

Adjust model for 3D Printing Scaling

14,0200,1599,1024(SP2)





3DXpert for

command.

In this exercise, we will learn to create **Scaling** to added 3DP component.

As the printed part cools down, it shrinks.

Therefore, it may be required to scale it up so that it shrinks to the correct size.

To use this command we need to follow few steps (guided):

- Load 3DXpert-Exercise-Scaling_Start.SLDPRT to SOLIDWORKS
- Launch **3DXpert for SOLIDWORKS**.
- Add shrinkage compensation.



- Load 3DXpert-Exercise-Scaling_Start.SLDPRT to SOLIDWORKS from the folder that it was downloaded to.
- 2. From the Additive Manufacturing tab *pick* **3XPert for SOLIDWORKS SOLIDWORKS**



This command will launch **3DXpert for SOLIDWORKS**.

3. After the **3DXpert for SOLIDWORKS** is invoked, new window will open:

Add Files(s) to Assembly Keep Original Orientation Keep Original Position & Orientation Import Files(s) to New Part New Part OK Cancel	Add Options		23
Keep Original Orientation Keep Original Position & Orientation Import Files(s) to New Part OK	O Add Files(s) to Assembly		
Keep Original Position & Orientation Import Files(s) to New Part OK Cancel	C Keep Original Orientation		
Import Files(s) to New Part OK Cancel	Keep Original Position & C	Drientation	
OK Cancel	Import Files(s) to New Part	New Part]
		ОК	Cancel

In this window we set the basic positioning of the part on the tray

- **Keep Original Orientation** means that the part will not rotate to any direction XYZ of the part will be parallel to the XYZ of the tray but the center of the bounded silhouette will move to the center of tray.
- Keep Original Position & Orientation means that the part will not rotate to any direction XYZ of the part will be parallel to the XYZ of the tray but the center of the part (UCS 0,0) will move to the center of tray.







After the file is open the screen will look like this:

Notice the Process Guide on the right side of the screen. This guide contains most of the functionality to enable preparing the part for printing.

4. Save the project, pick the Save 📃 command on top left corner.

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		Save		5

3D SYSTEMS

This command will open the *3DXpert for SOLIDWORKS Explorer*. Save the file to the same folder with the downloaded files.

រទី 3DXpert for SOLIDWORKS Explorer			
Address 🌗 D:\3DXpertForSOLIDWORKS_Docume	nts\3DP_Pr	oject4A	•
Sack Sorward 🖄 Up One Level	- 🎽	🛅 🚡 💥 🙀 Add Folder 🎼 Folders 🔍 Search 😭 Catalog Parameters	Properties 🔍 🔍
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+ 🌗 3DP_Project5	Name:	3DXpert-Exercise-Scaling Start0	
+ 퉬 3DP_Project5A			
+ 📙 3DP_Project6	Type:	Part File; Assembly File; Drafting File; NC File	
1 object(s) 143 KB			3DP_Project4A



After adding the **3DP component** the tray will look like this:

From a TOP view



From ISO view





5. *Pick* shrinkage compensation Compensat... command from the 3D Printing Process Guide.

Feature Guide Feature Guide # × Charles Scale	shrinkage compensation		
Optional Required	 Pick object Pick a pivot point Set parameters 		
* * * *	• "Preview" the result without executing		
	✓ To approve and finish use the " <i>OK</i> "		
	To approve and continue use the " <i>Apply</i> ".		
	"Cancel" – exit the comand without keep changes		



Center of Selec point. Keep Center of Selected Geometry and Exit (left mouse button) to continue. Ξķ

8. Last stage Set parameters

Set parameters as shown in the following pictures, to approve and finish use the "OK":

Pre-defined Factor: None Uniform Show as Factor Scaling rate = 1.02 Save as Pre-defined Factor Manage Pre-Defined Factors Volume change rate = 1.06121	Pre-defined Factor: None Non-Uniform By Ratio Show as Factor X Axis scaling = 1.02 Y Axis scaling = 1.02 Z Axis scaling = 1 Save as Pre-defined Factor Manage Pre-Defined Factors Volume change rate = 1.0404
Uniform The Uniform parameter is used when the shrinkage conditions (XYZ) and can be changed to Non-Uniform Non-Uniform main directions (X-Y-Z) separately.	ompensation is the same to all main r m for different values can be used for each
	-to - 1.00121

In any method chosen, the Volume Change Rate Volume change rate = 1.06121 is displayed.

3DXPERT Adjust model for 3D Printing - Scaling

Since the command have some defaults its "jumps" to the last stage in this command.

읞 6. Pick the first sta

Uniform Show as Factor

6.	<i>Pick</i> the first stage in the Feature Gide - <i>Pick</i> object
	At the first stage it is possible to choose between All Objects All Objects (default) and By Pick By Pick The option All Objects does the same shrinkage compensation to all and in case of By Pick we have repeat the command as needed.
	Keep All Objects and <i>Exit</i> (left mouse button) to continue.
7.	At the second stage <i>Pick</i> a pivot point is possible to choose between Center of Selected Geometry
	Center of Selected Geometry (default) and Free Selection Free Selection to <i>pick</i> any point as a pivot point.





Non-Uniform Show as Factor



It is possible to show the values as Factor Show as Factor or as Percentage Show as Percentage



After shrinkage compensation setting is finished and while the command is active the user can save as Pre-

defined Factor Save as Pre-defined Factor (for a certain material or printing technology for example) and to use it next time.



Please notice:

when using Non-Uniform compensation with different values in any main plan direction (i.e. XY plane), cylinder in that plane are deformed

End of Exercise.

