



# 3DPRINTING EXERCISE

## Labeling

Tutorial\_V3-: 3DXpert 16 Beta



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In various applications, manufacturers need to label their parts to make them easily identifiable. With similarly shaped parts, labeling the parts is critical.

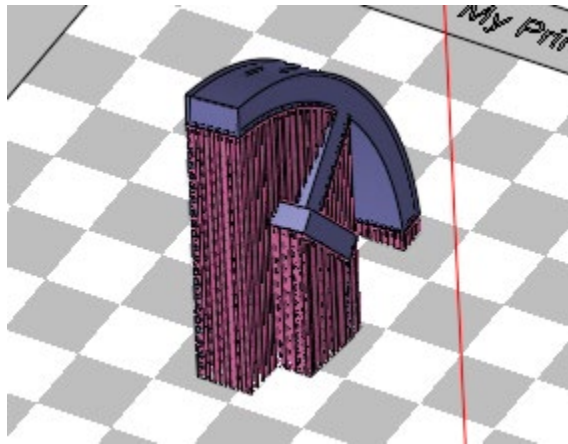
Adding easily readable lettering to the printed parts can require some work, however with 3DXpert you can easily add labels to each of the parts placed on the tray, or the tray itself.

The Labeling functionality is composed of several steps, starting at the part environment and moving on to the Operator environment where all the parts or instances will be placed for printing. If you place the same part several times on the tray, each instance should ultimately have its own text.

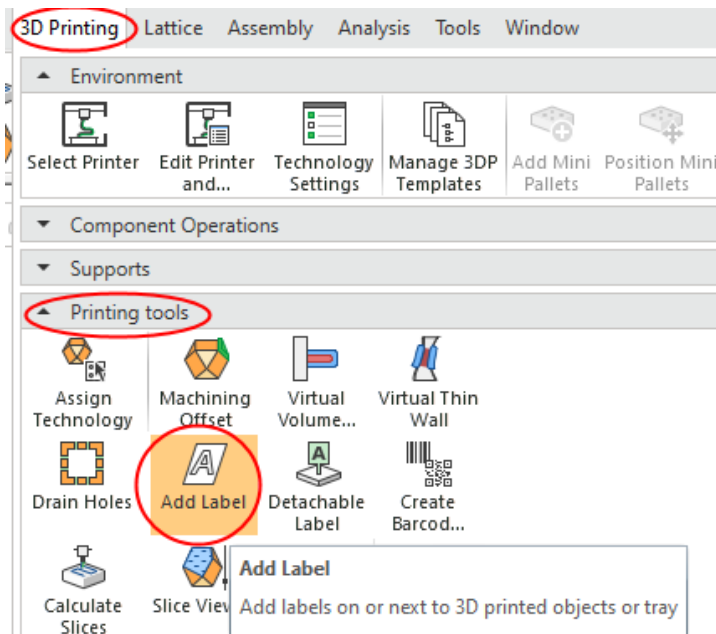
We will follow these steps in the following exercise.

## Adding the textual labels on the part

1. Unpack the file **Add Label.ctf** and load the file **G163448-v03\_PR5.elt**.

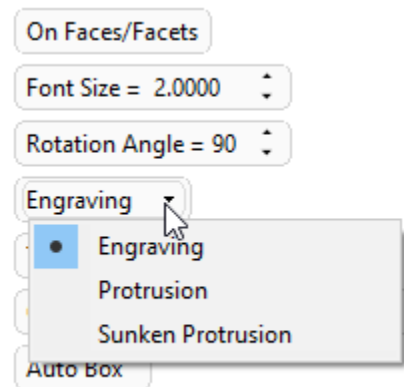


2. From 3DPrinting menu, pick the Add Label tool.

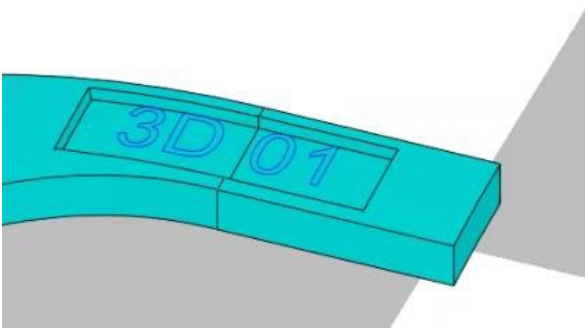


Add Label is a standard 3DXpert Text dialog that creates a label on a part

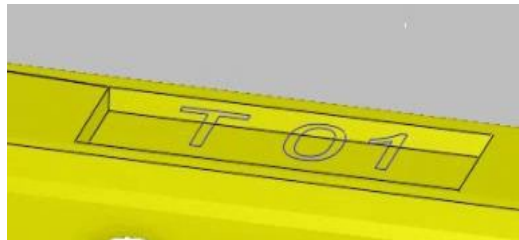
This function includes several options: Protrusion, Engraving and Sunken Protrusion.



By the Engraving or Sunken Protrusion options, the system cuts the original part with the bounding box of the 3D label (adding some margins).



Label for Engraving



Label for Sunken Protrusion

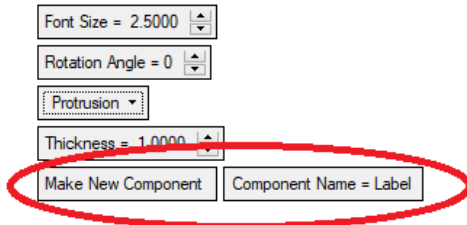
Labels can be added on any 3D models, both b-rep and mesh objects.

In addition, you can place labels on the tray (this is always a protrusion).



A label placed on the tray.

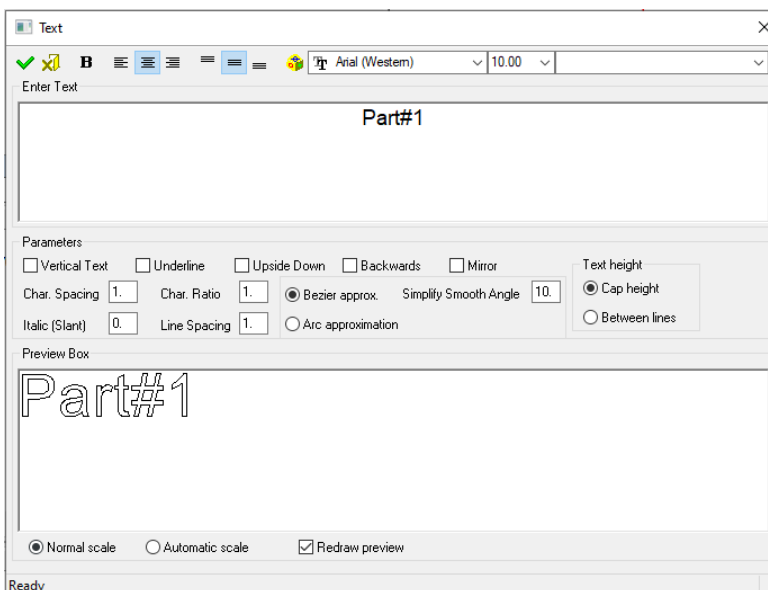
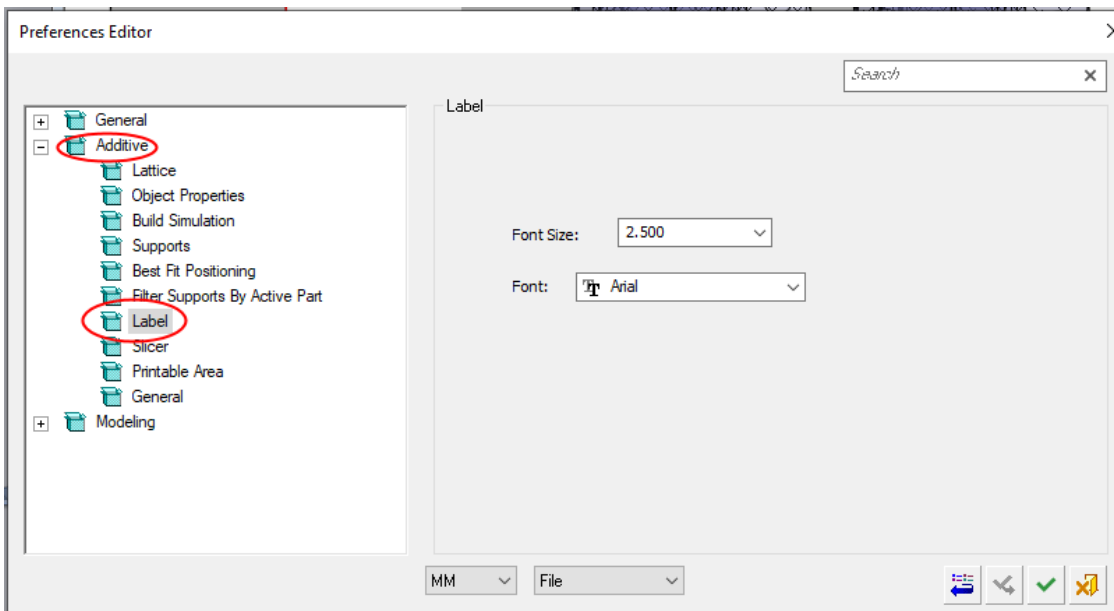
In addition, we can create a new label file, meaning a new file that contains as geometry only a label.



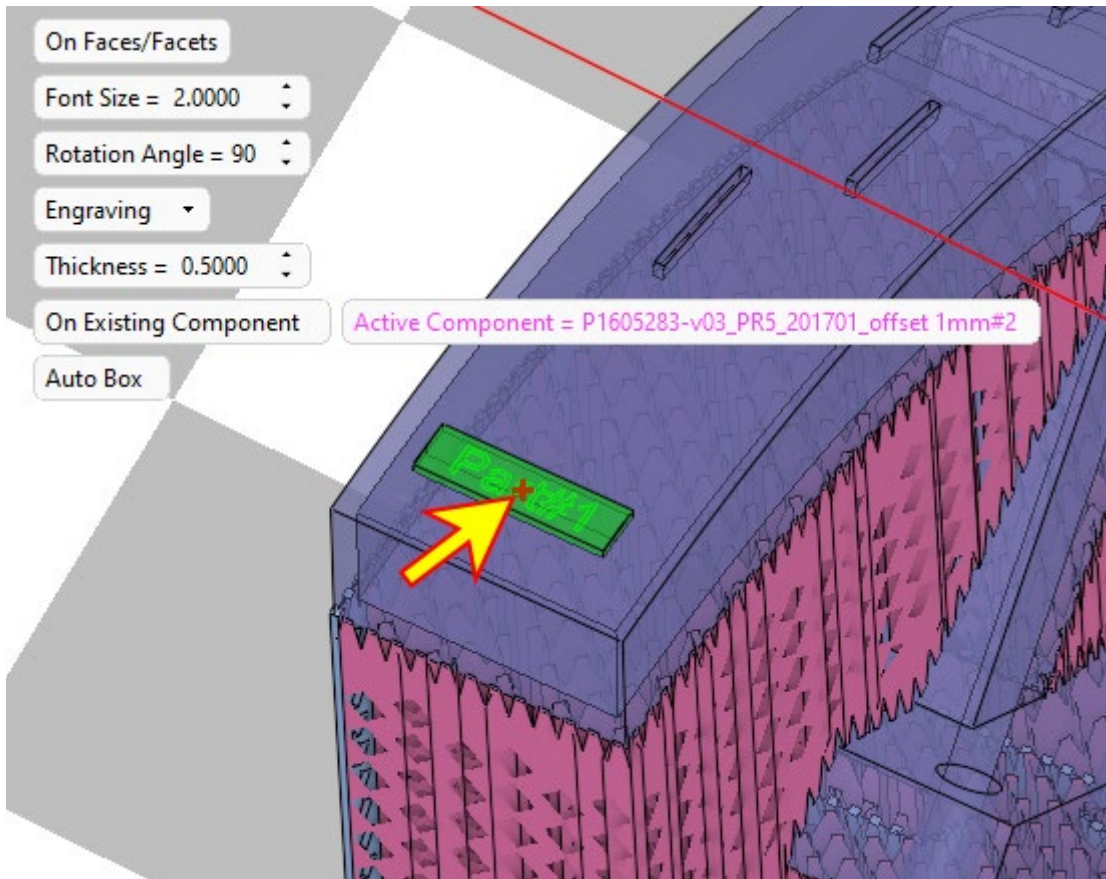
3. In the Text editor, type in “Part #1”. (This is the text that will appear in the label text) Select **OK**



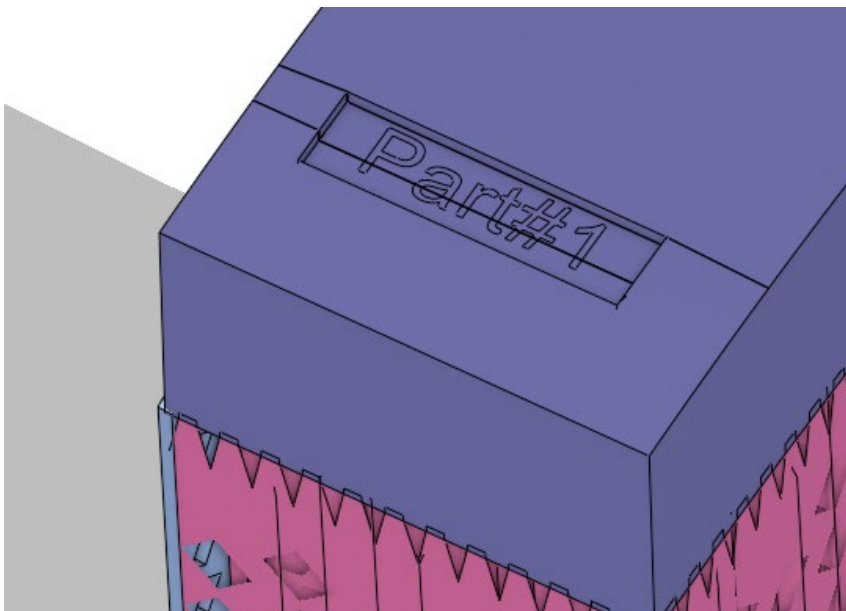
Note that the default font for the label is defined under the preferences.



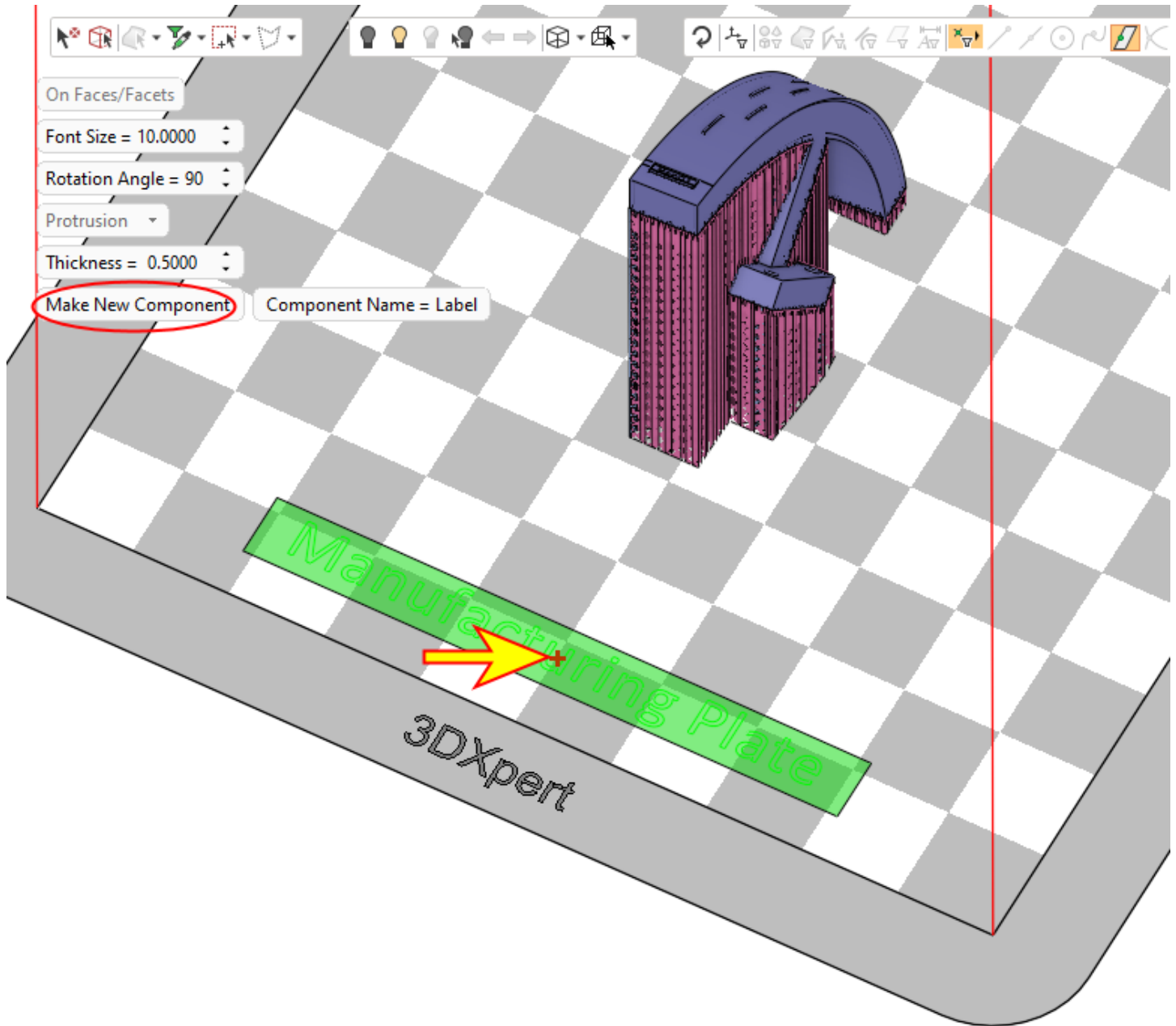
4. Pick a point on the object as shown below and use the following settings. Use the **Engraving** option.



5. Pick **OK** in the 3DP Label Feature Guide.



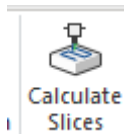
6. Add another label. Type the text “**Manufacturing Plate**” and place it on the tray with the following settings: Protrusion, Thickness = 0.5, Font Size = 10. (Note that this label will be created as a new component). Select **OK**.






When creating the labels, at this point these labels are kept as 2D labels (Wireframe text), i.e., there is no solidification of the labels. This is done later in the Operator environment.

## Slicing the objects before sending to Operator




7. Pick Calculate Slices tool.
8. Select **OK** in Object Slicing dialog to run the Slicing calculation.








**Objects Slicing**
✕


Printer Name: My Printer
Slicing Data File Format: CLI





Material Name: CLI-Generic
Run On: Automatic

 Hide Details

Component: P1605283-v03\_PR5\_201701\_offset 1mm#2

		Technology Name	Objects	Build Style Name	Setti...	Offs...
	<b>1</b>	<b>Part</b>	<b>1</b>	<b>BL_C0-O</b>		
	2	Wall Support	512	BL_Wall		
	3	Solid Wall Support	9	BL_C0-O		

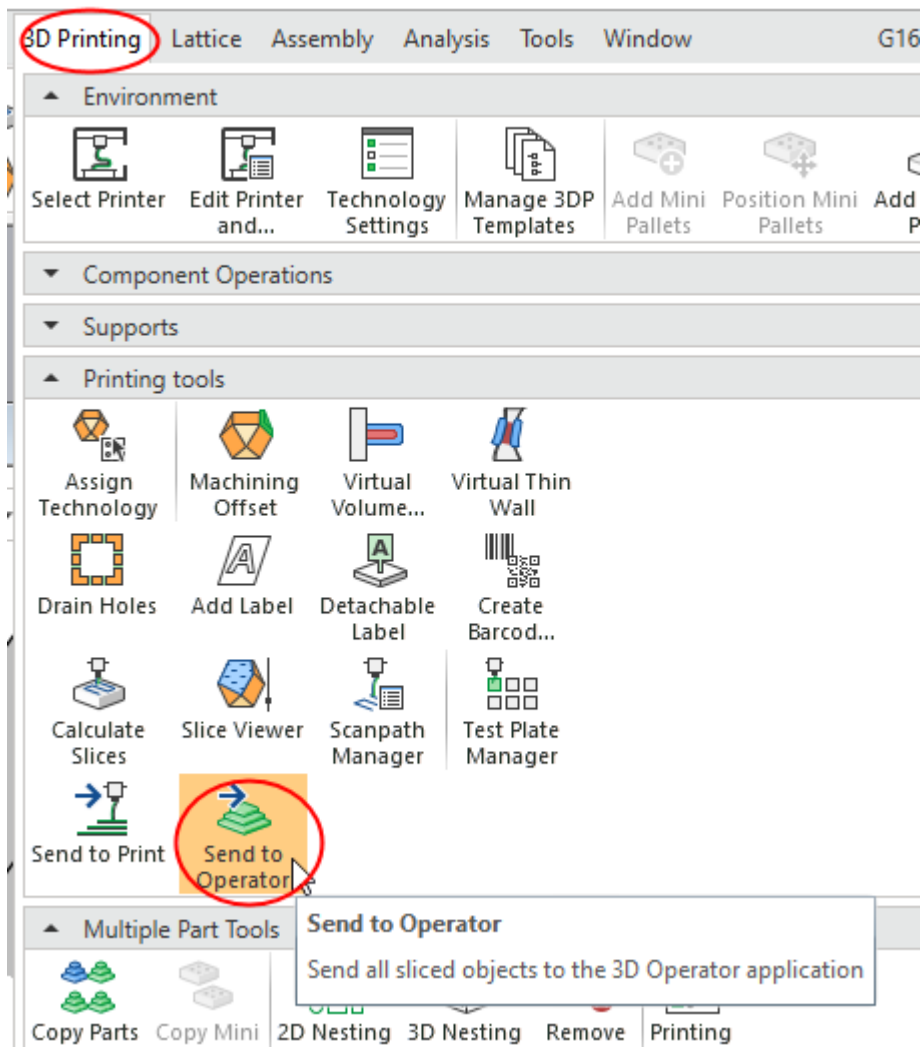


9. **Save** the project.

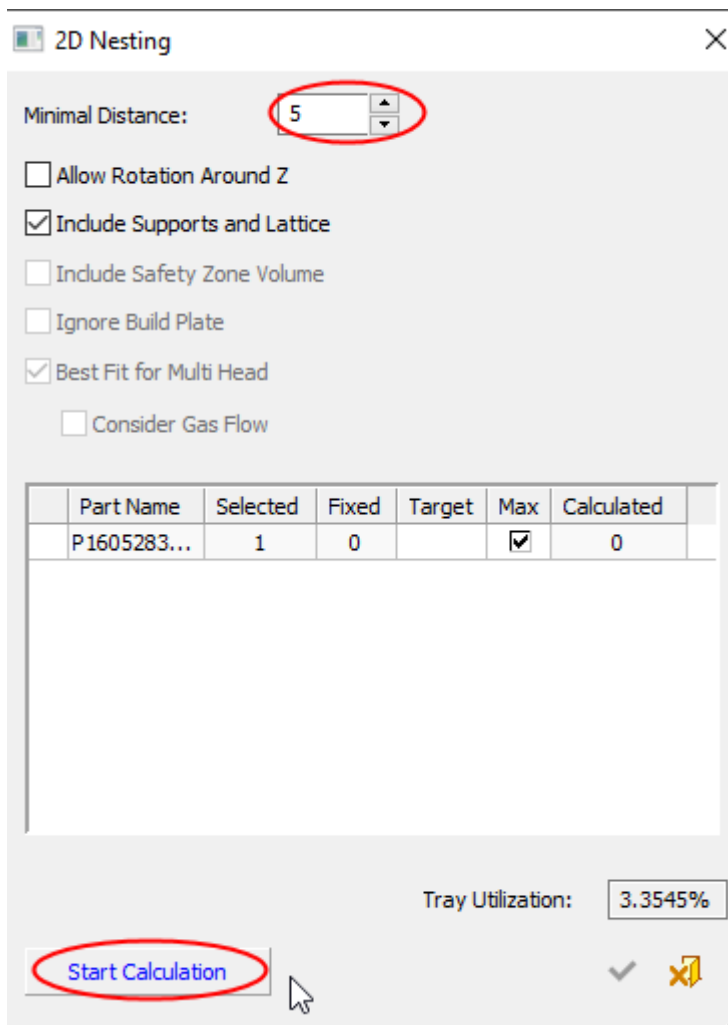
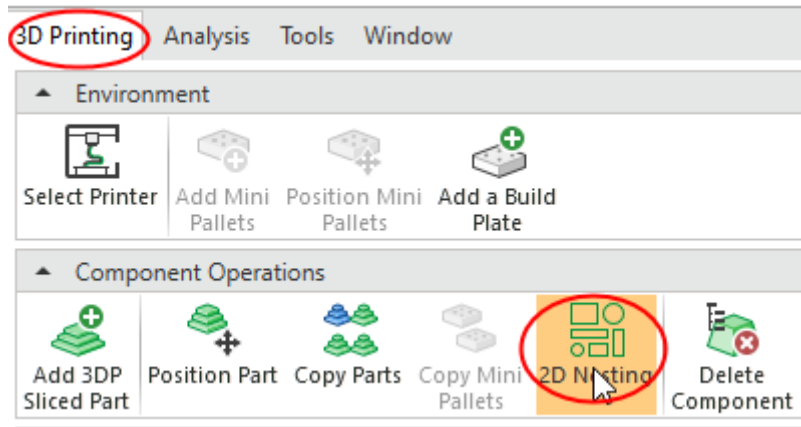
## Sending to Operator

10. Pick the Send to Operator tool and save the new Operator project.

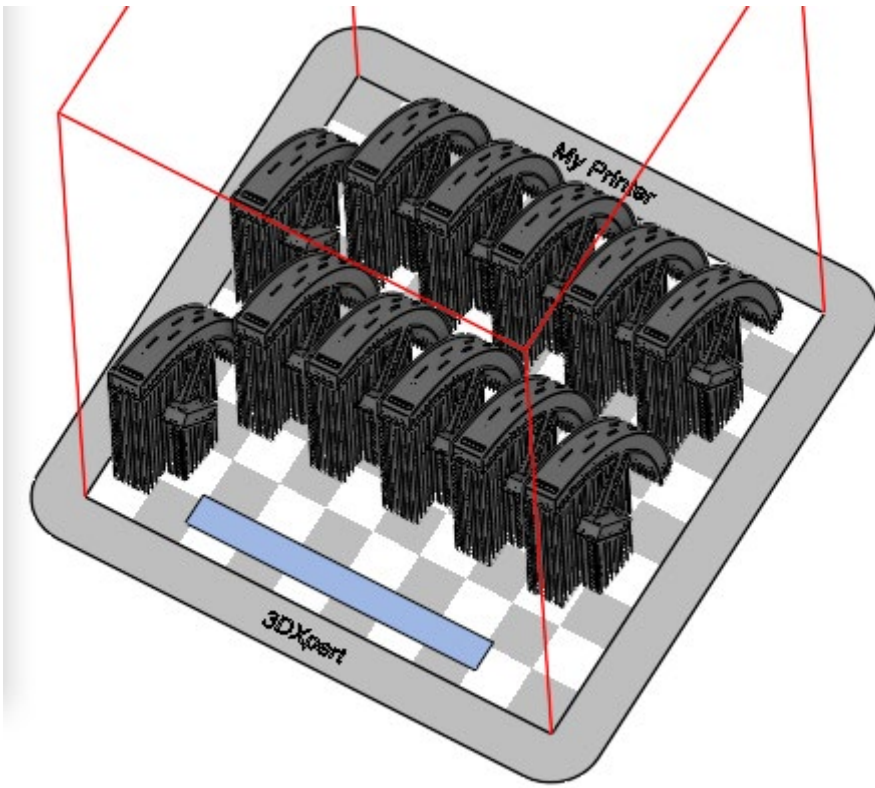


11. Pick the **2D Nesting** tool. Set the Minimal Distance to **5**, **Rotation OFF** and pick **Start Calculation**.

12 components are positioned:

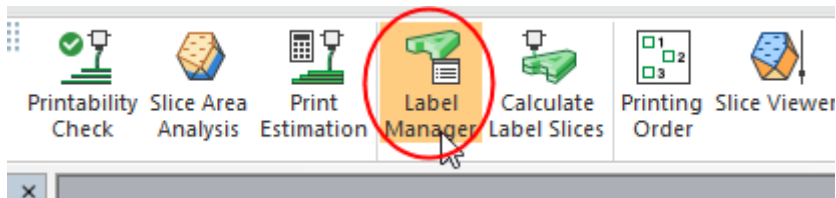


12. Click **OK**.

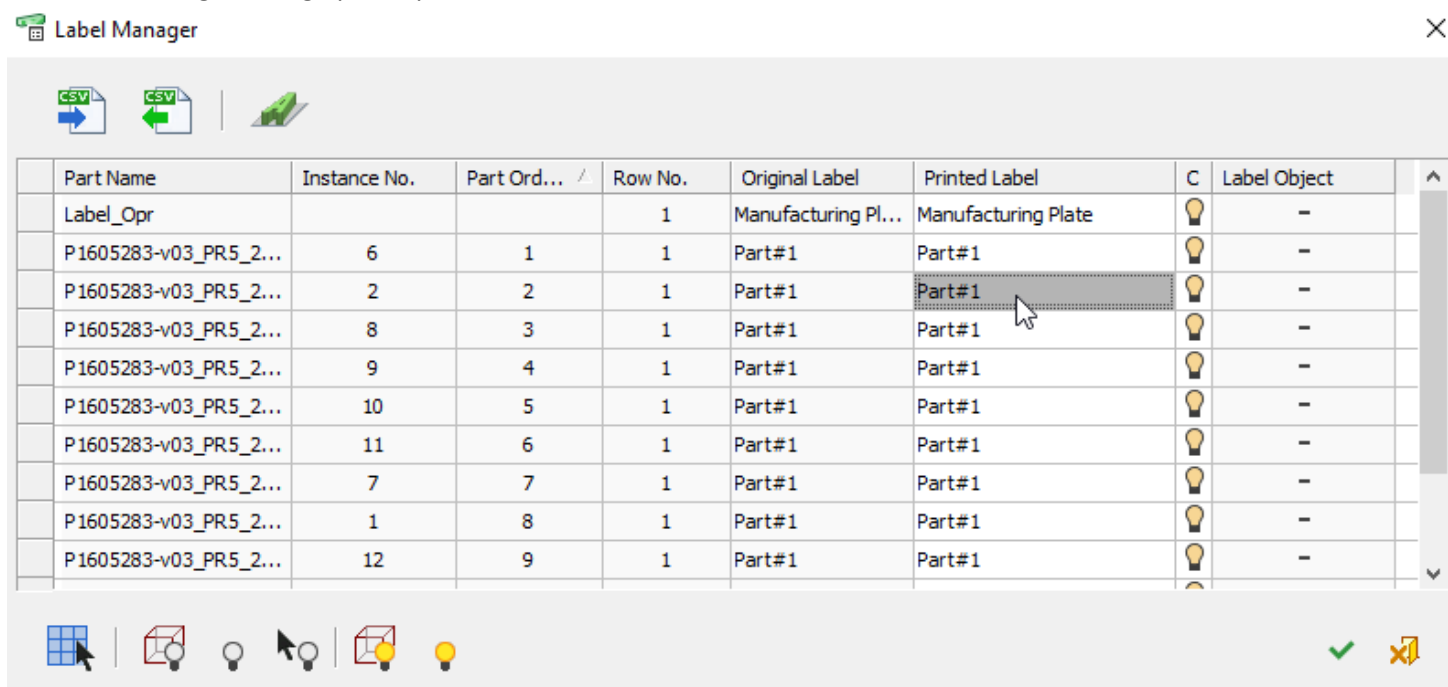


## The Label Manager

13. From the Menu, pick the Label Manager tool




The Label Manager dialog opens up.





In this dialog, we can see all the labels for all instances.

This table displays for each label the part name, the order, the original label name and the printed label name (this is the name that you will assign to each label).

14. From the Label Manager dialog, pick **Export to CSV** button  to export the list to a CSV file. The CSV opens automatically after saving it.

15. Edit the **SCV file**. We will renumber the Printed Labels numbers. Edit the Printed Label of part order 2 and change it to Part#2

	A	B	C	D	E	F	G
1	Internal Ic	Part Name	Part Order	Row No.	Original Label	Printed Label	
2	11	P1605283-	1	1	Part#1	Part#1	
3	12	Label_Opt	0	1	Manufacturing Plat	Manufacturing Plate	
4	13	P1605283-	2	1	Part#1	Part#1	
5	14	P1605283-	3	1	Part#1	Part#1	
6	22	P1605283-	4	1	Part#1	Part#1	
7	15	P1605283-	5	1	Part#1	Part#1	
8	17	P1605283-	6	1	Part#1	Part#1	
9	21	P1605283-	7	1	Part#1	Part#1	
10	19	P1605283-	8	1	Part#1	Part#1	
11	18	P1605283-	9	1	Part#1	Part#1	
12	16	P1605283-	10	1	Part#1	Part#1	
13	23	P1605283-	11	1	Part#1	Part#1	
14	20	P1605283-	12	1	Part#1	Part#1	
15							
16							
1	Internal Ic	Part Name	Part Order	Row No.	Original Label	Printed Label	
2	11	P1605283-	1	1	Part#1	Part#1	
3	12	Label_Opt	0	1	Manufacturing Plat	Manufacturing Plate	
4	13	P1605283-	2	1	Part#1	Part#2	
5	14	P1605283-	3	1	Part#1	Part#1	
6	22	P1605283-	4	1	Part#1	Part#1	
7	15	P1605283-	5	1	Part#1	Part#1	
8	17	P1605283-	6	1	Part#1	Part#1	
9	21	P1605283-	7	1	Part#1	Part#1	
10	19	P1605283-	8	1	Part#1	Part#1	
11	18	P1605283-	9	1	Part#1	Part#1	
12	16	P1605283-	10	1	Part#1	Part#1	
13	23	P1605283-	11	1	Part#1	Part#1	
14	20	P1605283-	12	1	Part#1	Part#1	
15							

16. Pick cell **"F4" (Printed Label)** on the bottom right corner and drag it downward in order to renumber the printed labels numbers.

	A	B	C	D	E	F	G
1	Internal Ic	Part Name	Part Order	Row No.	Original Label	Printed Label	
2	11	P1605283-	1	1	Part#1	Part#1	
3	12	Label_Opr	0	1	Manufacturing Plat	Manufacturing Plate	
4	13	P1605283-	2	1	Part#1	Part#2	
5	14	P1605283-	3	1	Part#1	Part#1	
6	22	P1605283-	4	1	Part#1	Part#1	
7	15	P1605283-	5	1	Part#1	Part#1	
8	17	P1605283-	6	1	Part#1	Part#1	



1	Internal Ic	Part Name	Part Order	Row No.	Original Label	Printed Label	
2	11	P1605283-	1	1	Part#1	Part#1	
3	12	Label_Opr	0	1	Manufacturing Plat	Manufacturing Plate	
4	13	P1605283-	2	1	Part#1	Part#2	
5	14	P1605283-	3	1	Part#1	Part#1	
6	22	P1605283-	4	1	Part#1	Part#1	
7	15	P1605283-	5	1	Part#1	Part#1	
8	17	P1605283-	6	1	Part#1	Part#1	
9	21	P1605283-	7	1	Part#1	Part#1	
10	19	P1605283-	8	1	Part#1	Part#1	
11	18	P1605283-	9	1	Part#1	Part#1	
12	16	P1605283-	10	1	Part#1	Part#1	
13	23	P1605283-	11	1	Part#1	Part#1	
14	20	P1605283-	12	1	Part#1	Part#1	
15							Part#12
16							
17							














	Internal Ic	Part Name	Part Order	Row No.	Original Label	Printed Label	
	11	P1605283-	1	1	Part#1	Part#1	
	12	Label_Opr	0	1	Manufacturing Plat	Manufacturing Plate	
	13	P1605283-	2	1	Part#1	Part#2	
	14	P1605283-	3	1	Part#1	Part#3	
	22	P1605283-	4	1	Part#1	Part#4	
	15	P1605283-	5	1	Part#1	Part#5	
	17	P1605283-	6	1	Part#1	Part#6	
	21	P1605283-	7	1	Part#1	Part#7	
	19	P1605283-	8	1	Part#1	Part#8	
	18	P1605283-	9	1	Part#1	Part#9	
	16	P1605283-	10	1	Part#1	Part#10	
	23	P1605283-	11	1	Part#1	Part#11	
	20	P1605283-	12	1	Part#1	Part#12	









17. Save the CSV and close it.

18. From the Label Manager dialog, pick **Import from CSV** button  and import the CSV that you have just modified. The Printed Label column has been updated:

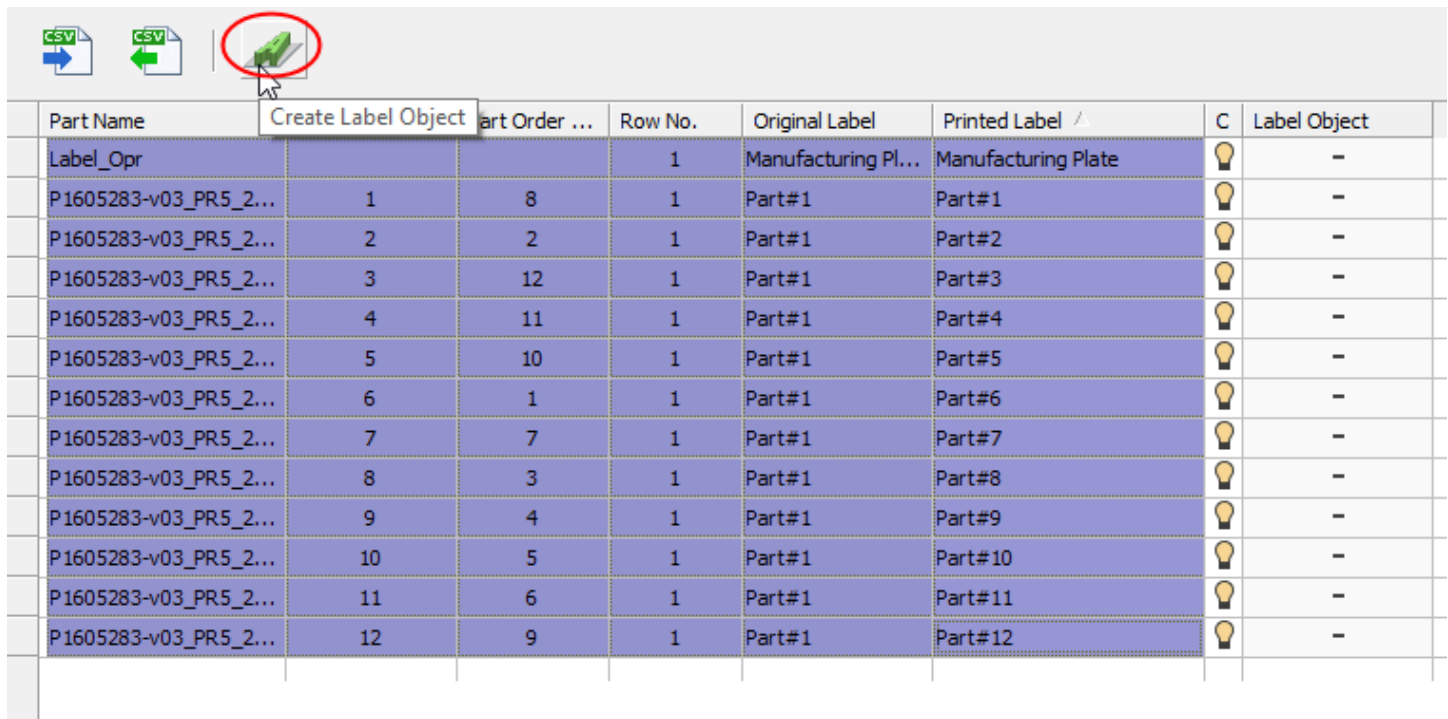
Label Manager

Part Name	Instance No.	Part Order ...	Row No.	Original Label	Printed Label /	C	Label Object
Label_Opr			1	Manufacturing Pl...	Manufacturing Plate		-
P1605283-v03_PR5_2...	1	8	1	Part#1	Part#1		-
P1605283-v03_PR5_2...	2	2	1	Part#1	Part#2		-
P1605283-v03_PR5_2...	3	12	1	Part#1	Part#3		-
P1605283-v03_PR5_2...	4	11	1	Part#1	Part#4		-
P1605283-v03_PR5_2...	5	10	1	Part#1	Part#5		-
P1605283-v03_PR5_2...	6	1	1	Part#1	Part#6		-
P1605283-v03_PR5_2...	7	7	1	Part#1	Part#7		-
P1605283-v03_PR5_2...	8	3	1	Part#1	Part#8		-
P1605283-v03_PR5_2...	9	4	1	Part#1	Part#9		-
P1605283-v03_PR5_2...	10	5	1	Part#1	Part#10		-
P1605283-v03_PR5_2...	11	6	1	Part#1	Part#11		-
P1605283-v03_PR5_2...	12	9	1	Part#1	Part#12		-

Still in the dialog, select all the labels and pick the **Create Label Object** button.



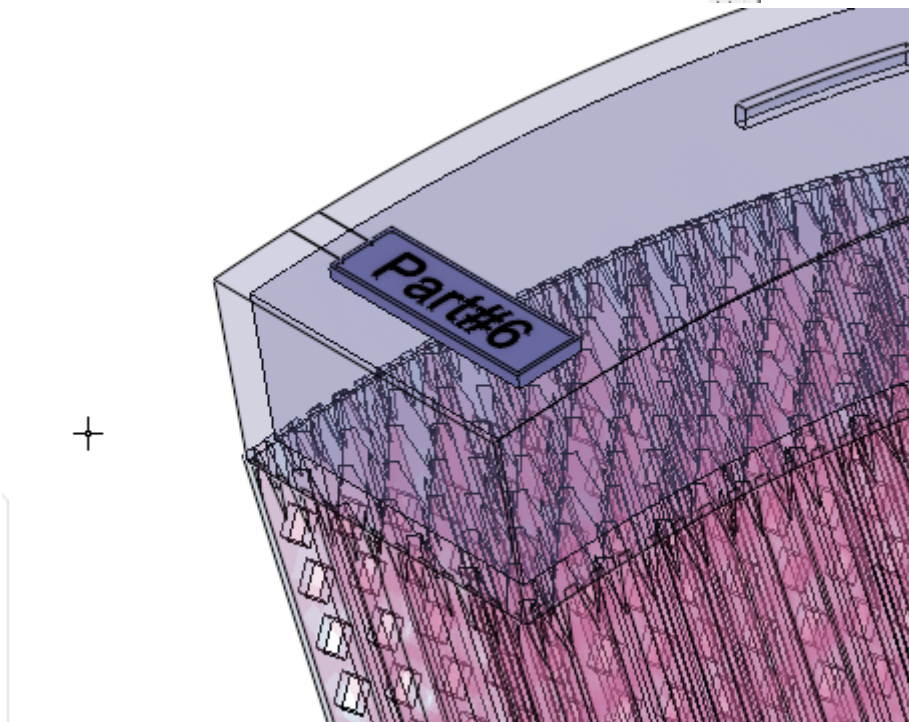
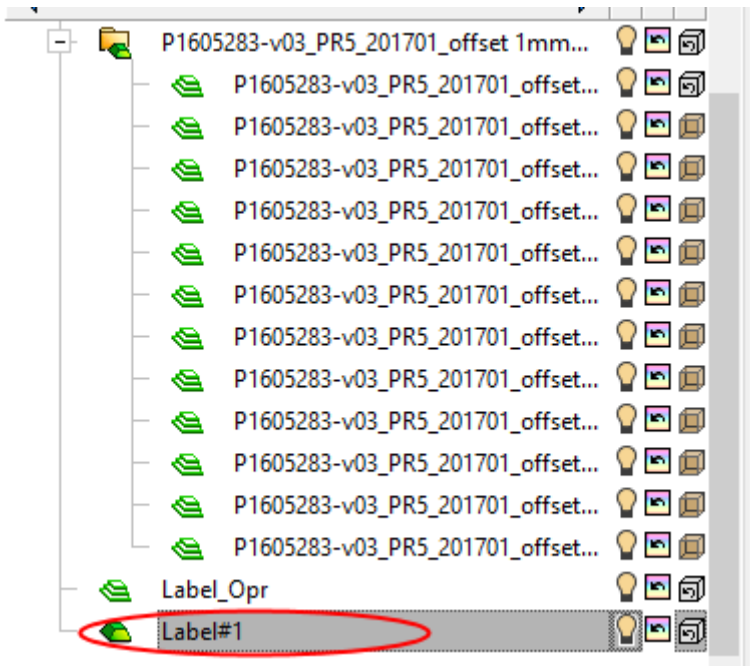
The screenshot shows the Label Manager dialog with a table of labels. The 'Create Label Object' button is circled in red. The table has columns: Part Name, Part Order, Row No., Original Label, Printed Label, C, and Label Object. The 'Label Object' column currently shows dashes for all labels.

Part Name	Part Order	Row No.	Original Label	Printed Label	C	Label Object
Label_Opr		1	Manufacturing Pl...	Manufacturing Plate	💡	-
P1605283-v03_PR5_2...	1	8	Part#1	Part#1	💡	-
P1605283-v03_PR5_2...	2	2	Part#1	Part#2	💡	-
P1605283-v03_PR5_2...	3	12	Part#1	Part#3	💡	-
P1605283-v03_PR5_2...	4	11	Part#1	Part#4	💡	-
P1605283-v03_PR5_2...	5	10	Part#1	Part#5	💡	-
P1605283-v03_PR5_2...	6	1	Part#1	Part#6	💡	-
P1605283-v03_PR5_2...	7	7	Part#1	Part#7	💡	-
P1605283-v03_PR5_2...	8	3	Part#1	Part#8	💡	-
P1605283-v03_PR5_2...	9	4	Part#1	Part#9	💡	-
P1605283-v03_PR5_2...	10	5	Part#1	Part#10	💡	-
P1605283-v03_PR5_2...	11	6	Part#1	Part#11	💡	-
P1605283-v03_PR5_2...	12	9	Part#1	Part#12	💡	-

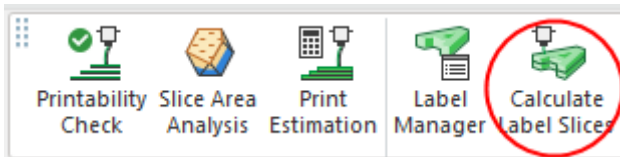
19. Wait until the Label Object column shows a green checkmark next to all the labels. This means that objects will be created when you press **OK** in the Label Manager dialog.

Printed Label	C	Label Object
Manufacturing Plate	💡	✓
Part#1	💡	✓
Part#2	💡	✓
Part#3	💡	✓
Part#4	💡	✓
Part#5	💡	✓
Part#6	💡	✓
Part#7	💡	✓
Part#8	💡	✓
Part#9	💡	✓
Part#10	💡	✓
Part#11	💡	✓
Part#12	💡	✓

20. Click **OK** in the Label Manager.
21. All Labels were created in the Label part.



22. Pick **Calculate Label Slices** to calculate the slicing for all the selected labels (and only the labels). The existing scanning results of parts are not affected by the labels scanning. The slicing result of the labels is combined with the scanning of the model (with some overlapping).



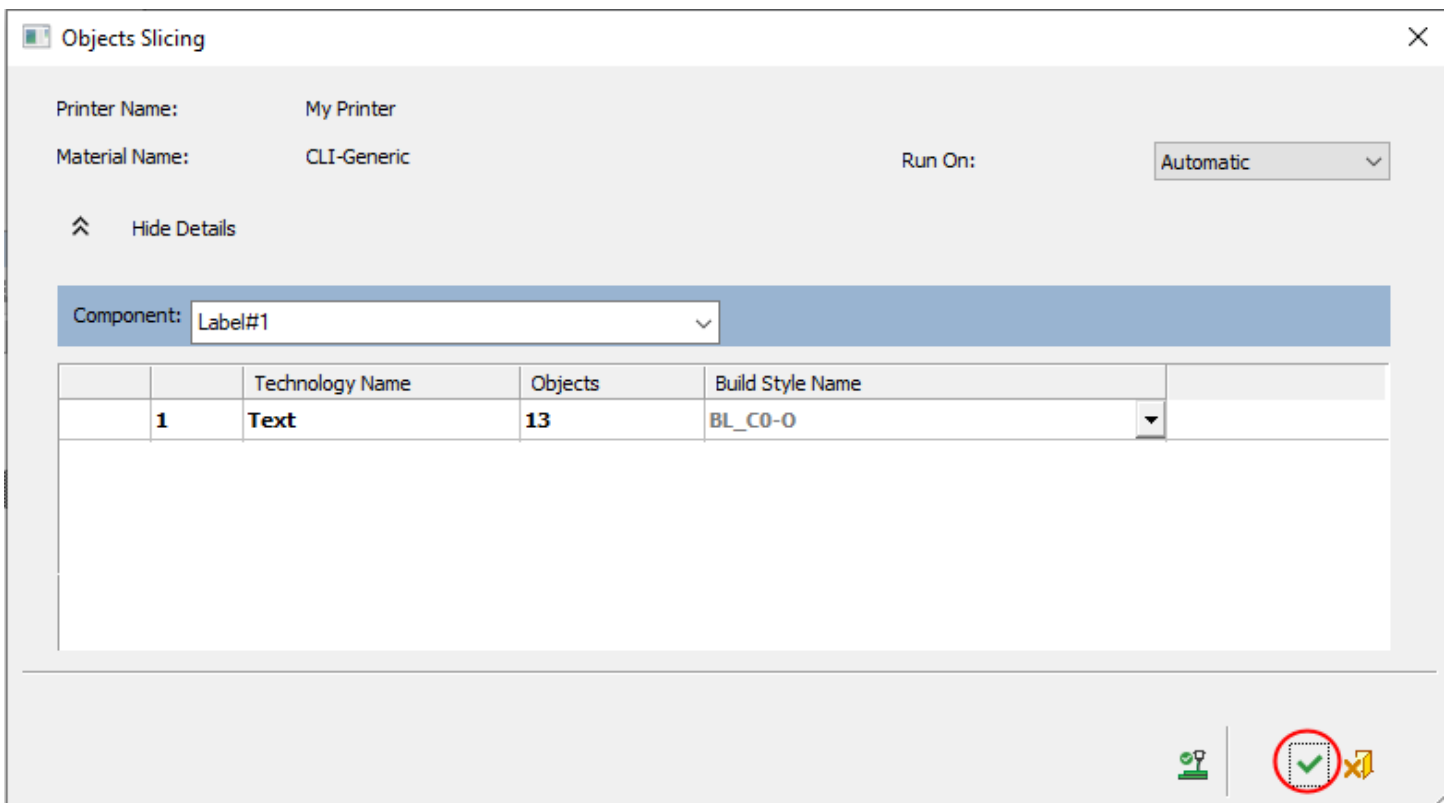
23. . See the Object Slicing dialog, 13 objects will be sliced now with Text technology.

This dialog is similar to that appearing in the Calculate Slices function, with the exception that some of the columns are not displayed and that the Build Style cannot be changed.

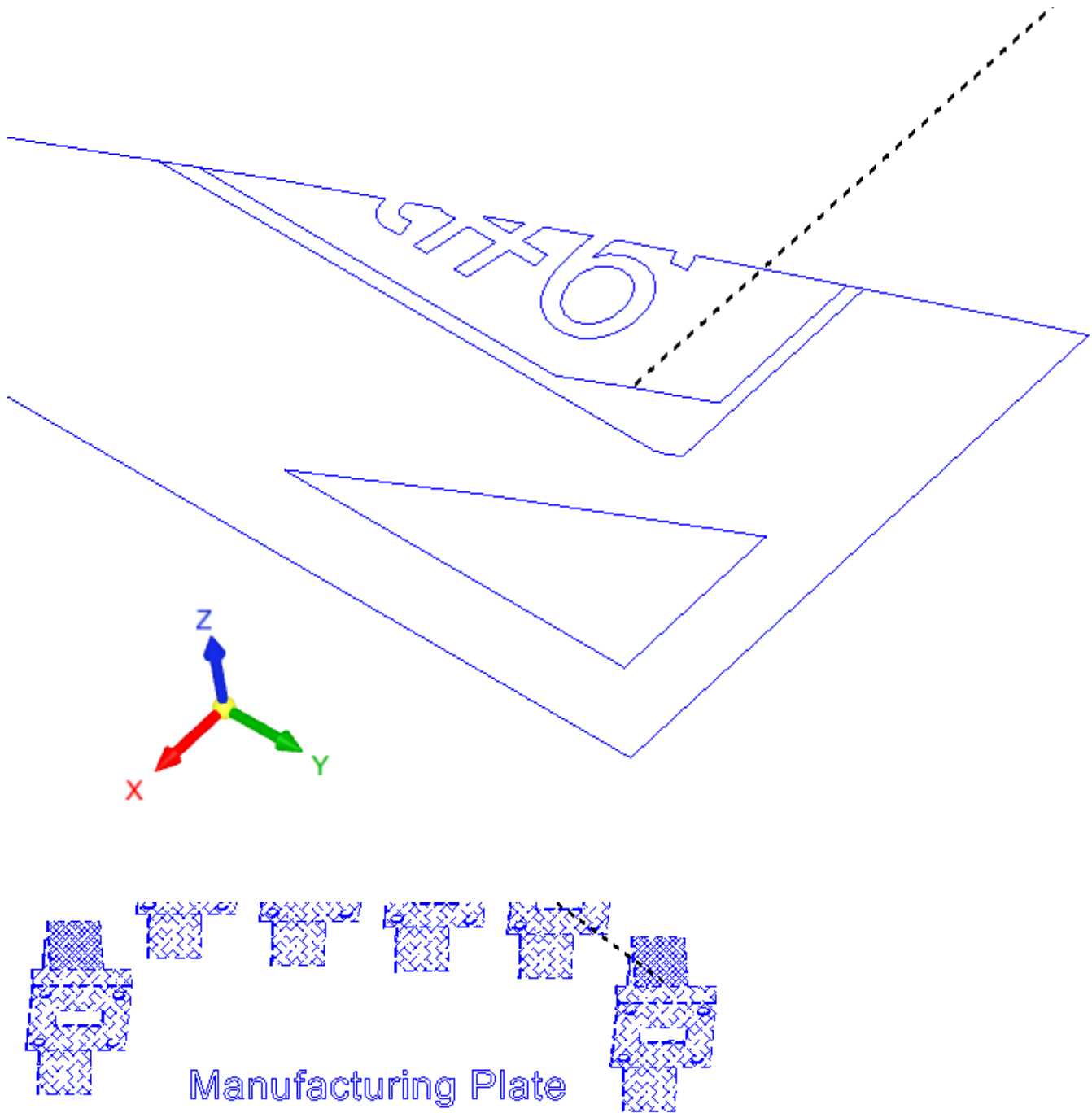
A Build Style contains all the parameter definitions. These are displayed in the specific Build Style dialog under the General, Contours and Hatching Parameters tabs. Since several of these parameters are global, they are always taken from one **Master Build Style**, which is usually the Part Build Style.

In the Objects Slicing dialog, the **Master Build Style** row is displayed in bold.

24. Pick **OK**.



The labels are now sliced.



End of Exercise.