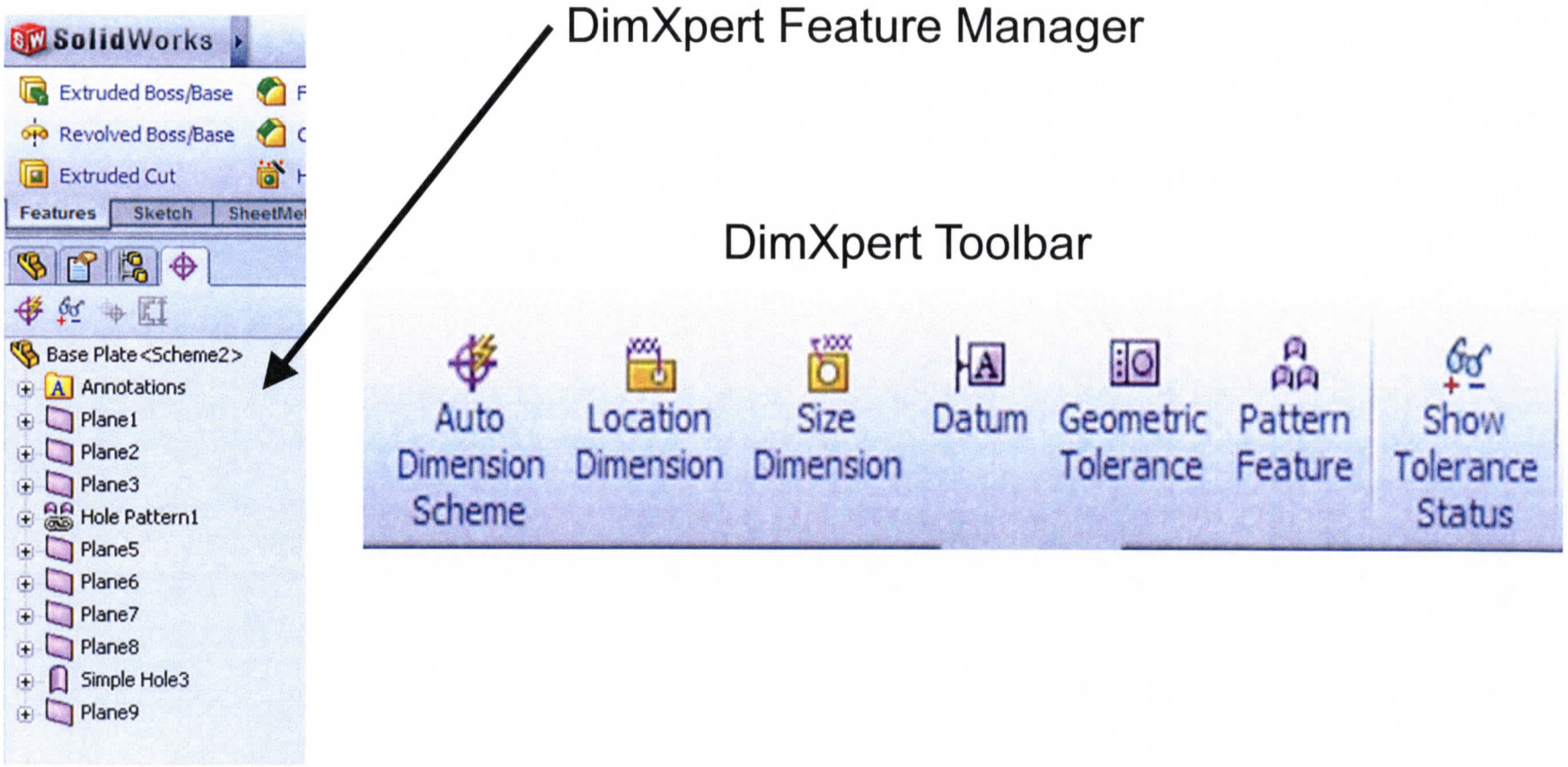
DimXpert: Benefits

- Quickly identify under or over toleranced parts graphically.
- Dimensions can be automatically analyzed for tolerance stack using TolAnalyst.

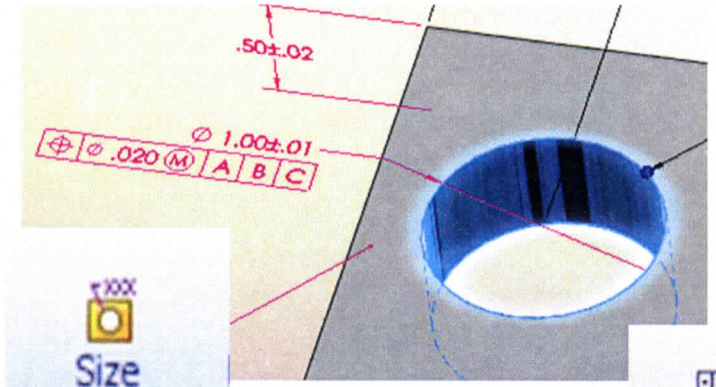


DimXpert: Functionality-Navigation and Toolbar.

- DimXpert Feature Manager tree displays all the defined manufacturing features.
- Dedicated Toolbar provides all commands for control of DimXpert

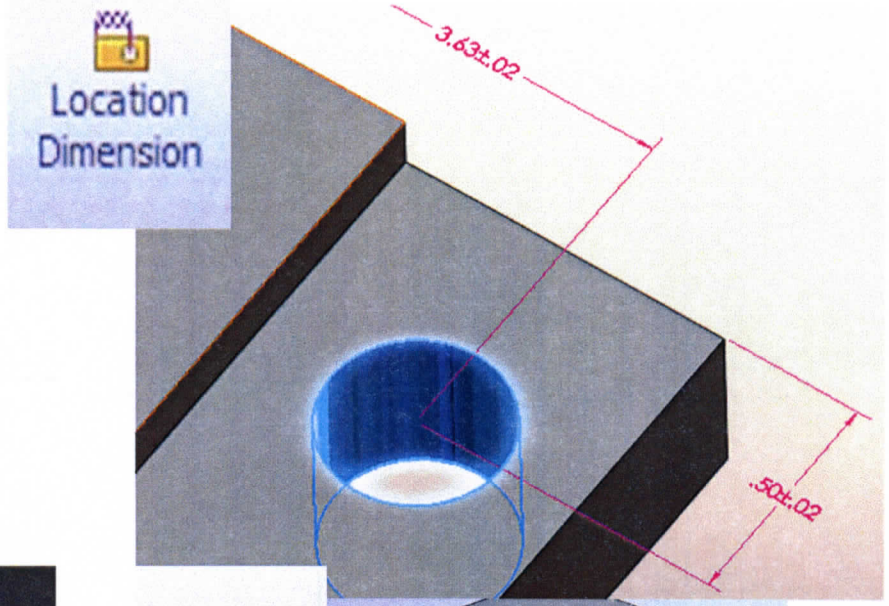


DimXpert: Functionality-Datums and Dimensions.

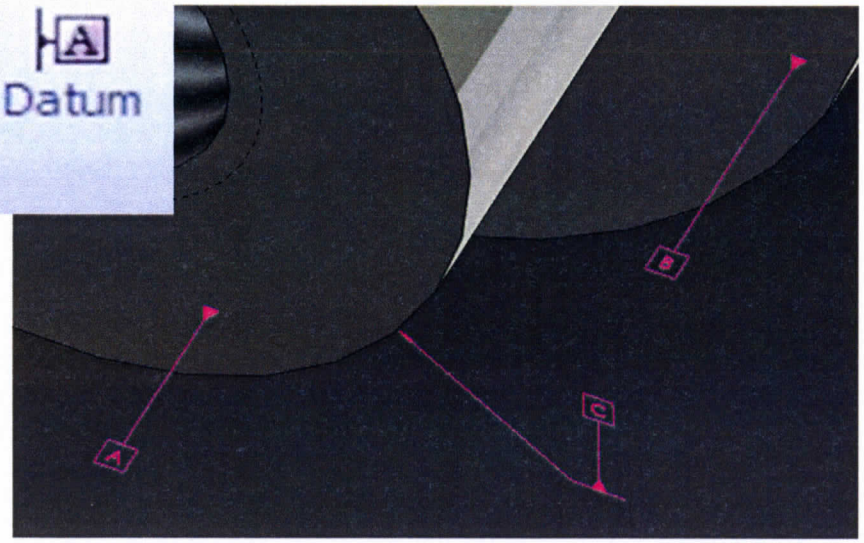


Size Dimension

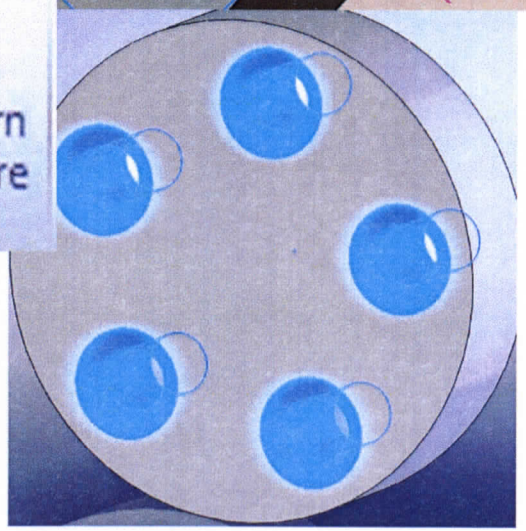
Geometric Tolerance



Location Dimension

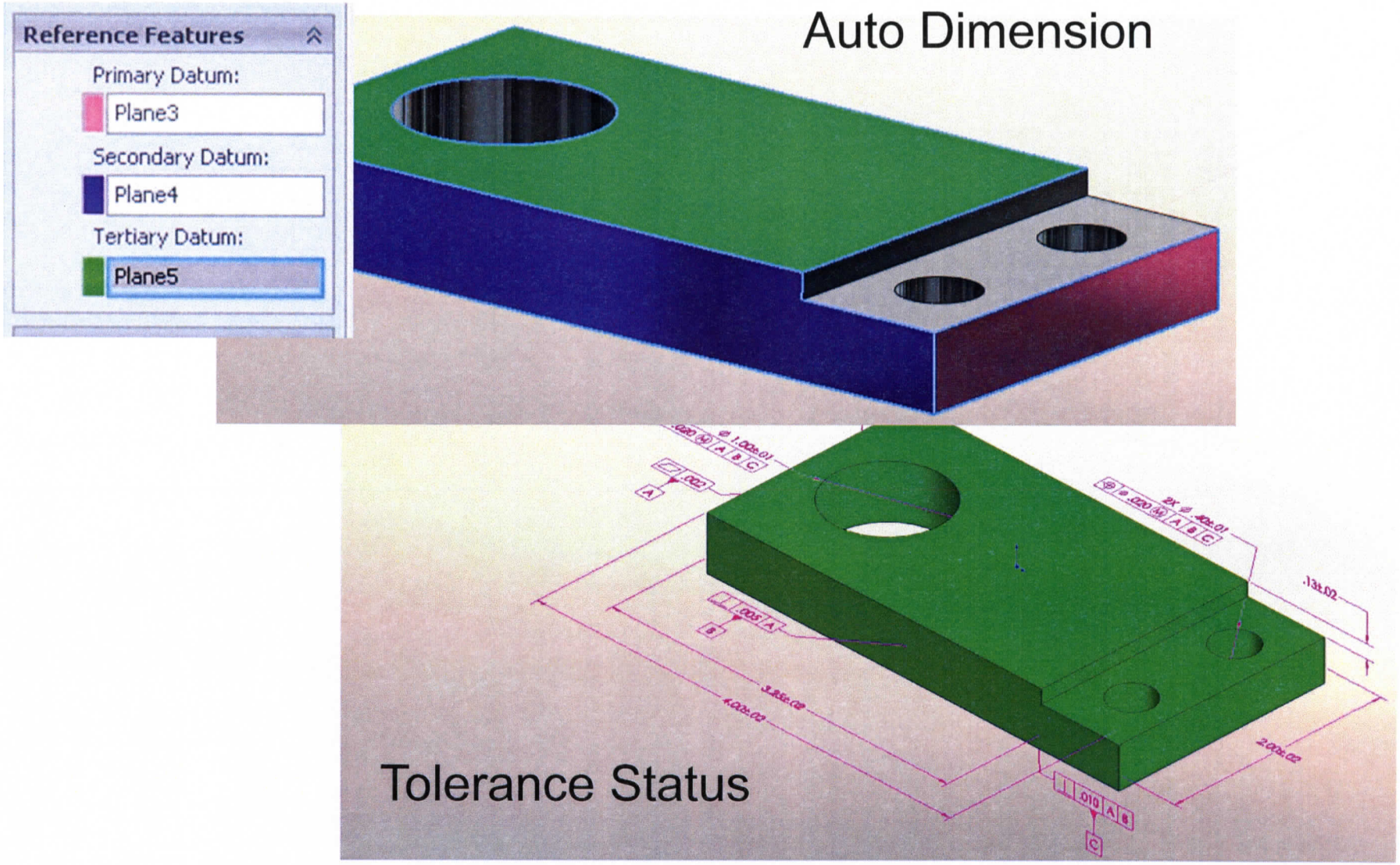


Datum



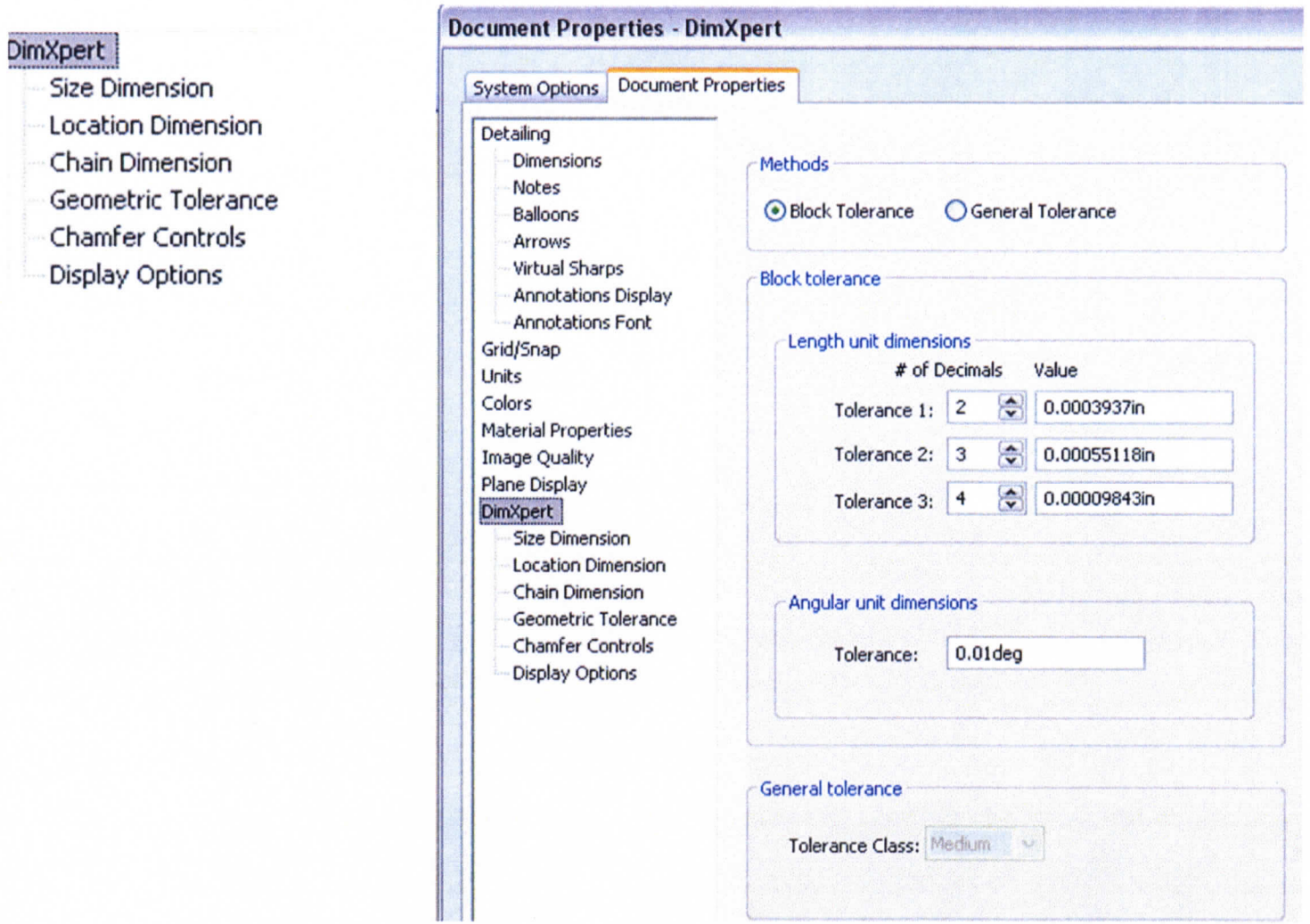
Pattern Feature

DimXpert: Functionality-Auto dimension and Status.



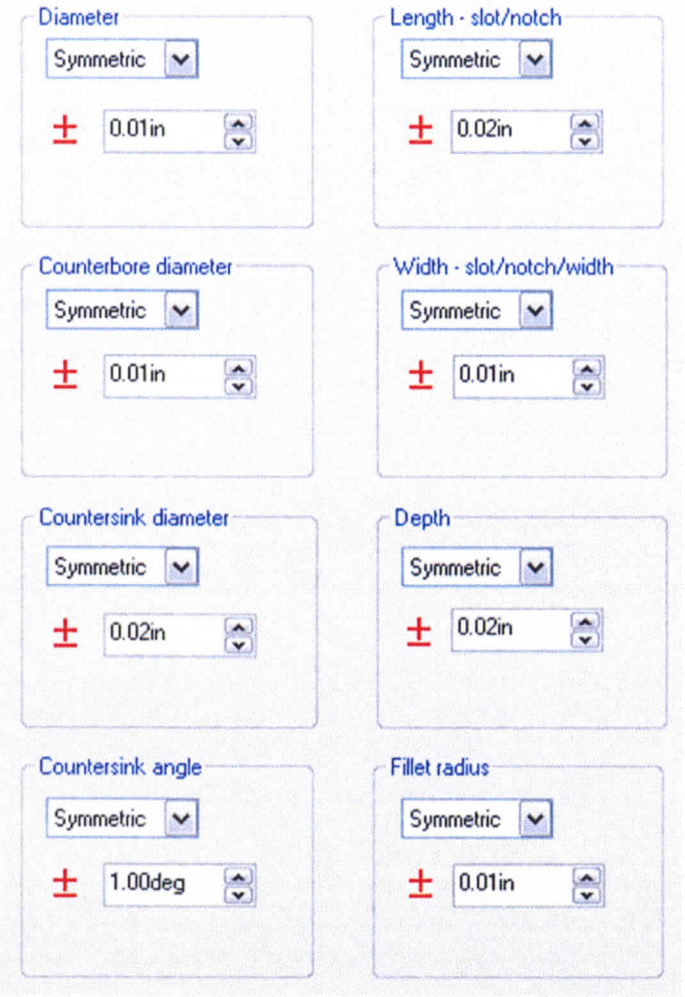
DimXpert: Functionality-Options.

- Tools/Options/Document Properties

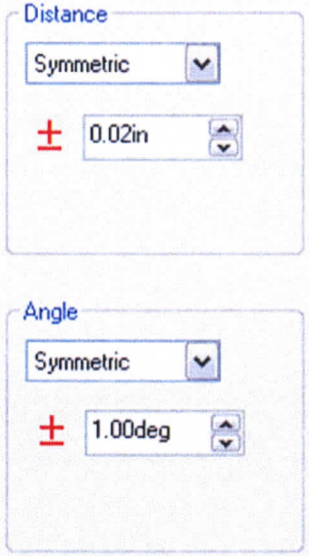


DimXpert: Functionality-Options.

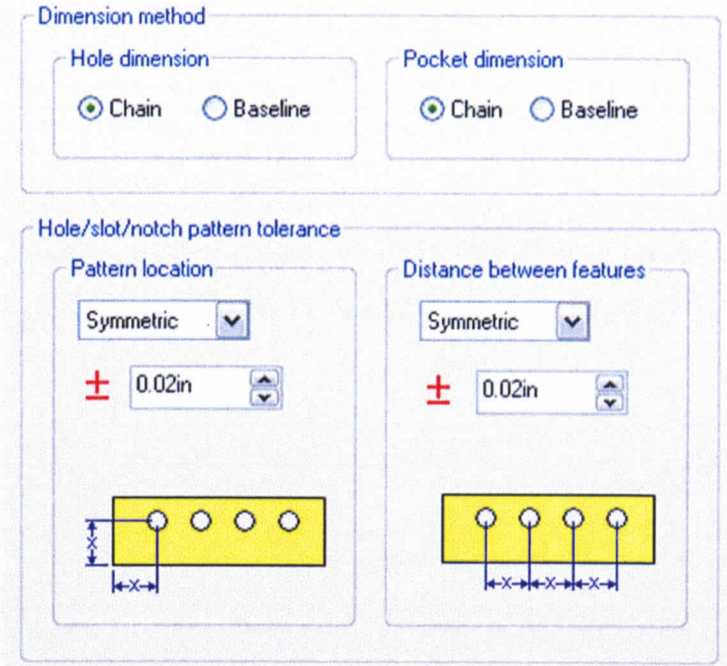
Size



Location

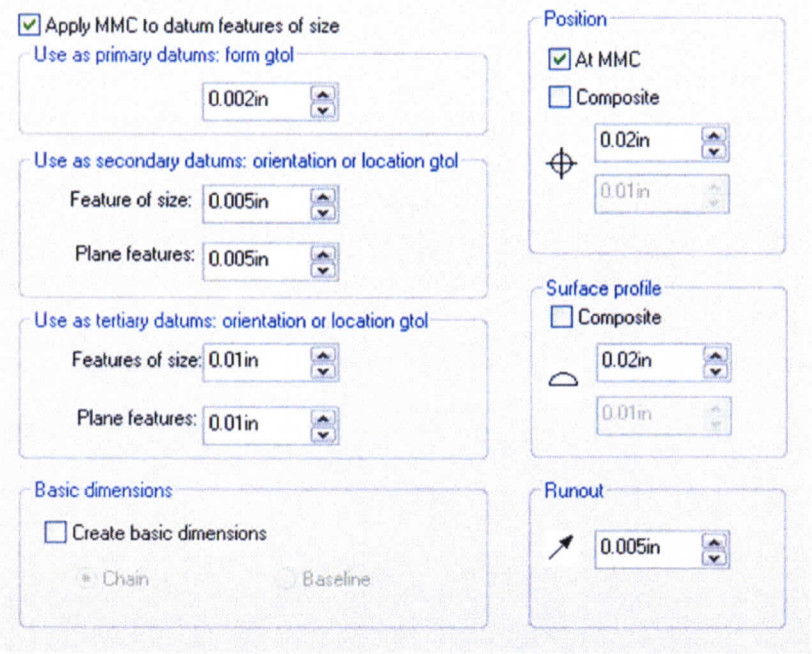


Chain

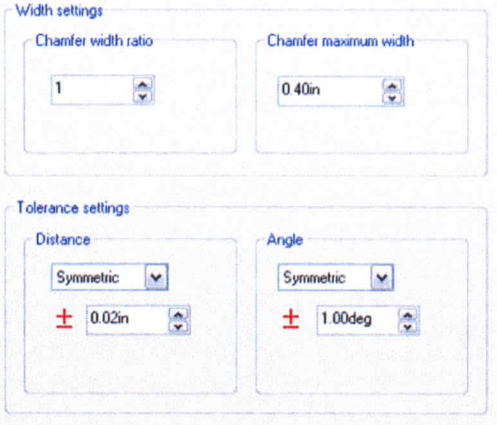


DimXpert: Functionality-Options.

Geometric Tolerance

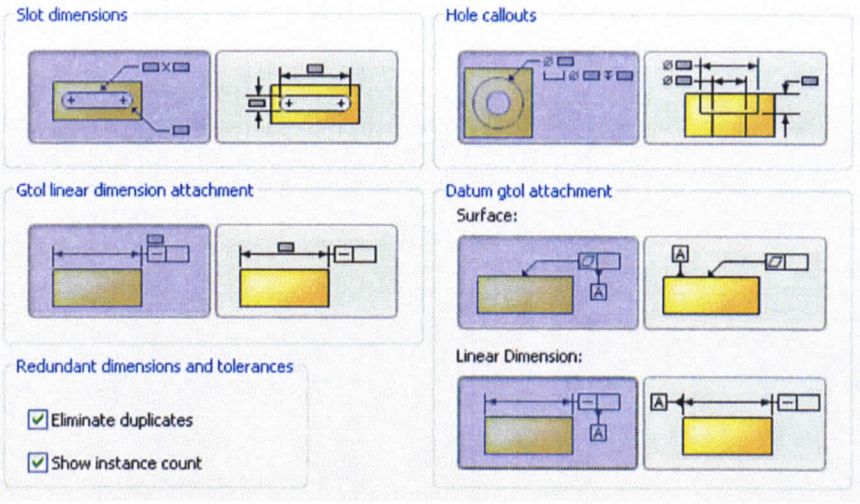


Chamfer Controls

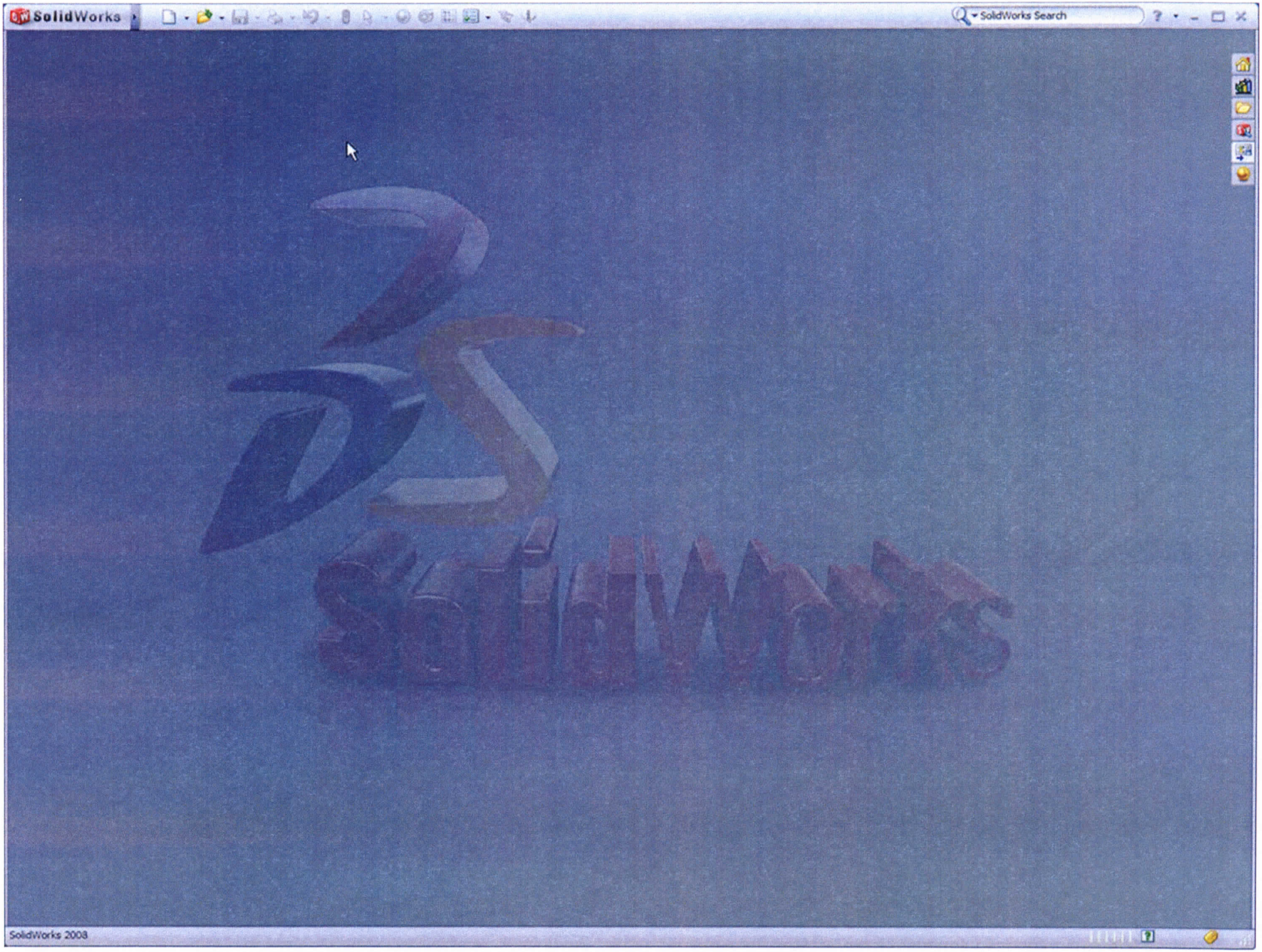


Default Display Options

(ANSI and ISO)



SolidWorks DimXpert Video


SolidWorks
SolidWorks Search
SolidWorks
SolidWorks 2008

SolidWorks Demo

- Open solid model and fully dimension with DimXpert using plus-minus dimensioning
- Create fully dimensioned drawing from above part
- Show location of tutorial
- Fully Dimension above part using GD&T

THANK YOU!