Dimensioning with SolidWorks - Demo

Although most demos are implemented with word documents, this demo employs slides so that more details can be shown to the students as the drawing is constructed.

Part 1
Formal Drawings

Definition: Detailed multi-view representations of a finished part

Formal Drawing Components:

1. Extracted Drawings
   - Extracted Views
   - Detailed Features
   - Title Block

2. Dimensions
   - Size and Type of Features

Dimensioning in SolidWorks
Basic Dimensioning

Dimensioning is used to define an object so that it could be manufactured and must:

• Define the overall size of the part in all 3 dimensions.
• Define the size and location of the features of the part in all 3 dimensions.
Basic Dimensioning

Overall Size

2

Features Size and Location

.75

2

.25

1

2
Basic Dimensioning Arcs and Circles

Overall Size

Features Size and Location

Dimensioning in SolidWorks
Baseline versus Chain Dimensioning

• There are many ways to use dimensions to **locate features**.
  • Chain
  • Baseline

(Both techniques are acceptable, however baseline dimensions are preferred.)
SolidWorks: Adding Dimensions, Center Marks and Center Lines

Dimensions can be added using the “Smart Dimension” feature.

Note that sometimes the Isometric needs to be re-scaled to allow adequate drawing space which requires a NOTE.

Notes can be added to reduce the number of dimensions by stating symmetry or identifying fillet radii.
Opening the Drawing for Dimensioning

Use `My_Dimensioning_Demo_Drawing` from the Extracting Drawing Demo if the drawing was completed in the previous demo or,

if not completed, exit out of both Extracting_Drawing_Demo files and retrieve both `Dimensioning_Demo_Part.SLDPRT` and `Dimensioning_Demo_Drawing.SLDDRW` from the SolidWorks-8 EEIC website within the Instructors Demo – Dimensioning Part 1.
Since the drawing we are dimensioning is in INCHES, 2 numbers to the right of the decimal point are sufficient for this drawing. Click OK to save.
Establish the Overall Size (Height, Width & Depth) using Smart Dimension

Usually one dimension between center points of circles in a symmetrical object.
Size and Locate the Holes

Note that the location has already been established by the Symmetry note and the hole center point separation ➔ 8 inches
Note that the following Dimensioning Guidelines have been followed:
1. Dimensions are located in the "Characteristic View"
2. Positive cylinders are dimensioned where they appear as rectangles
3. Negative cylinders are dimensioned where they appear as circles
4. Dimensions are generally located between Orthographic Views
5. Object is not OVER DIMENSIONED (no more dimensions allowed!)
Dimensioning Wrap Up

Rules of Dimensioning

1. Overall size in all 3 dimensions
2. Size and location of all features in all 3 dimensions

Homework Assignment

Problem 6.4 (qq)
Model part and create 2D Drawings with all necessary formatting (dimension in next class)
Before starting the dimensioning assignments, the instructor should open each sketch of the EXTRACTION IN-CLASS assignment and make add the constraints shown on the following slides so that each sketch is FULLY DEFINED.
Fully Define Part

Add tangencies

Add sizes
Fully Define Part

Add vertical to construction line
(initially SYMMETRIC)