3DXpert™ for SOLIDWORKS®

Lattice Design

Solid Infills

Tutorial_V2 : 13,0600,1489,1616(SP6)

3D SYSTEMS

Introduction

3DXpert for SOLIDWORKS includes tools for creating optimized structures, using Lattices and Infills.

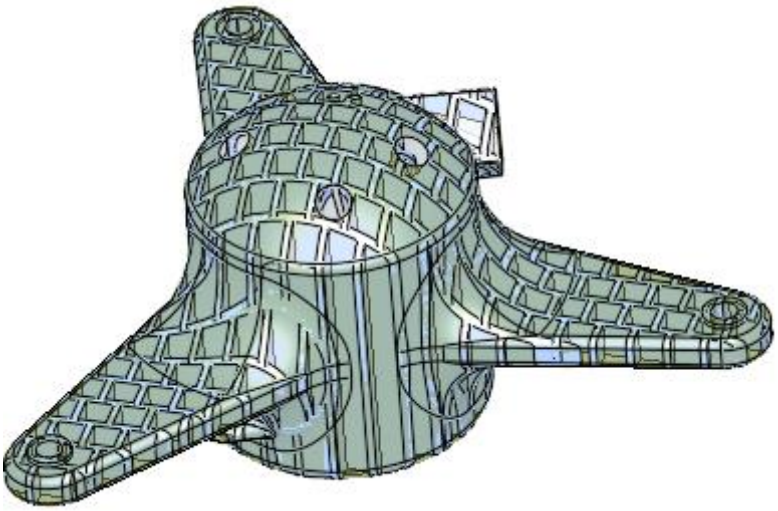
Infills are structures that support the inner volume of the body and save sintering time.

This is another way (together with Lattice) to fill a body with pattern shapes

3DXPert for SOLIDOWRKS offers three Infills types: Solid Infill, Conformal Infill and Wall Infill.

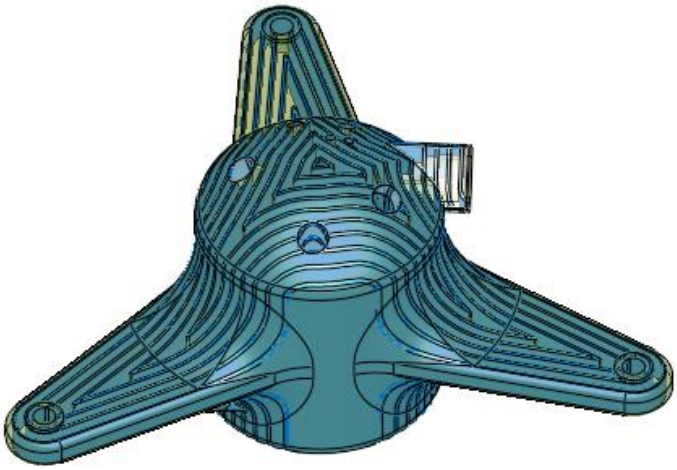
This exercise discusses **Solid Infills.**

Solid Infills creates a solid inner structure based on the selected predefined pattern.

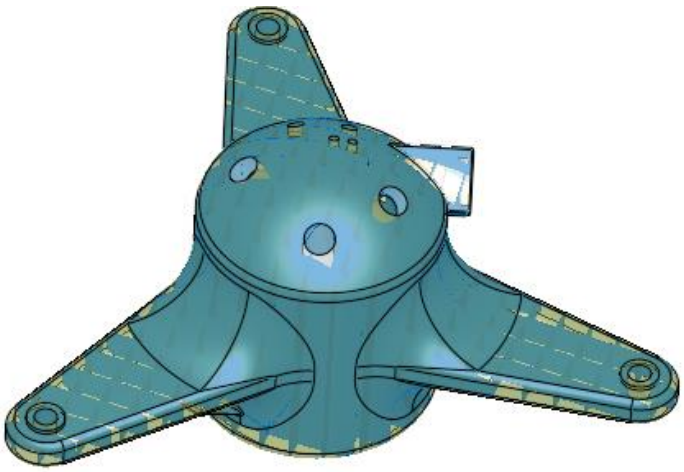


Solid Infills

Conformal and Wall Infill types, will be discussed in a separate exercise called **3DXpert - Advanced Infills-Exercise**.



Conformal Infills

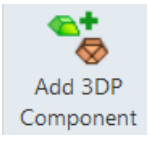


Wall Infills

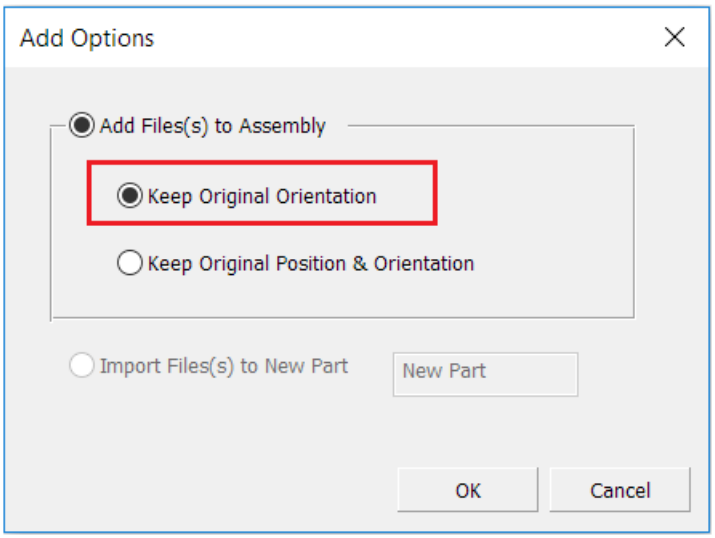
!	When working with a Standard license, you can create a Solid Infill, which you are able to slice and export to other software. You can create additional Infill types (Conformal and Wall Infill types), however, in the Standard package, the additional Infill types are available in Evaluation mode. In Evaluation mode you can create, save, edit and view the Conformal and Wall Infill types that you created, but you cannot slice or export them. To enable slicing and exporting of the additional Infill types, upgrade your 3DXpert for SOLIDWORKS to either Lattice Advanced ADD ON or the Professional package.

! Notice/ Remember		Left mouse button name is ***"pick"***
		Middle mouse button name is ***"Exit"***
		Right mouse button name is ***"Click"***

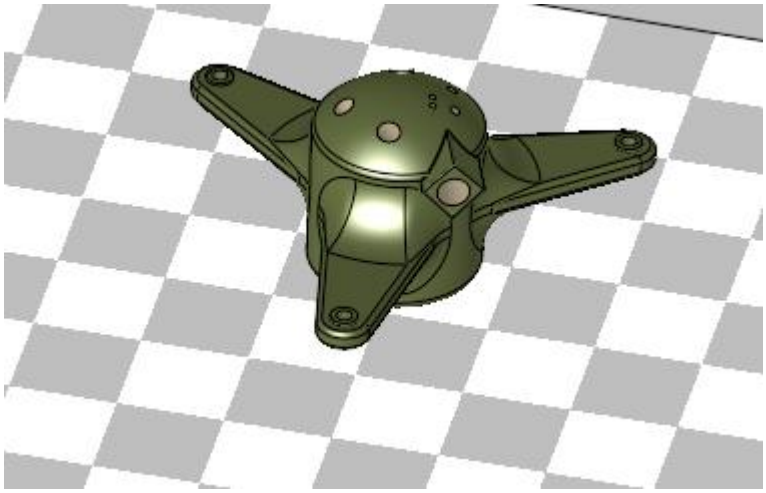
Exercise

1. Open a new 3DP project and pick ‘Add 3DP Component’ 

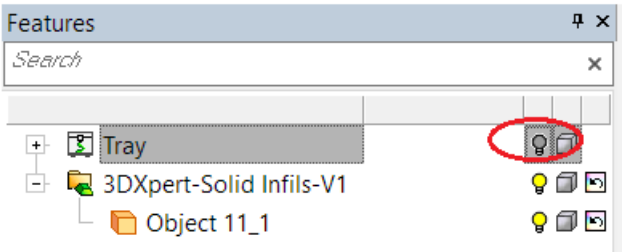
tool.
The 3DXpert for SOLIDWORKS explorer opens up. Browse to the part ‘3DXpert-Solid Infills-V1.elt’ and pick ‘Select‘.
2. Pick the option ‘Original Orientation’ and then pick ‘OK’



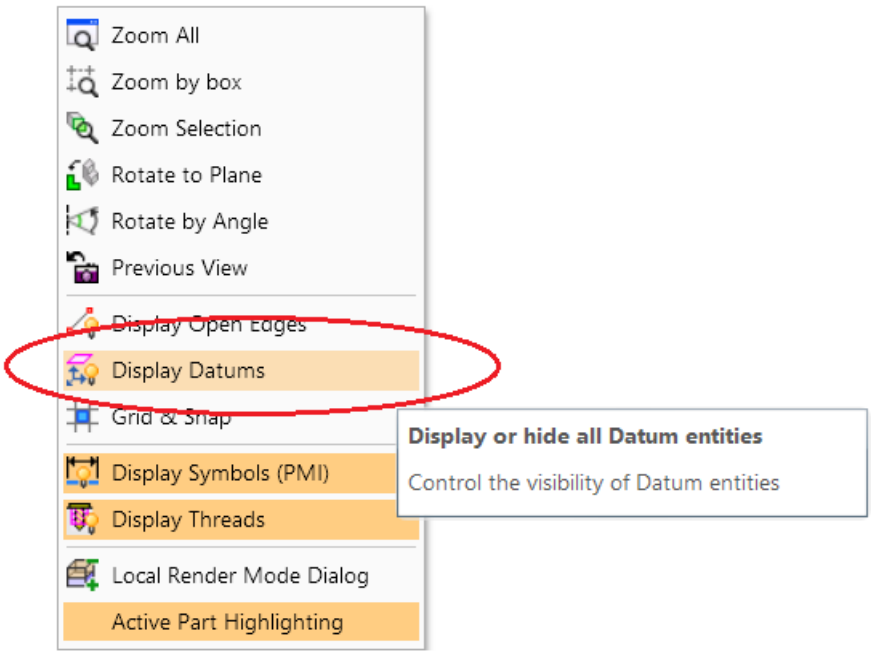
The part will be positioned on the tray:



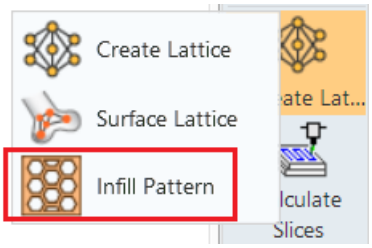
Pick the light bulb from the features tree to hide the tray.



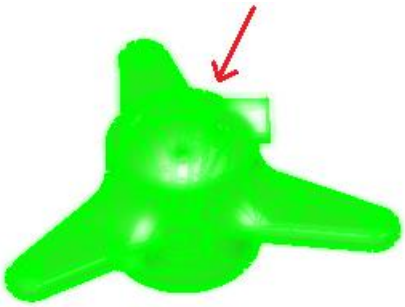
When the cursor hovers above the display area, click the Right Mouse and Middle Mouse buttons together and from the context menu pick ‘Display Datum’ to hide all datum.



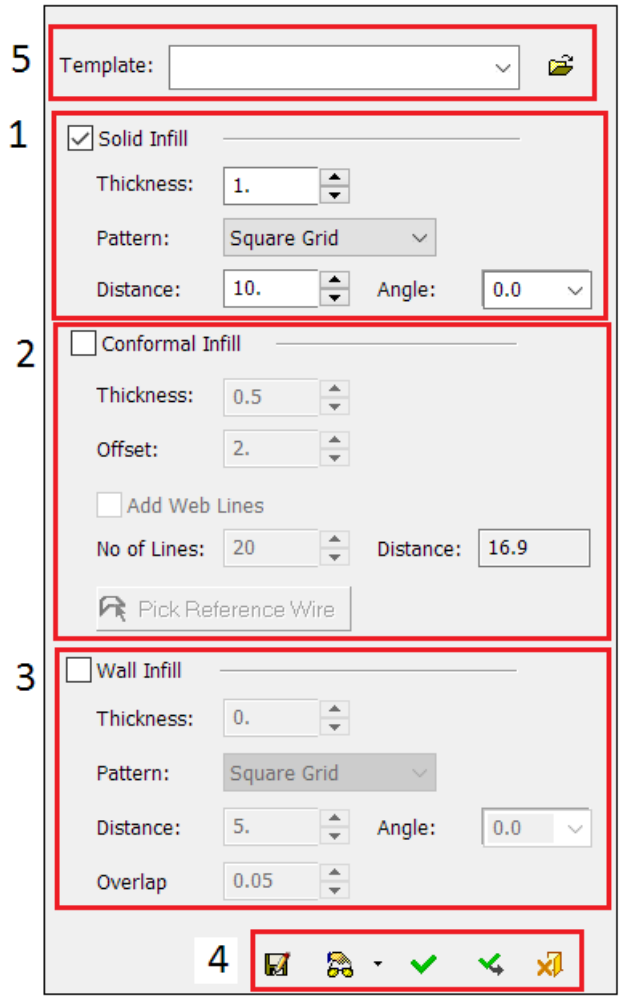
3. From the Guide pick the 'Infill Pattern' button.



Pick the object.



Once picking the object, the system steps to the next stage and the Infill dialog opens up. Let's review the dialog:



#1 – Defining parameters and pattern for Solid Infills.

#2 - Defining parameters for Conformal Infills.

#3 - Defining parameters and pattern for Wall Infills.

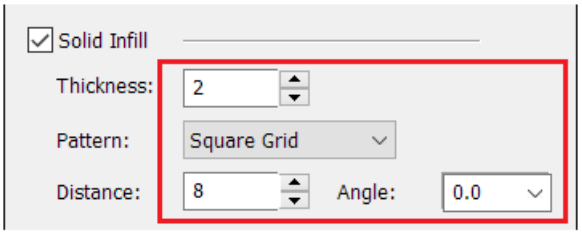
#4 - Actions Buttons Bar - OK, Show Preview, Cancel etc…

#5 - Loading predefined templates.

!	Remember that in this exercise we will show only Solid Infills. Conformal Infills and Wall Infills will be discussed in the exercise **3DXpert - Advanced Infills-Exercise.**

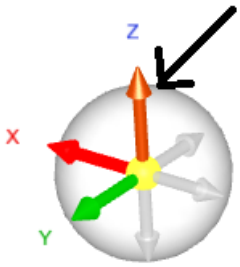
Make sure that only ‘Solid Infills’ option is checked ON (and Conformal and Wall are checked OFF)

Set the following parameters: **Thickness** - 2, **Pattern** - Square Grid, **Distance** - 8 and **Angle** – 0

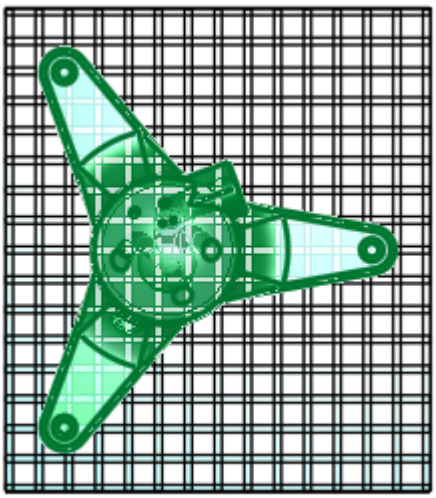


<u>Parameters Definitions:</u>
Thickness - Set the thickness of the element walls.
Pattern - Select the required Infill pattern from the dropdown list of options.
Distances - Set the distance between the pattern elements.
Angle - Set the angle of the pattern elements.

Pick the Z Axis of the interactive UCS, to switch to Top view

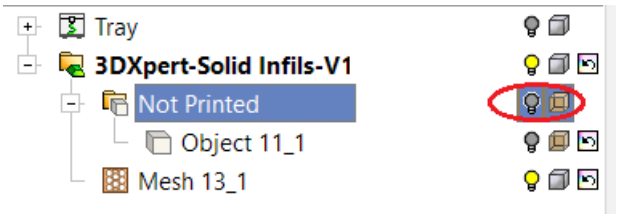


It is convenient to see the pattern and part from the top view, so for a clearer review of the pattern.

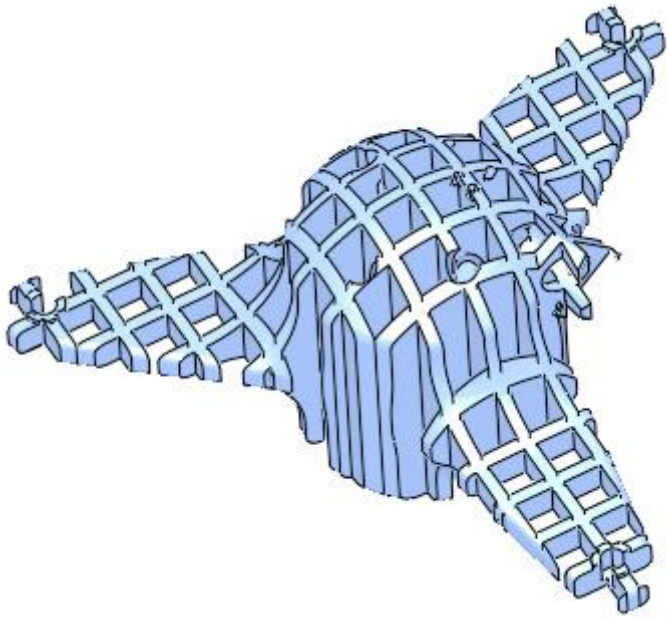


Pick OK

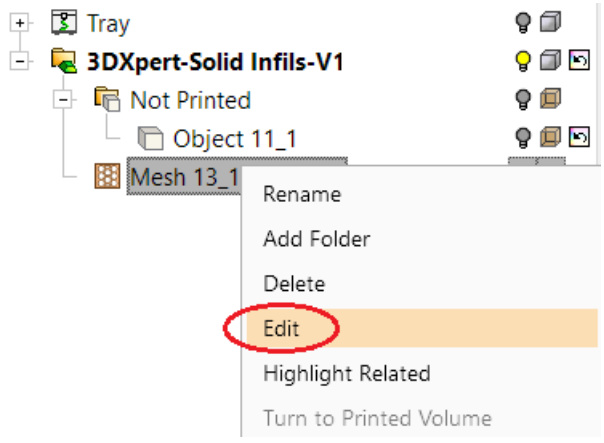
From the features tree, hide the Not Printed object.



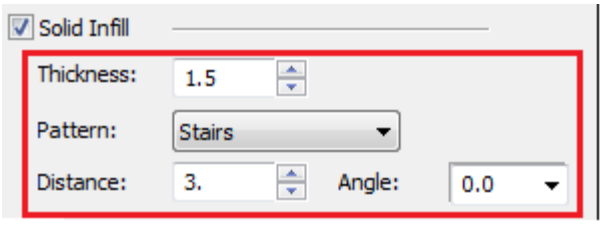
Review the result.



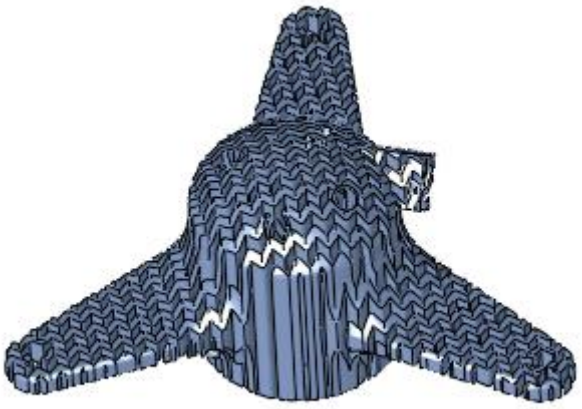
4. Show the Not Printed object again. Edit the Infills feature by selecting the Mesh feature (RMB click on it) and pick Edit.



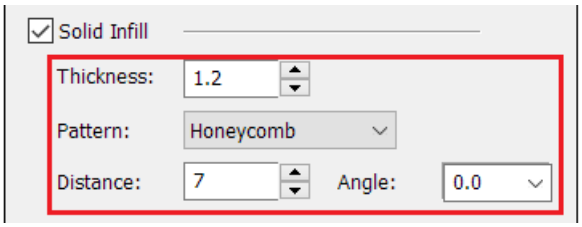
Modify the parameters to: Thickness – 1.5, **Pattern** - Stairs, **Distance** - 3 and **Angle** – 0



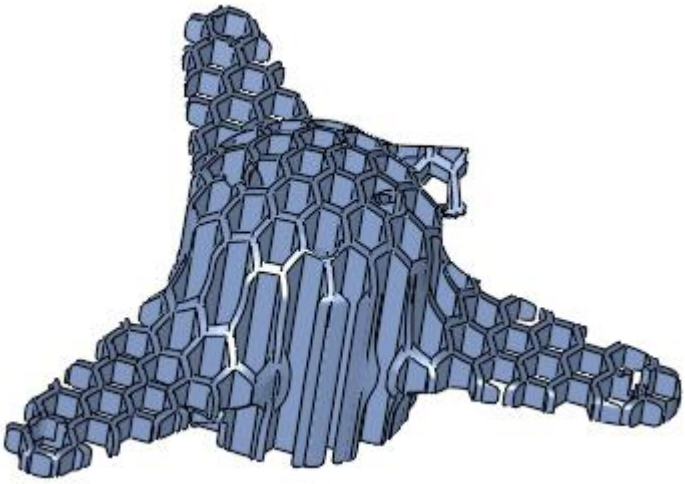
Pick Ok in the Feature Guide. View the result:



5. Edit the Infills feature again. Set the following settings:



View the result:



End of Exercise.