Litens®

MBD TDP Reference Guide

MAN-00011 / 5

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MBD: Model Based Definition
TDP: Technical Data Package

Table of Contents

For questions and support, please email the Litens' MBD team
mbdhelp@litens.com

TDP Overview

A Technical Data Package ("**TDP**") contains the technical description of an item, adequate for supporting acquisition strategies, production, engineering, and quality assurance. The TDP is stored in a single 3D PDF file with attachments.

Litens creates two formats for the TDP, depending on the characteristics of the part. The 3D model is always considered as master.

Type 1 TDP (Dimensional requirements are on **3D model**)

Type 2 TDP (Dimensional requirements are on **2D drawing**)
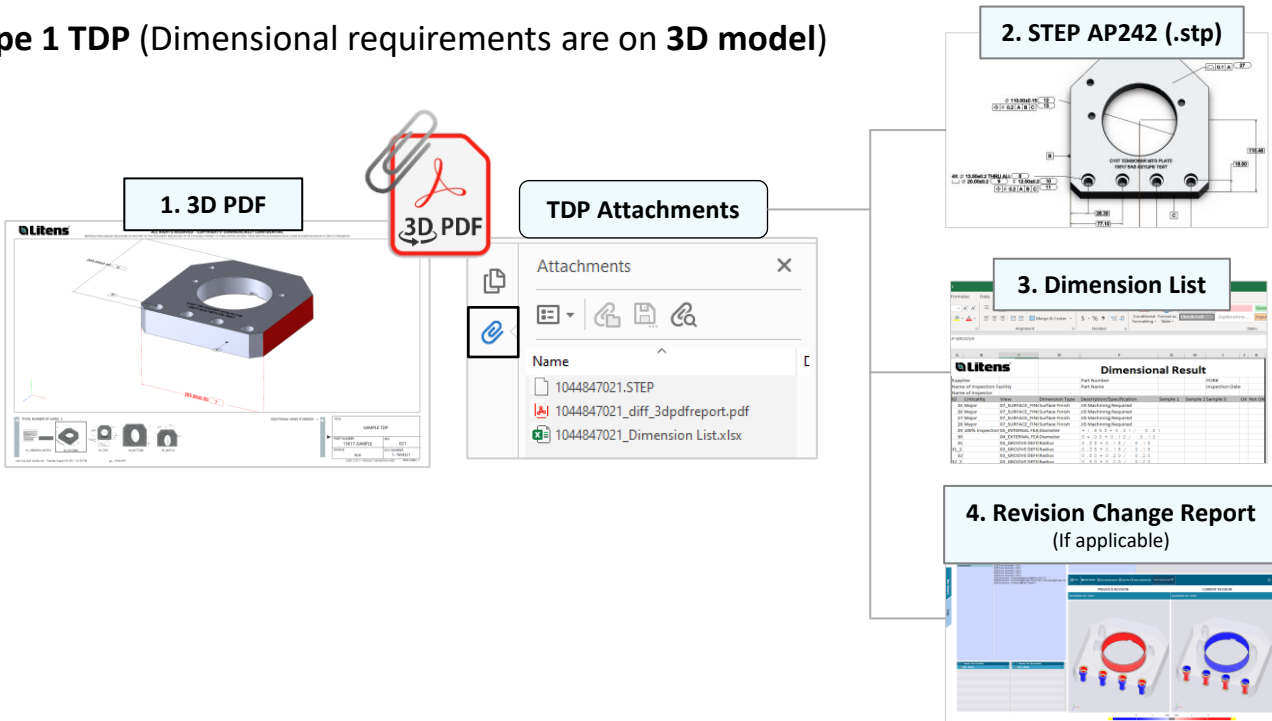
Recommended PDF Viewer – Adobe

Adobe Acrobat Reader is the only recommended reader and must be used for 3D PDFs**.** Other PDF viewers, such as Microsoft Edge and Google Chrome, do **not** support 3D models. Please also check Adobe settings against our recommendations in this section.

It is available to download for free on Adobe's site: Link to Adobe
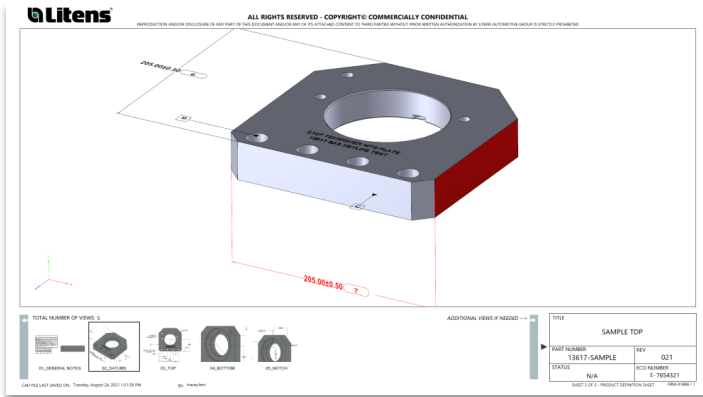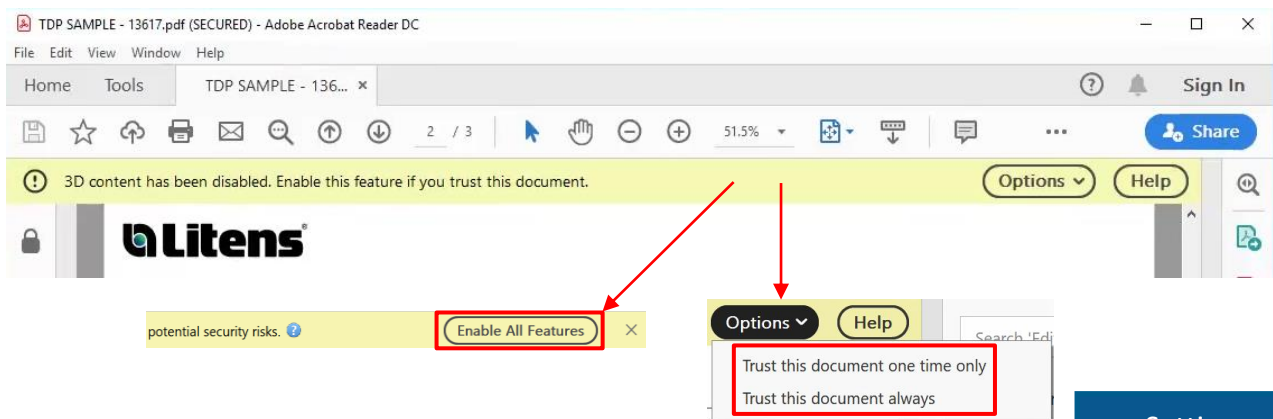

Adobe Acrobat Reader

Most PDF readers cannot show 3D model

Recommended Adobe Settings

When opening a 3D PDF, a yellow banner may appear over the top saying "3D content has been disabled". Click "Enable All Features" or select "Trust this document..." in the options menu.
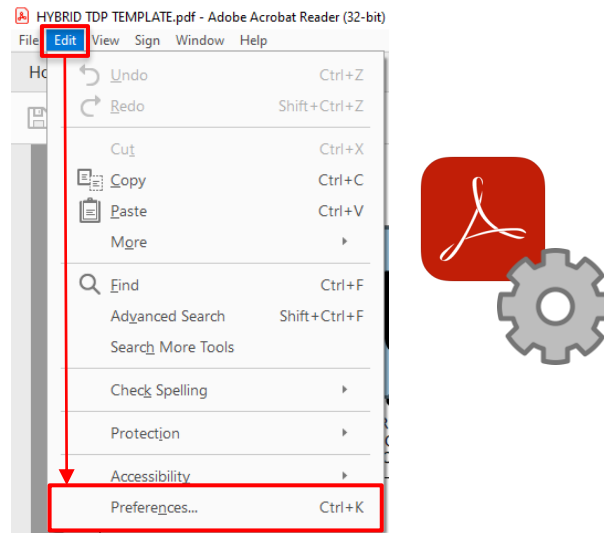
Then, adjust your Adobe settings to avoid these yellow notices for future files (next page)

Settings on next page

Please use the following Adobe settings for opening 3D PDF's. Otherwise, the 3D content may not work properly. 3D PDF files must be closed for settings to apply.

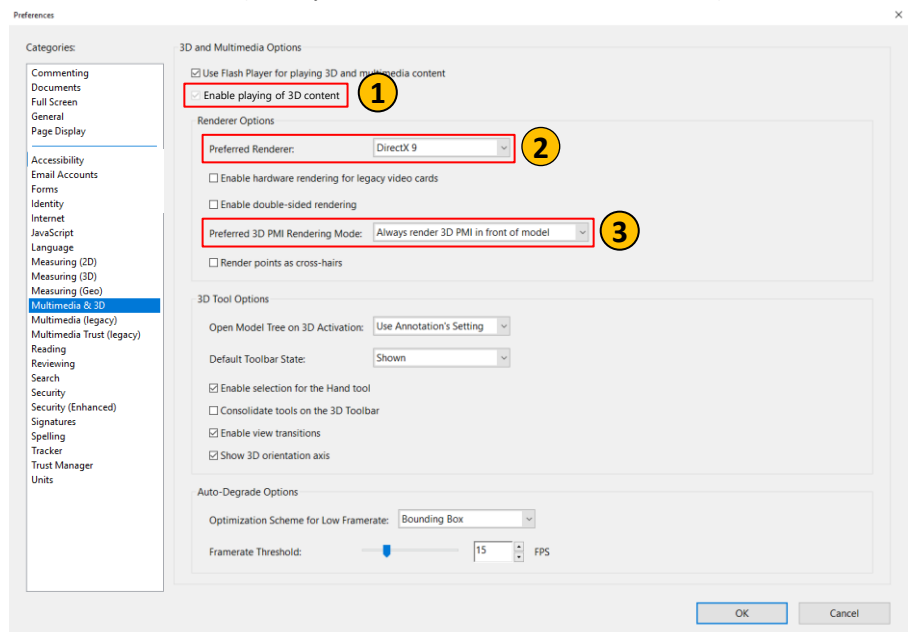Go to **Edit > Preferences** at the top toolbar. Check the following categories:

Multimedia & 3D
(It may also be called '3D & Multimedia')

1. Enable playing of 3D Content > Enable

2. Preferred Renderer > DirectX 9
(If not listed, it must be installed.
Link for DirectX 9 - Adobe website)

3. Preferred 3D PMI Rendering Mode >
"Always render 3D PMI in front of model"

Adobe Help Article:
Displaying 3D models in PDFs
(see 3D preferences)

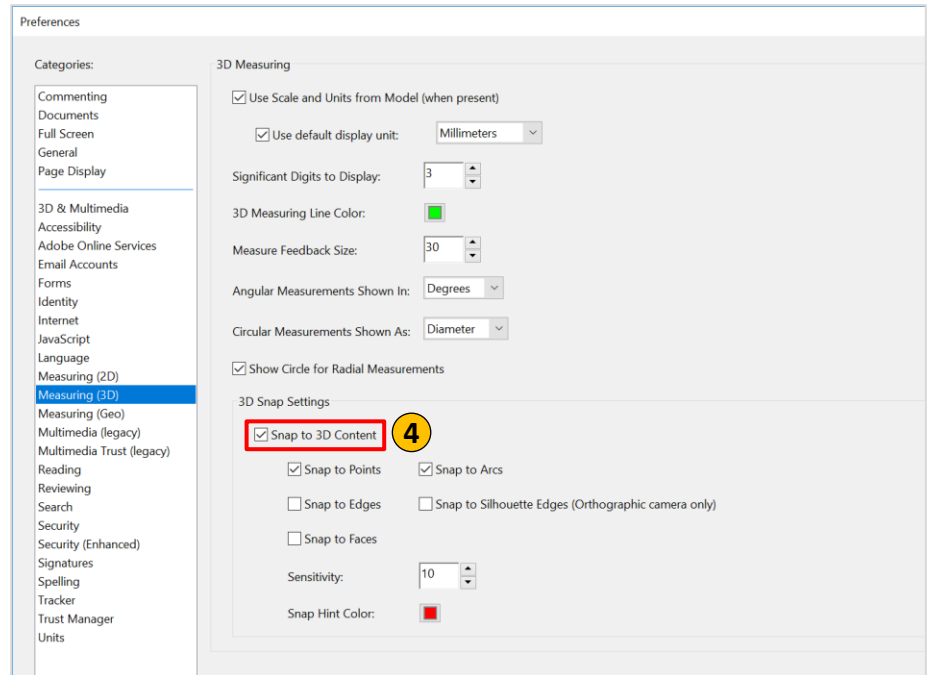More settings
on next page

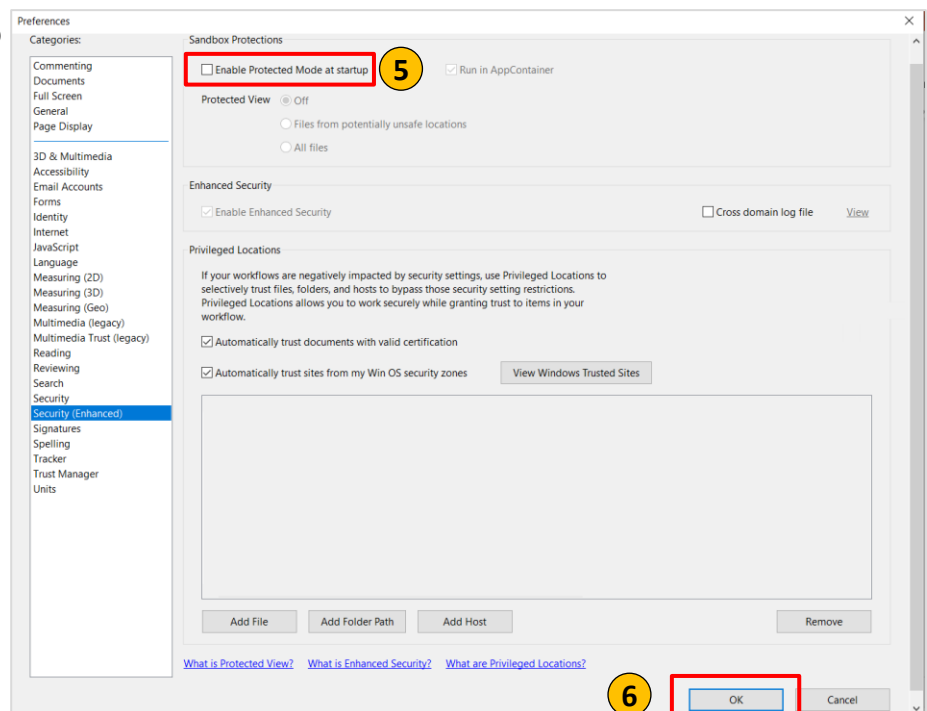Go to **Edit > Preferences** at the top toolbar. Check the following categories

Measuring (3D) Settings

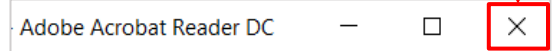**4. Snap to 3D Content** > Enable

Security (Enhanced) Settings

5. Enable Protected Mode at startup
  > Disable

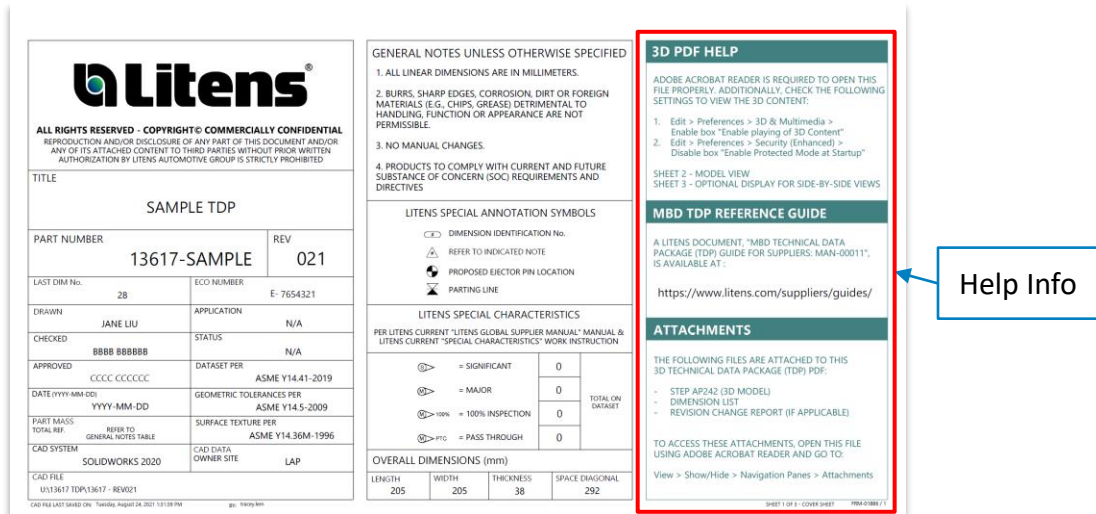6. Click OK and close the 3D PDF file for the settings to apply.

More settings on
previous page

Litens 3D PDF Overview

Sheet 1 – Cover Page

The cover page will show when the 3D PDF is opened. This page includes title-block information and a help section for new users.


Help Info

Sheet 2 - Model View

The second page contains all model views, including general notes and an embedded 3D model. Dimensional Information will be on the 3D model only for the *Type 1 TDP.*

Listed are 4 key functions, for *Type 1 TDP* only:

① **To change views,** click the thumbnail in the Carousel.

② The **total** number of views is listed

③ **To scroll though the list of views,** use the left and right navigation buttons

④ When a dimension is selected, the **associated features will highlight** on the model in red.
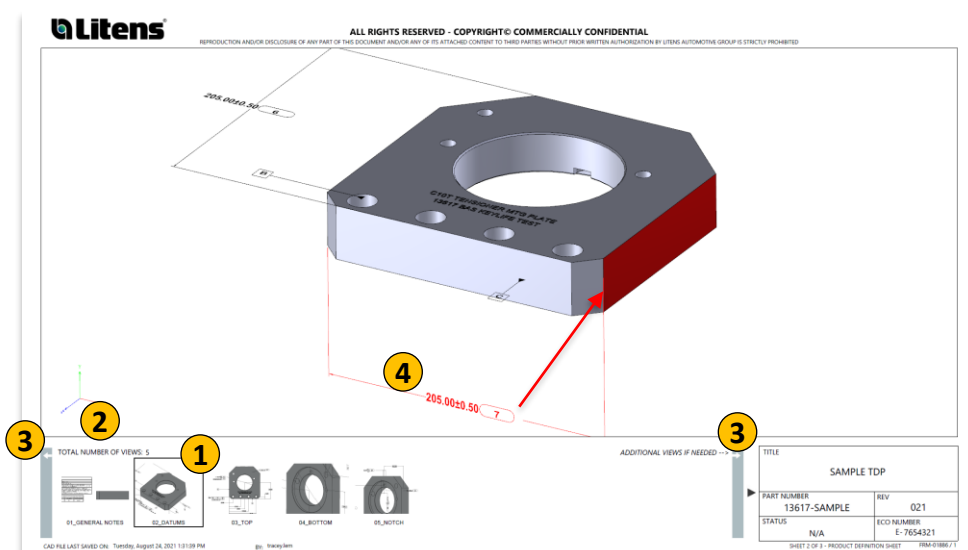
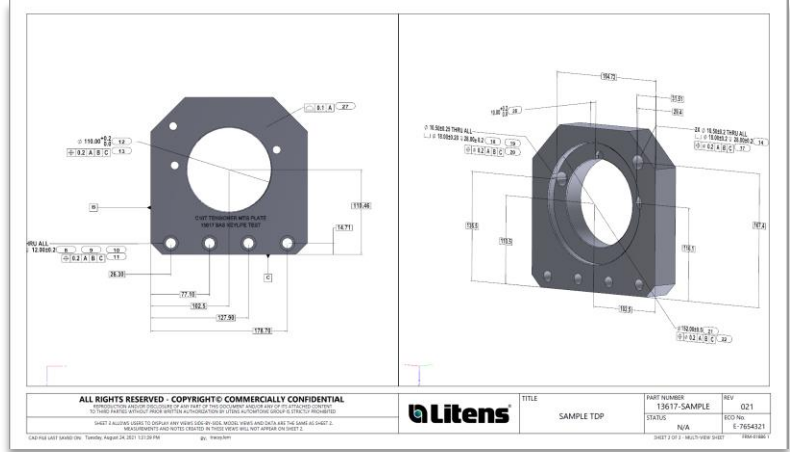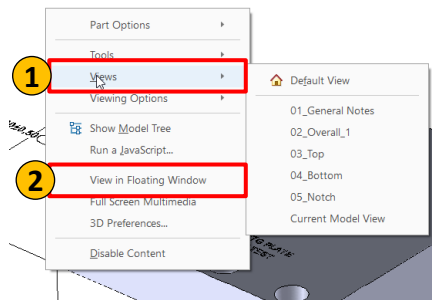## Sheet 3 - Side-by-Side View

The third page displays a side-by-side view of the model.
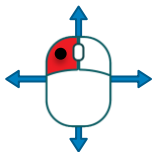Note: Sheet 3 will only be included on the *Type 1 TDP.*

① To **change views**, right click on the model, select "Views" and select the desired view.

② To **create a resizable floating window of the view**, right click and select "View in Floating Window".
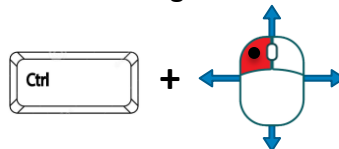

Viewing Tools
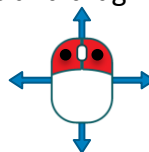
To **rotate** the model, hold left-click and drag

To **pan** the model, hold CTRL and drag

To **zoom** in/out, scroll in and out over the model

Or hold both left and right mouse buttons and drag

or

Or hold right-click and drag

or

Alternatively, use the icons in the toolbar to access the viewing tools
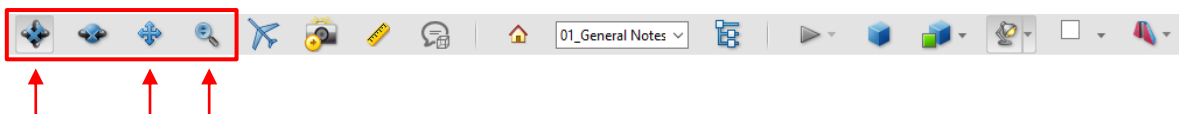
Additional Adobe Help Articles:
- [Displaying 3D models in PDFs](#)
- [Interacting with 3D models](#)

Viewing TDP Attachments

Attachments can include a STEP (.stp) file, Dimension List, 2D drawing and a Revision Change Report (if applicable). It will depend on the TDP type, please refer to [page 3](). Adobe Acrobat Reader is recommended, not all PDF viewers (eg. Google Chrome, Microsoft Edge) support PDF Attachments

To access attachments:
1. Open the 3D PDF/TDP in Adobe Acrobat Reader
2. Click arrow to show the menu
3. Click the Attachments icon
4. Right-click a file and select **Save Attachment**. Files can be opened or saved
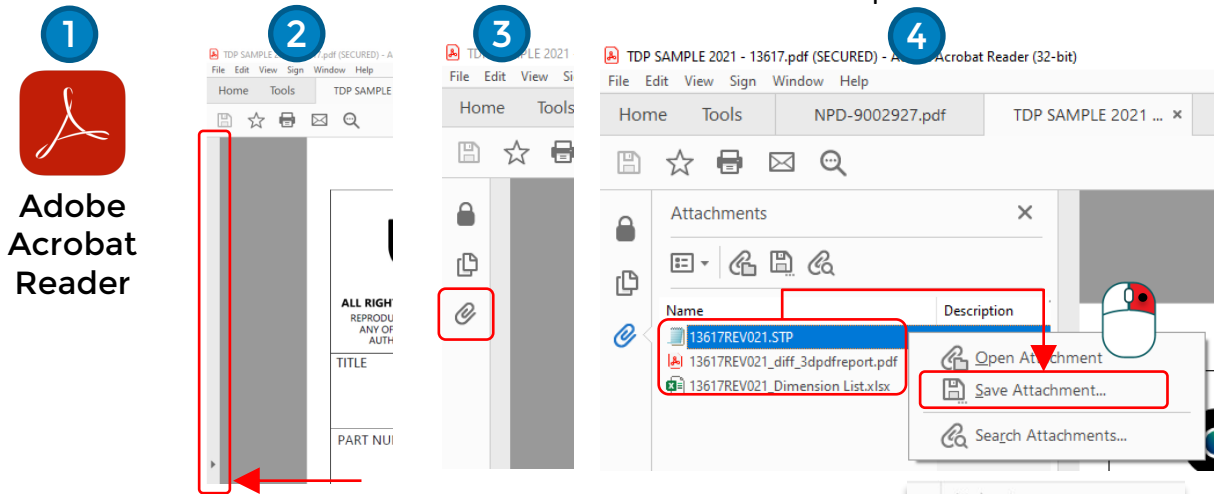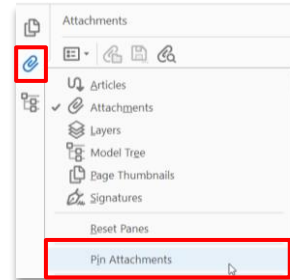
Tip: To always show the attachment list when opening PDF's:

Right-click over Attachments (📎) and select **Pin Attachments**.

To hide this panel:
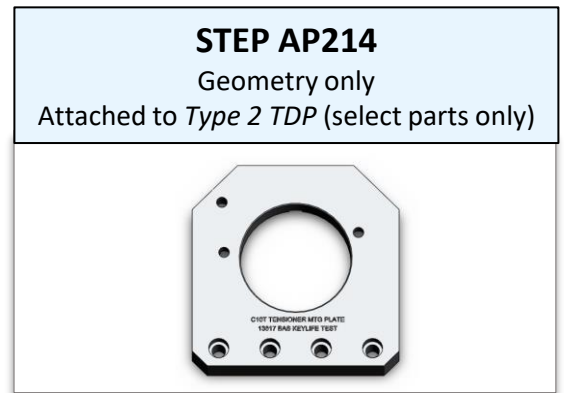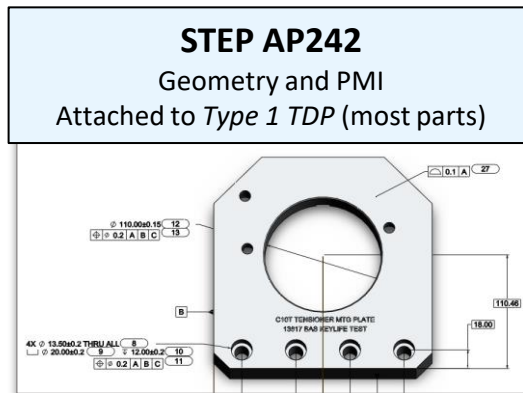Right-click over Attachments (📎) and select Unpin Attachments.

STEP (.stp)

A STEP file is a neutral CAD format that is compatible with different CAD programs. The STEP AP242 file format contains PMI (Product Manufacturing Information), while other STEP formats (eg. AP203, AP214) do not support PMI. Check your software to see if it supports STEP AP242 files and/or the embedded PMI.

The STEP AP242 format will be used for *Type 1 TDP* files.
The STEP AP214 format will be used for *Type 2 TDP* files.

STEP AP242	STEP AP214
Geometry and PMI	Geometry only
Attached to *Type 1 TDP* (most parts)	Attached to *Type 2 TDP* (select parts only)

Dimension List

The dimension list is an Excel sheet that is automatically generated using the MBD model. It which will list dimensions, GD&T, notes and table entries. This sheet can be used during inspection for digital measurement results.

The Dimension List file will be on the *Type 1 TDP* only.

The Dimension ID and View correspond to the 3D PDF

GD&T entries use a font called "SWGDT". It is free to download and install.
Link to download font

2D Drawing

A 2D drawing file contains the dimensional information and tolerances. It will be created for select parts only, based on part and manufacturing characteristics. When a TDP contains a 2D drawing, the 3D model will still be master and a STEP214 (.stp) file will be attached to the TDP for geometry information.

The 2D drawing file will be on the *Type 2 TDP* only.
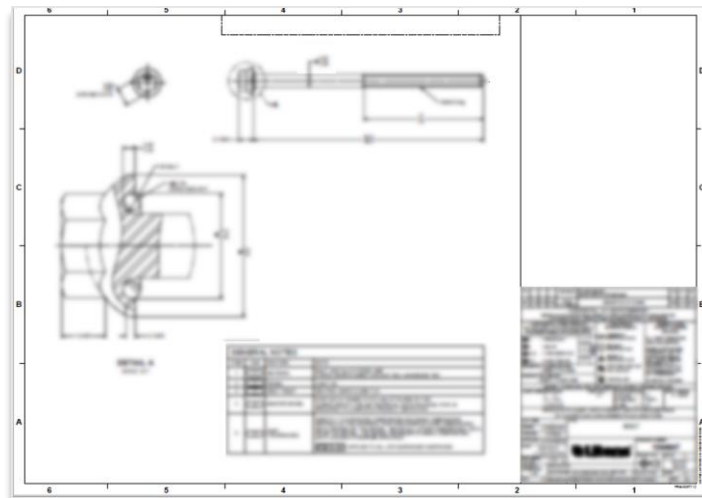
Revision Change Report (if applicable) (1/2)

Revision history will be documented with Revision Change Reports for MBD models. The report contains the geometry and PMI differences between two revisions, with embedded 3D models

The Revision Change Report will be on both *Type 1* and *Type 2 TDP* Files:

- *Type 1 TDP* – The Report will compare both geometry and PMI

- *Type 2 TDP* – The Report will compare geometry only.
  Dimension/Tolerance changes will be documented on the 2D drawing file

1 Shows **groups**, where most changes will be in "Ungrouped". There are separate groups for Tables and General Notes.

2 Lists the **individual differences** in the selected group. Select a difference to highlight it on the model.

3 **Details** will be listed when an individual difference is selected. Select a property to display the old and new values.

5 For **Table Changes**, select the group and drop-down arrow. Then select **Edit**. A pop-up window with the change description will appear.

4 Shows a **side-by-side view** of the difference when it's selected. File and revision names are shown above the model views. The 3D models can rotate, pan and zoom.

Revision Change Report (if applicable) (2/2)

Additional Information:

Filters to view Geometry or PMI changes only

Legend
[Diff] Item is **different** in new revision
[Add] Item was **added** in new revision
[Rem] Item was **removed** in new revision

How to see all Geometry changes at once?

To see individual geometry changes, follow steps #1-4 on previous page

1 Select '**Face Geometry**' in the drop-down menu, to show all changes at once.

**2** (Optional) The setting '**Show PMI**' can be turned off to hide PMI for Geometry changes

Red = More material

Blue = Less material

Colour scale: *Magnitude of change correlates with colour saturation*

White or light faces with jagged edges = No change
These are usually faces that are tangential to an actual design change. In this example, only the fillet radius (blue/red portion) changed
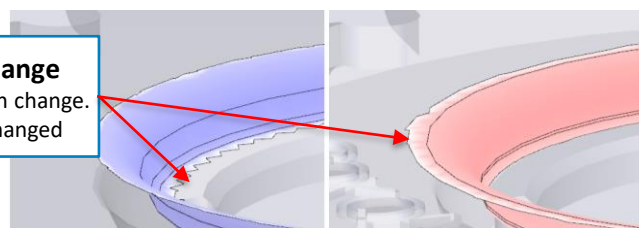
Adding Comments and Measurements in a 3D PDF

Adding Comments

You can add comments to a view:

1 Select the desired view

2 Click the Add 3D Comment button 🗨

3 Click on a location on the model to anchor the comment, and then click where you want to place it

4 Type the comment in the box that appears (by default, the comment is the anchor's coordinates). Click OK or press ENTER to save.
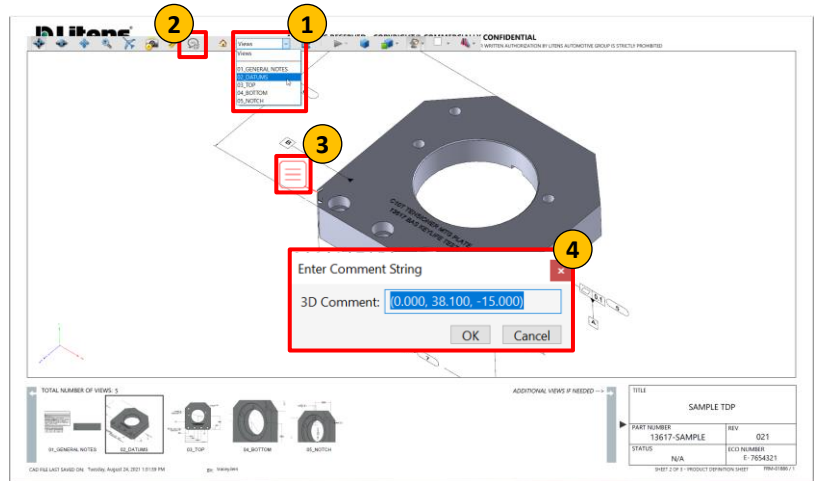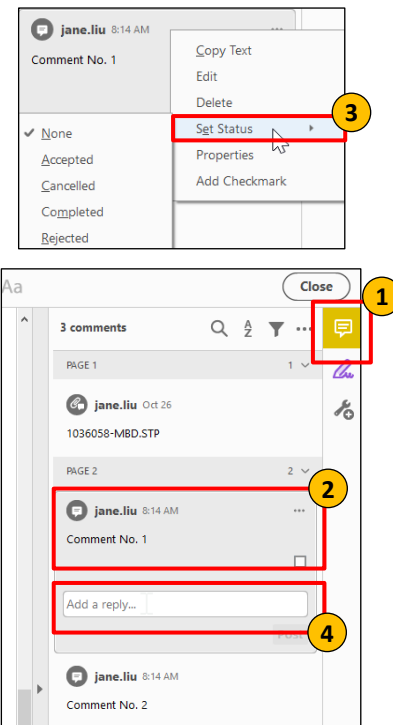
Additional Adobe Help Article: [Commenting on 3D designs in PDFs](#)

Reviewing Comments

The Adobe Comment Tool allows users to:
- Reply to a comment
- View previous replies
- Set status on a comment

1 To **view comments,** click the Comment tool on the right side of the page. A list of all comments and replies will appear

2 **When a comment is selected**, the corresponding view will be activated, and the comment will be highlighted in the view.

3 **To set a status on a comment**, select 'set status' in the comment option menu. Next, select the desired status

4 **To reply to a comment**, select the comment and type in the reply in the text field. Click 'Post' to post the reply

Additional Adobe Help article: [Managing Comments in Adobe](#)

Adding Measurements

Measurements can be added and saved on the 3D model.
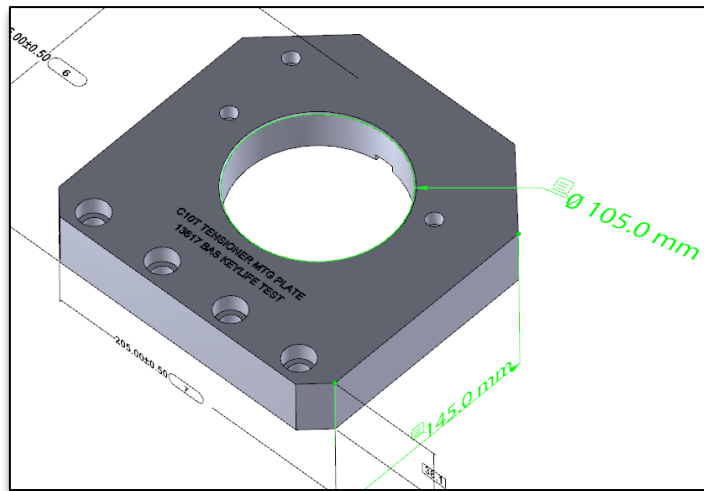
To add a measurement:
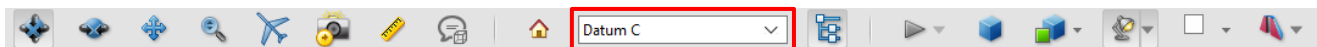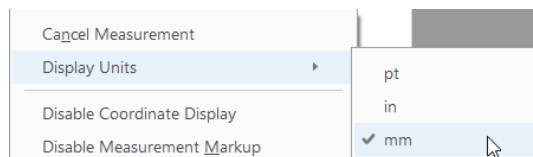
1. Select the view you want to make the measurement on.

2. Select the 3D Measurement Tool

3. Change unit of measurement (optional; it uses the drawing's units by default)

- Right click and hover over *Display Units*

- Units can also be changed under
  Edit > Preferences > Measuring (3D)

4. If needed, use the keyboard shortcuts to view the model from a suitable perspective (the point/line/surface where you begin the measurement should be visible)
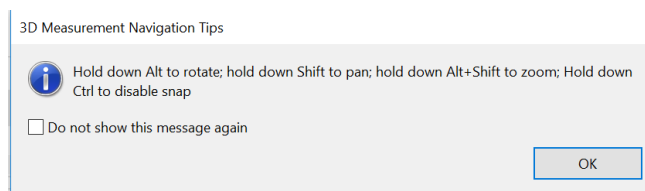
5. Enable the suitable Snap Enable(s) and Measurement Type required for the measurement.

6. Hovering over a feature will highlight it when measuring. Click on the feature(s) to take the measurement. Click again to place the measurement.

Additional Adobe Help Article: Measuring 3D objects in PDFs

Revision History

Refer to Compliant Pro for revision release dates.

Revision	Sections Changed	Changes Made
0	-	Initial Release
1	Title page	Released on C-Pro Added Copyright on title page, revision history
2	Recommended Adobe Settings 3D PDF Overview Viewing Attachments	Revised recommended Adobe Security settings Updated 3D PDF template Added more info+examples to Revision History Report
3	-	Added Chinese Translation of document
4	-	Added German Translation of document
5	TDP Overview Recommended PDF Viewer Litens 3D PDF Overview Viewing TDP Attachments	Added information for two different TDP types Added mbdhelp@litens.com to TOC page Updated STEP section to include STEP AP214 Expanded Attachment information Added topic 2D Drawing Updated Revision Change Report - 'How to view all geometry changes at once' Updated Branding