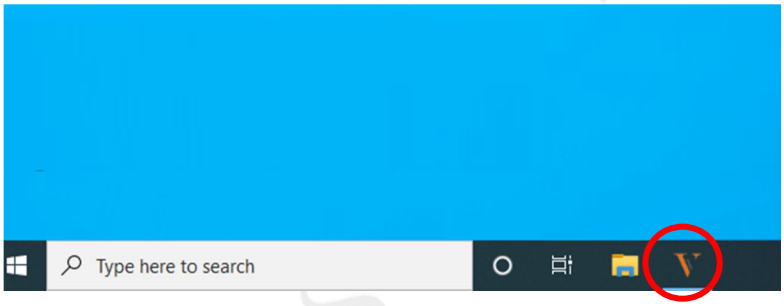
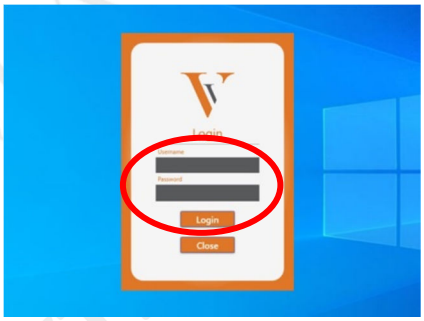
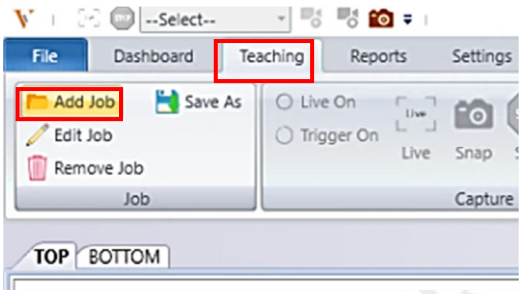
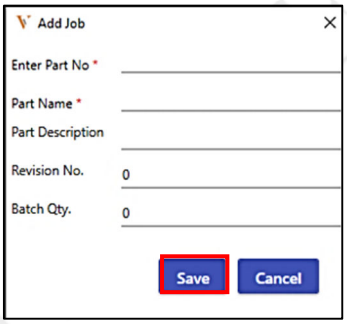
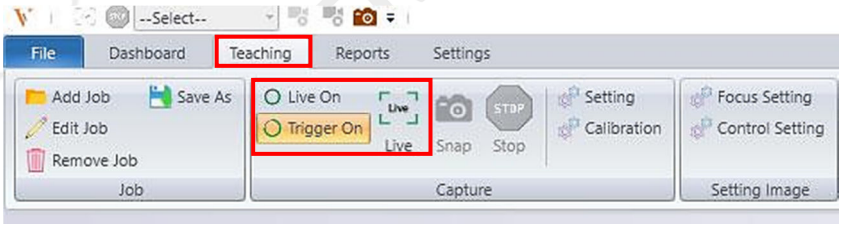
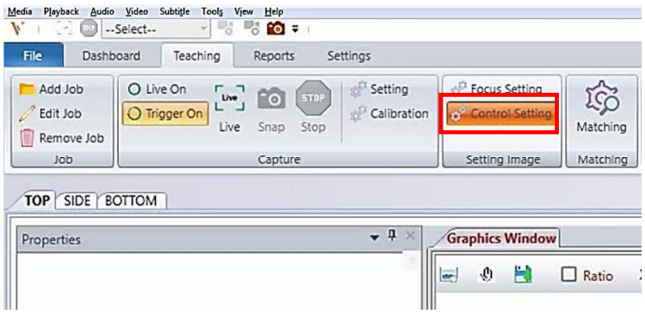
Part Teaching Procedure

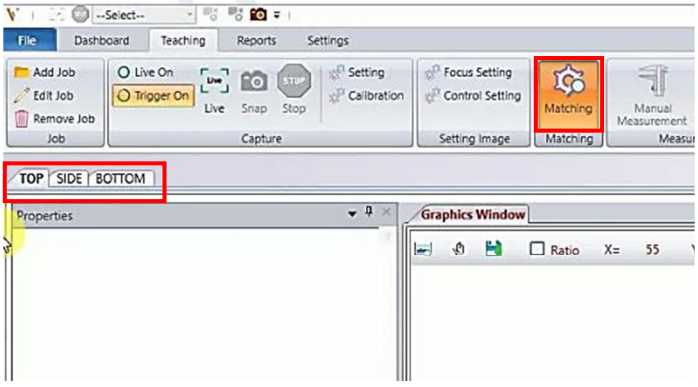
(Reference images are used.)

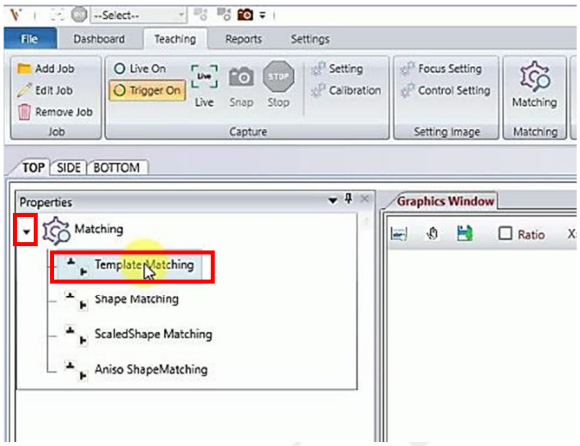
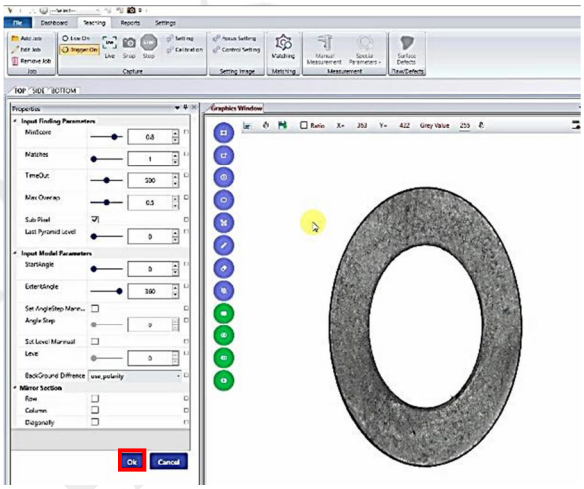
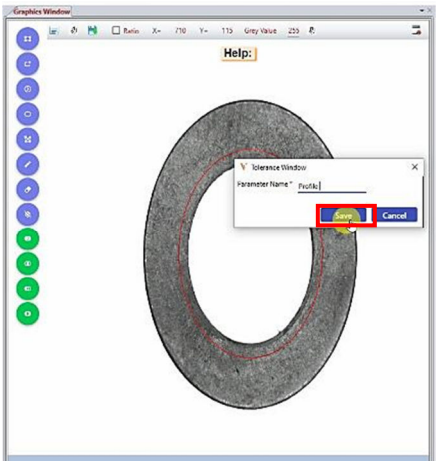
DESCRIPTION	IMAGES
1. First open the '**VISIMASTER**' software.	
2. Enter Username and Password, and then click on '**Login**' button.	

3. **Add Job Process:** a. To add new job, go to '**Teaching**' menu; then click on '**Add Job**' button. b. Enter the required information. Then click on '**Save**' button.	 
4. Select **'Trigger On'** button and then click on **'Live'** button. Do this for all connected cameras.	
5. Afterwards select **'Control Setting'** option. Disk Setting pop-up window will appear. (If image is not at center then use this option)	

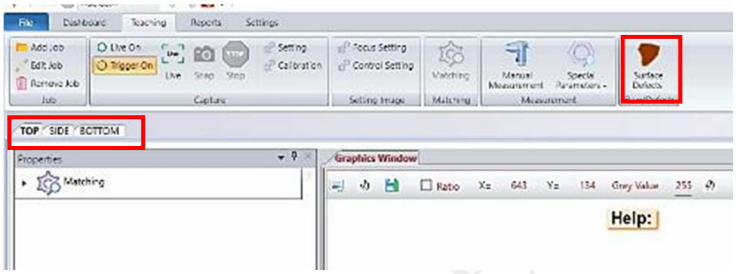
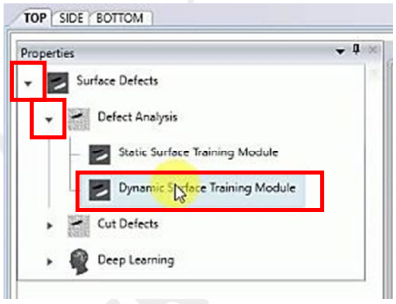
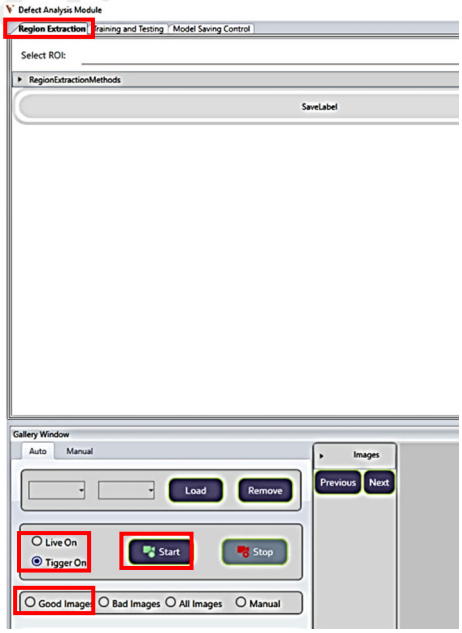
6. In Disk Setting, under '**Camera'** title adjust the setting of particular camera so that image will be displayed at center of the window. After adjusting click on '**Save'** button.	

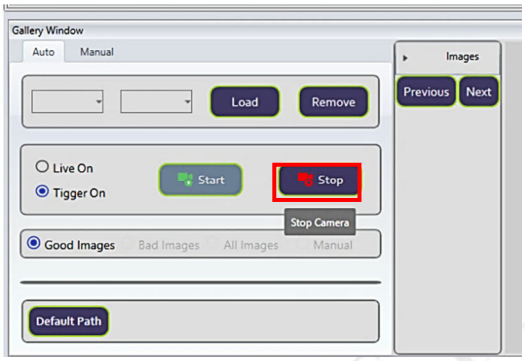
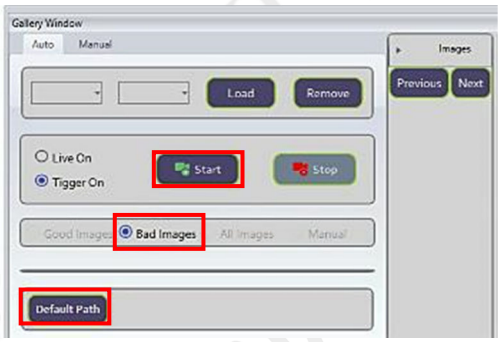
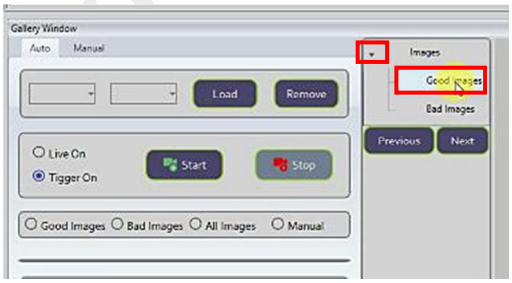
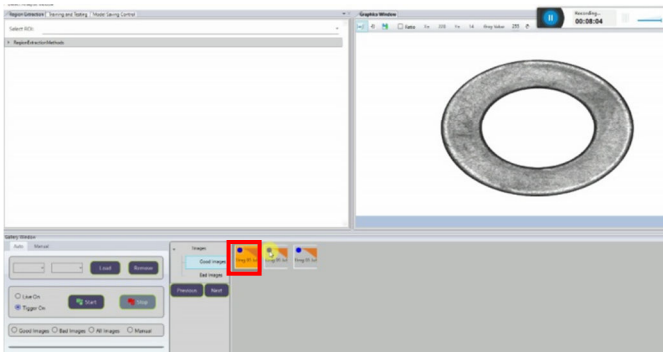
Process for Matching:

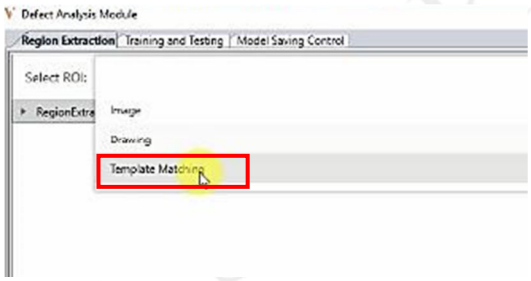
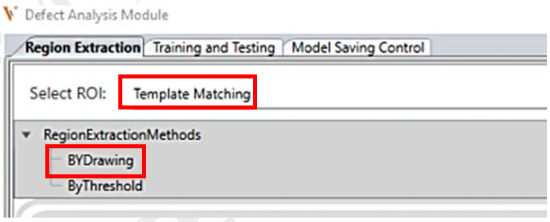
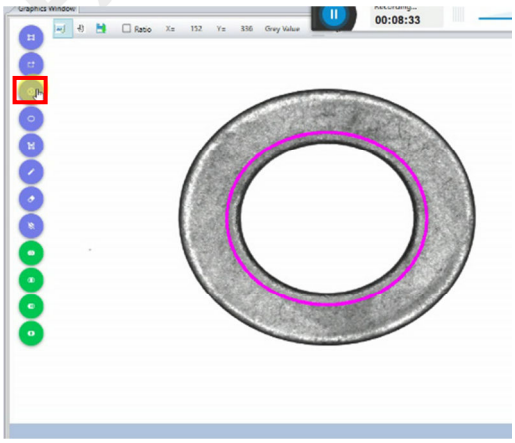
1. Select the desired camera by clicking on it. Then click on '**Matching'**.	

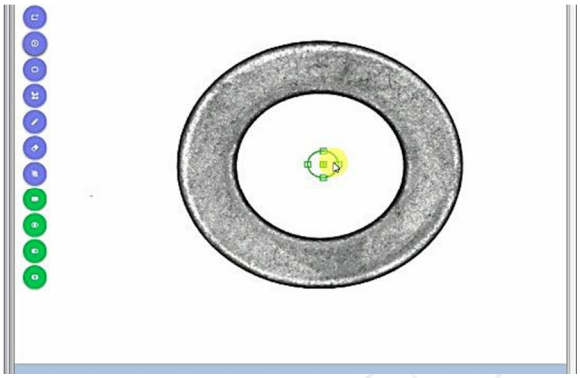
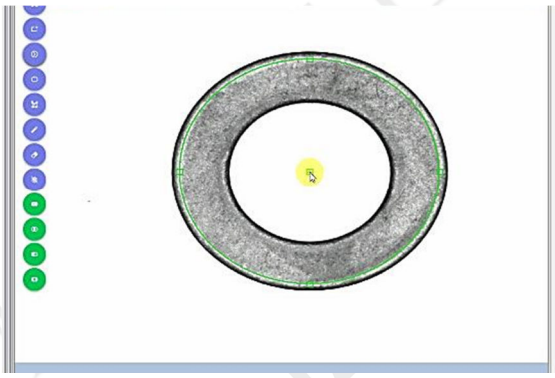
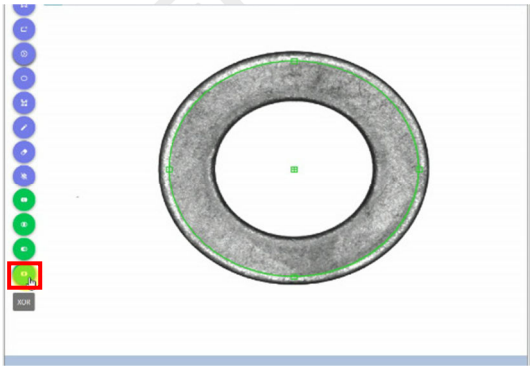
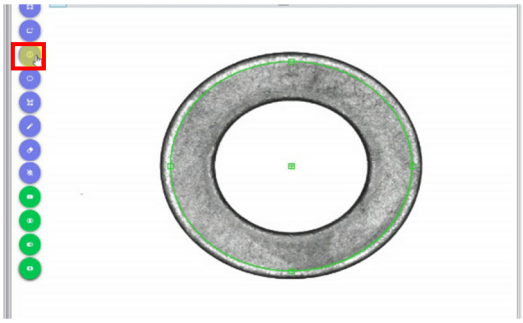
2. Expand left sided '**Matching'** panel by clicking arrow button & select '**Template Matching'.**	
3. Select the required shape as per the part geometry. After that click '**Ok'** .Enter parameter name and click on '**Save'** button **Note**: Apply same procedure for all the cameras.	 

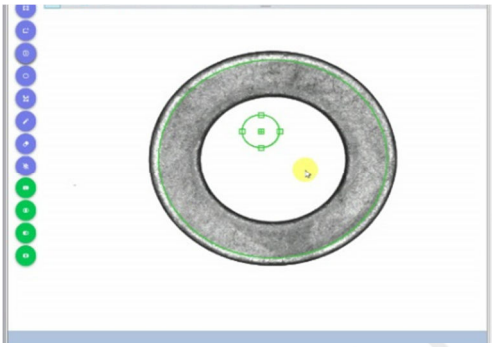
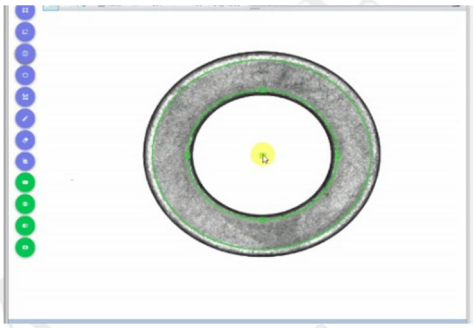
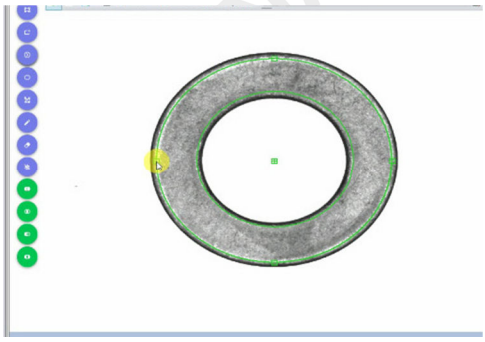
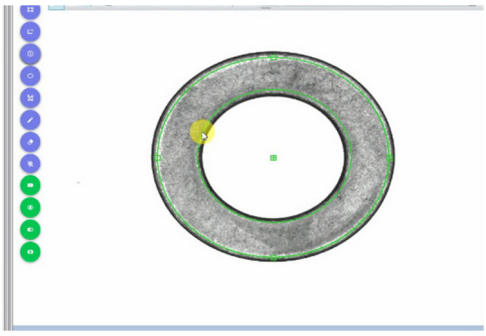
Surface Defect Training:

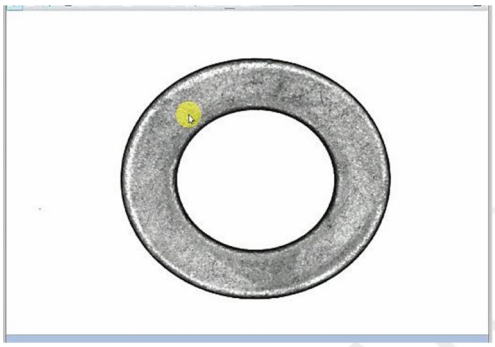
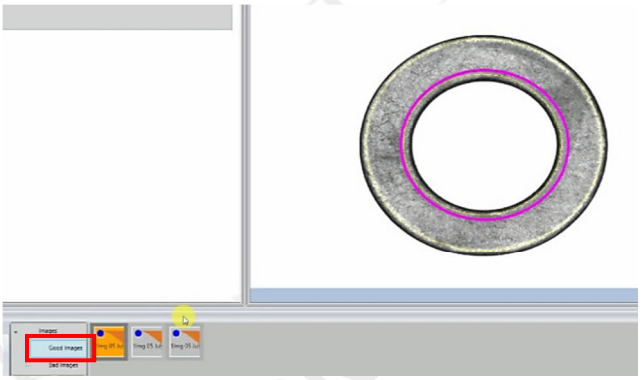
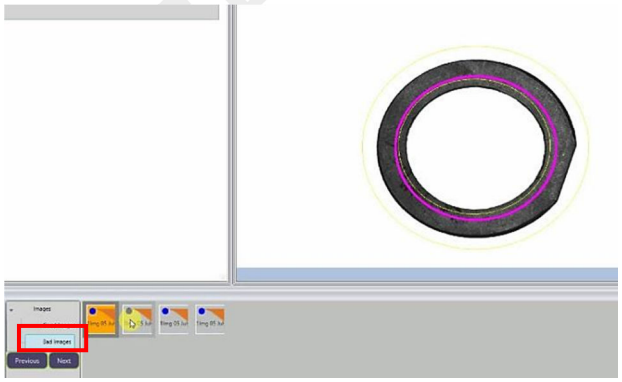
1. **Defect Training:** Select camera for which you want to train Surface Defects**.** Select **'Surface Defects'.**	
(Process for Applying 'Variation Model') 2. Expand left sided '**Surface Defects'** panel by clicking arrow button, then expand in **'Defect Analysis'** sub menu & afterwards select '**Dynamic Surface Training Module'.**	
3. In '**Region Extraction'** click on '**Trigger On'** option. Under 'Gallery Window' tab, select '**Good Images'** option. Then click on '**Start'** button. Afterwards feed parts one by one to save images.	

4. After that click on '**Stop'** button to stop camera.	
5. Later on select '**Bad Images'** option. Then click on '**Start'** button. After that click on '**Stop'** button to stop camera. Afterwards click '**Default Path'** button. (Images will be automatically getting saved at default path.)	
6. Expand '**Images'** menu by clicking arrow button & select '**Good Images'** option.	
7. By selecting Good Images thumbnail, Good Images will be get displayed in 'Graphics Window'. The same way Bad Images will be get displayed after selecting Bad Images.	

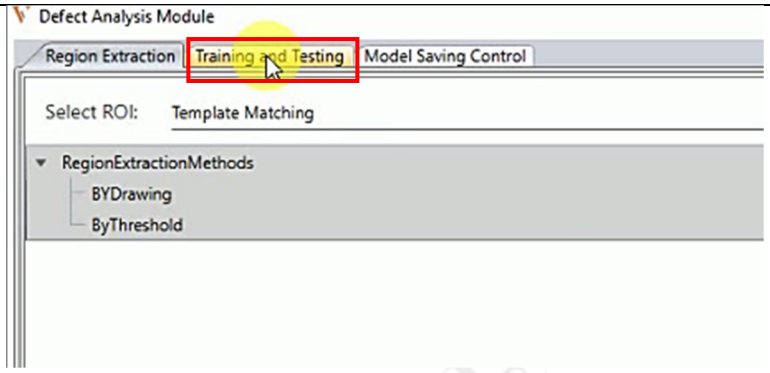
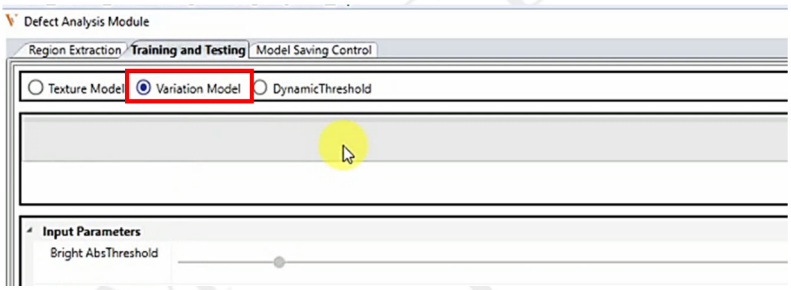
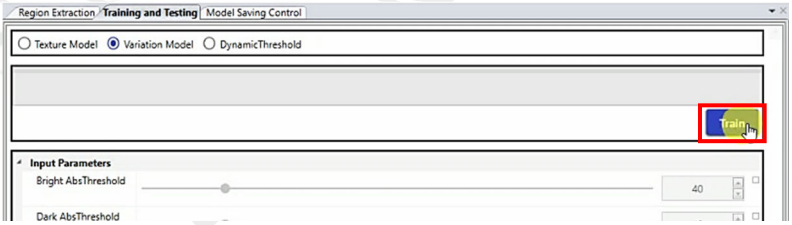
8. Expand arrow button in front of ‘**Select ROI**’ title.	
9. Then select ‘**Template Matching**’.	
10. Afterwards, select ‘**By Drawing’** option.	
11. Select **‘Circle’** parameter from Panel.	

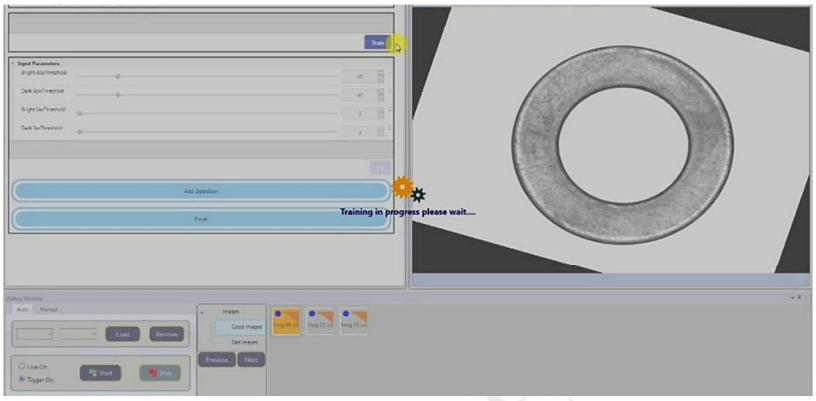
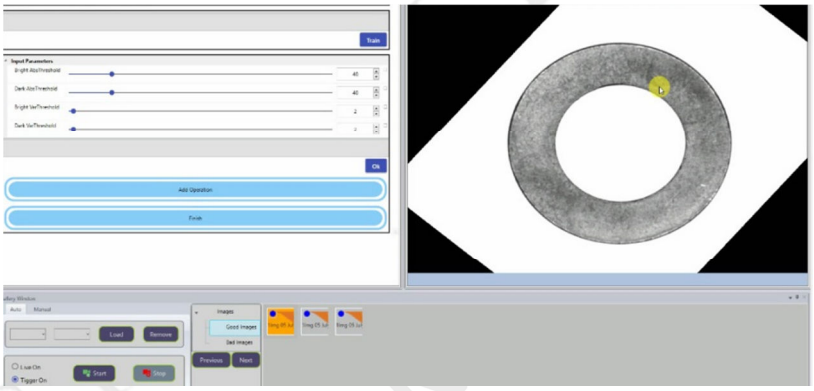
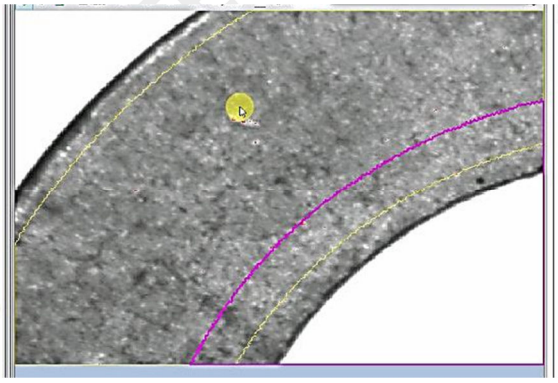
12. Draw a circle by dragging cursor (by dragging circle node points). Cover the parts portion (outer diameter) as shown in second figure.	 
13. Select '**XOR'** parameter & then select '**Circle'** parameter from Panel.	 

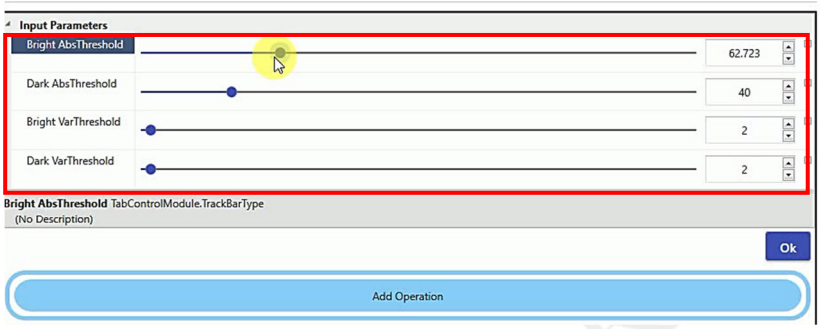
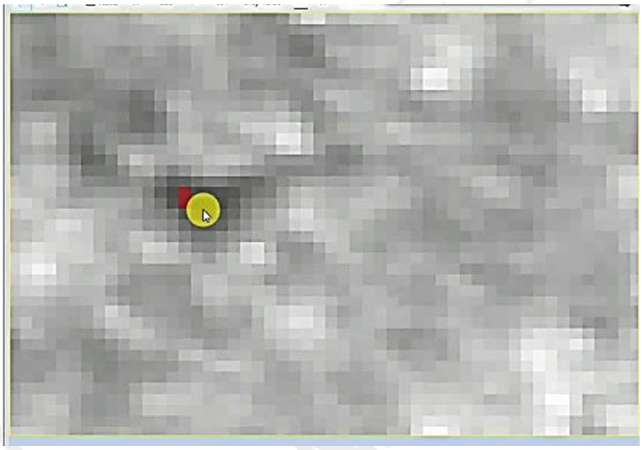
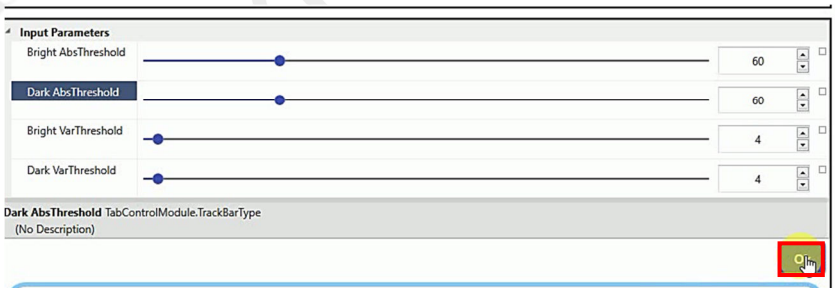
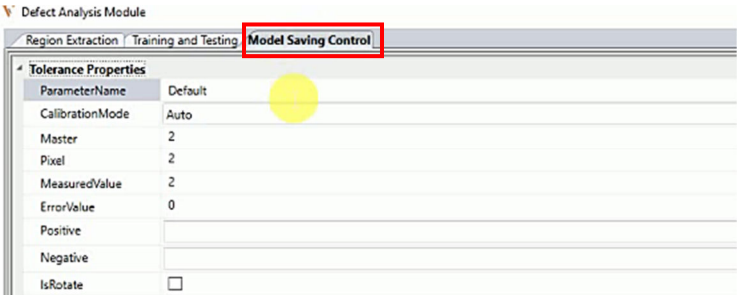
14. Draw a circle by dragging cursor (by dragging circle node points). Cover the parts portion (inner diameter) as shown in figure.	 
15. Adjust the circles to cover parts inner & outer diameter (portion) as shown in image.	 

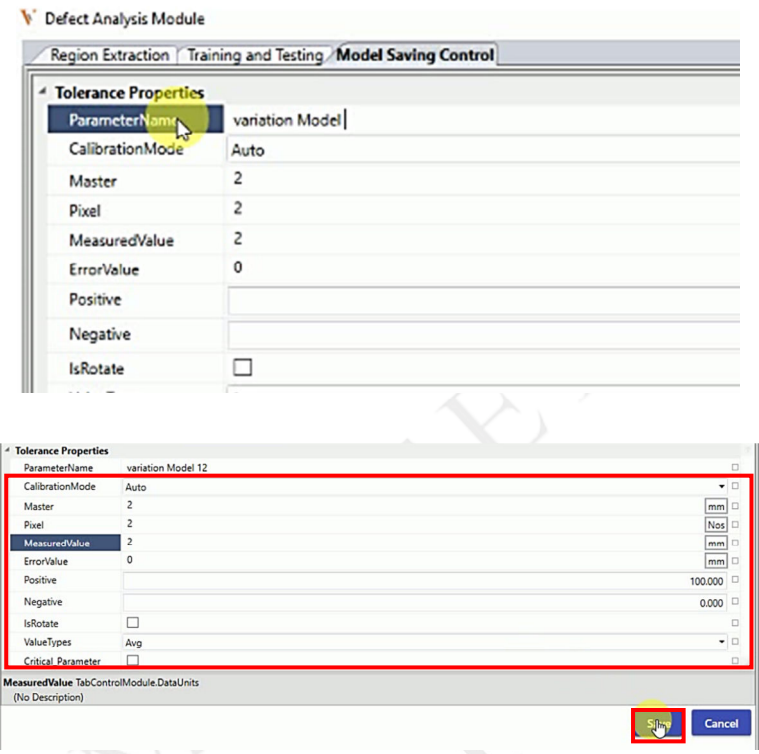
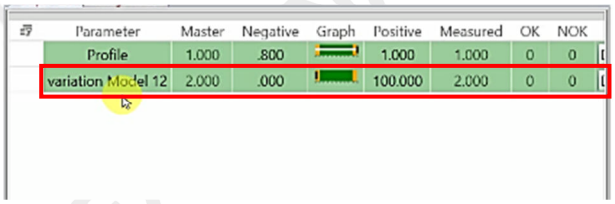
16. After adjusting the circles; right click to save the Area of Interest. (Region for inspection.)	
17. Ensure all Good & Bad Images for getting Area of interest. (i.e. Lines in Yellow color.)	 

Training & Testing:

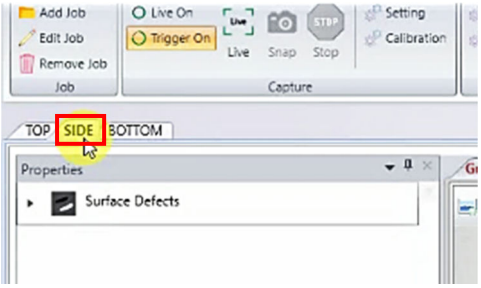
1. Click on **'Training & Testing'** tab. Then select **'Variation Model'.**	 
2. Afterwards click on **'Train'**.	

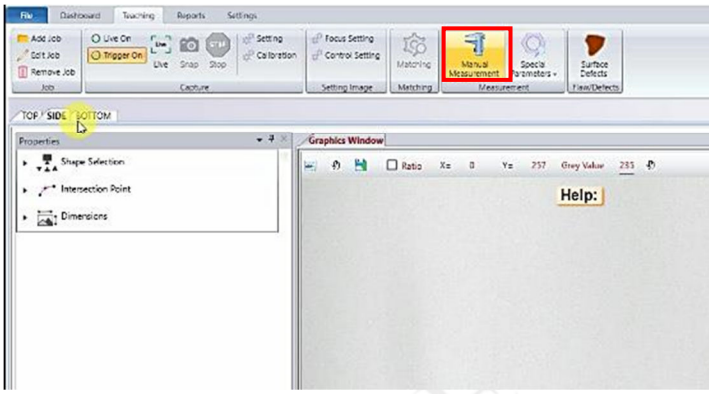
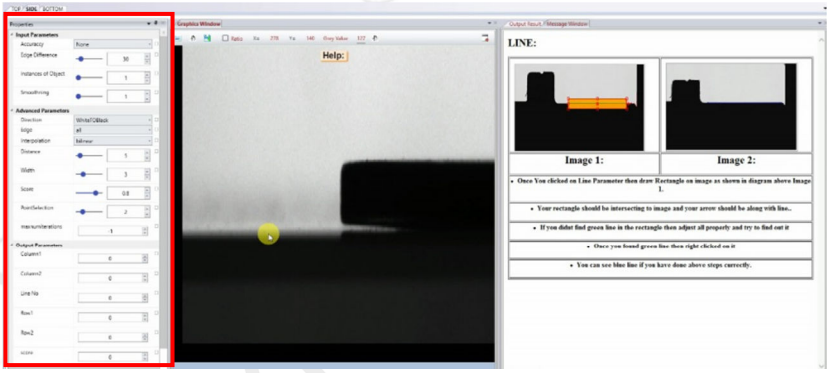
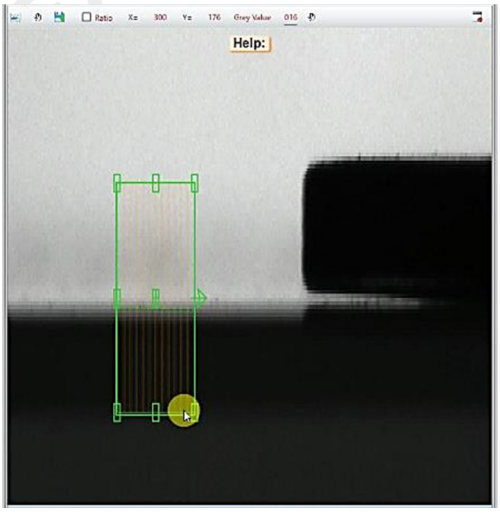
3. **'Training in progress…'** message will appear for a while.	 
4. Check **'Good Images/Bad Images'** form gallery for desired results regarding surface defects.	

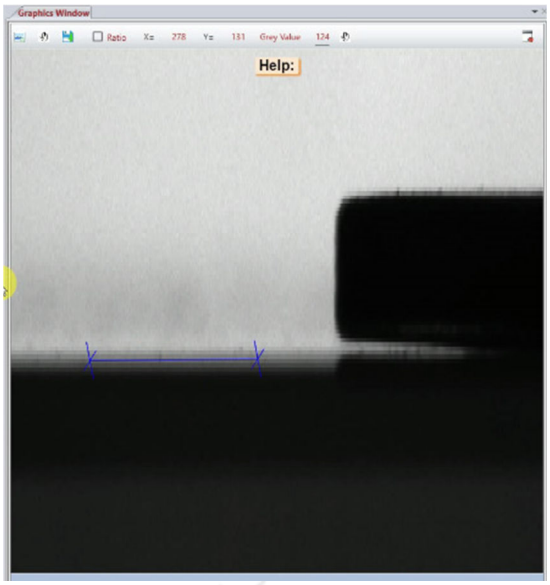
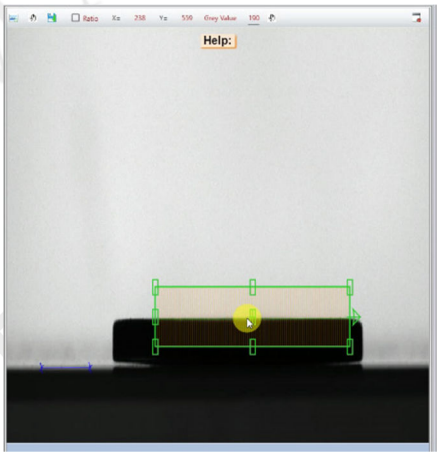
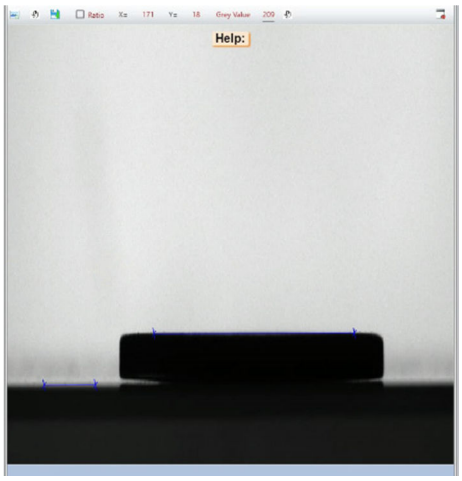
5. Adjust the properties as shown in image as per your requirement.	 
6. Then click on **'OK'**.	
7. Later on click on **'Model and Saving Control'** tab.	

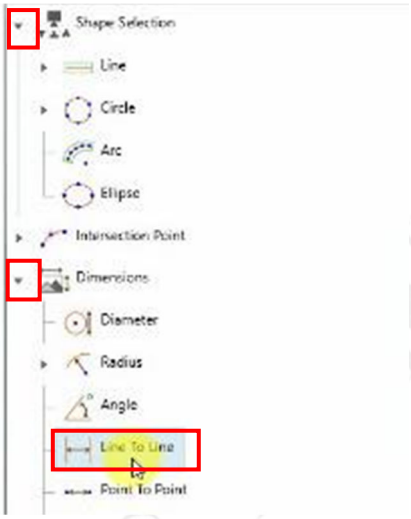
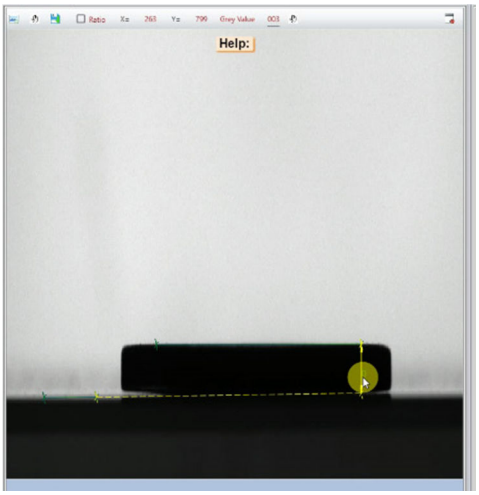
8. Add parameter name & other required properties. Then click on **'Save'**.	
9. Parameter name will be displayed next to part image window.	

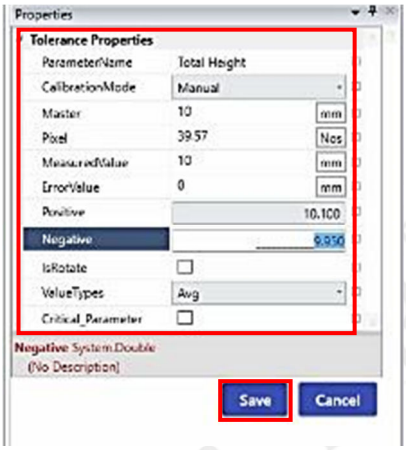
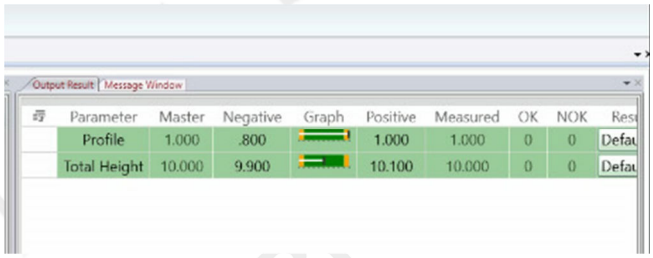
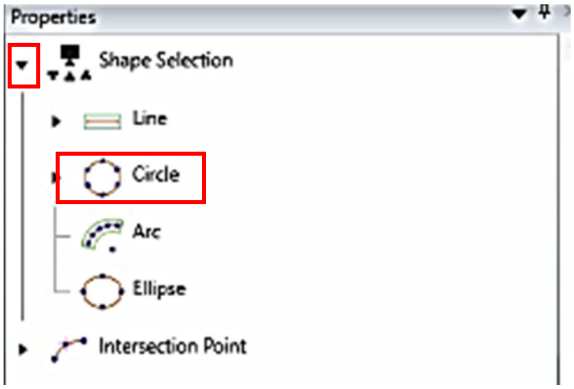
Applying Measurement:

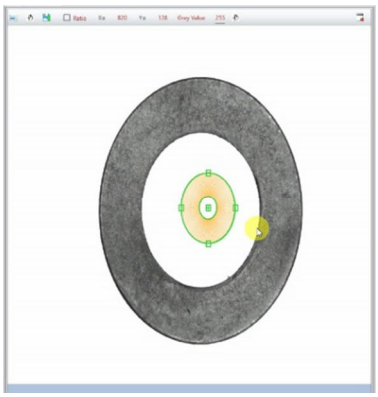
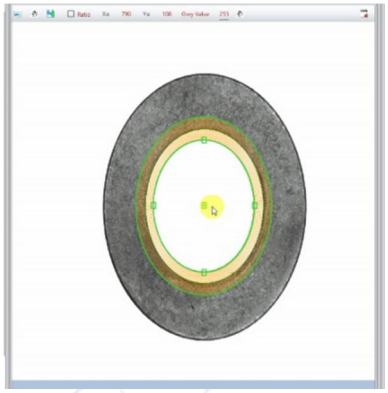
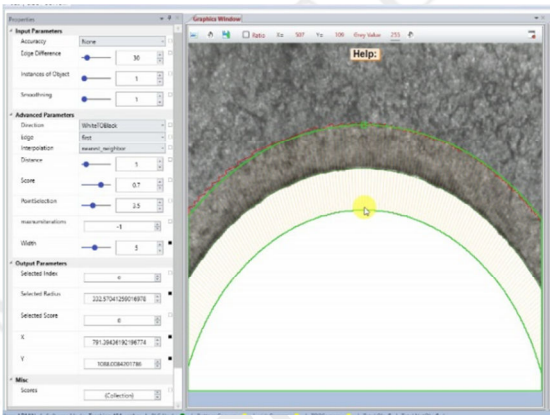
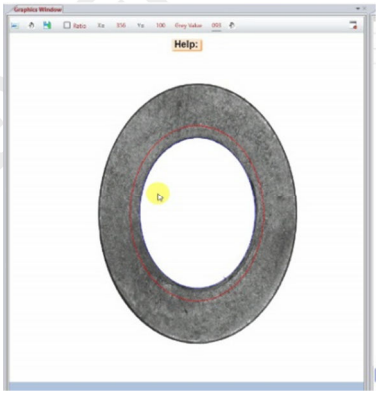
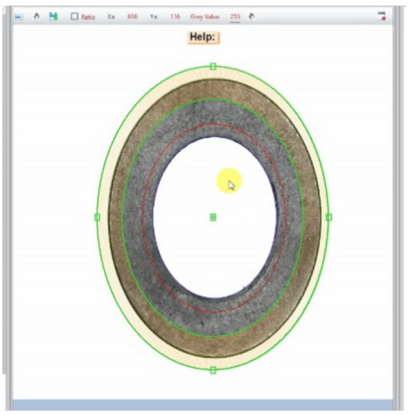
1. Click on **'Side'** tab for side camera.	

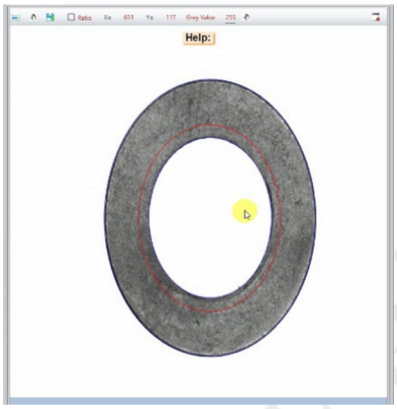
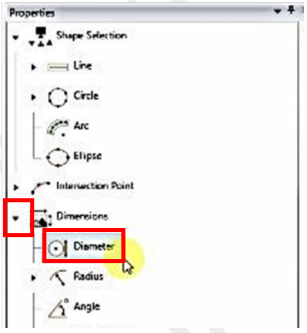
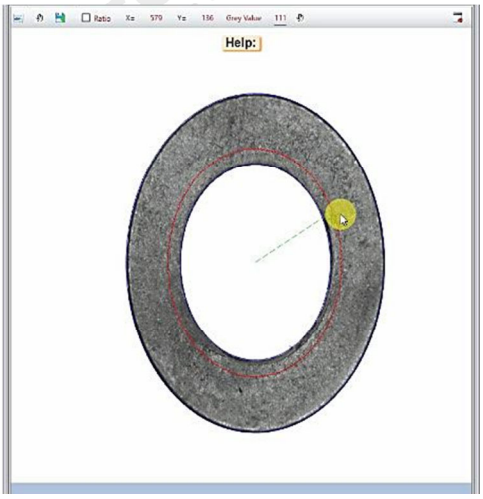
2. Click on **'Manual Measurement'.** Afterwards click on **'Shape Selection'**. Expand left sided '**Shape Selection**' panel by clicking arrow button & select **'Line parameter'.**	
3. Draw a line at base. Adjust the parameters properties as per requirement.	 

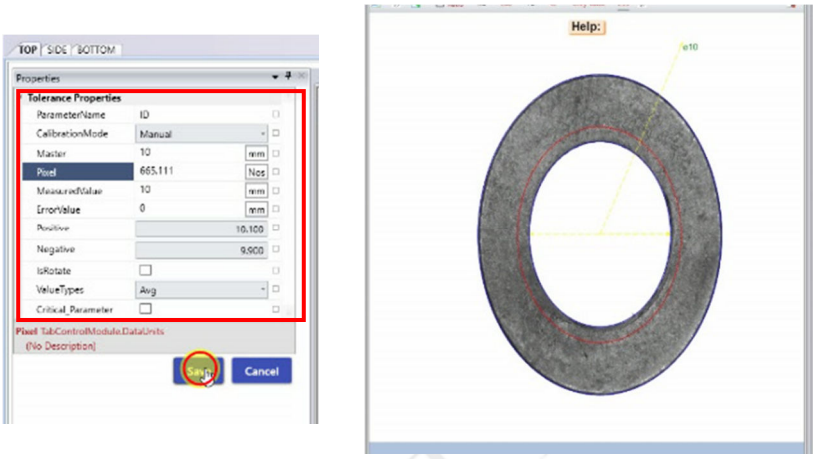
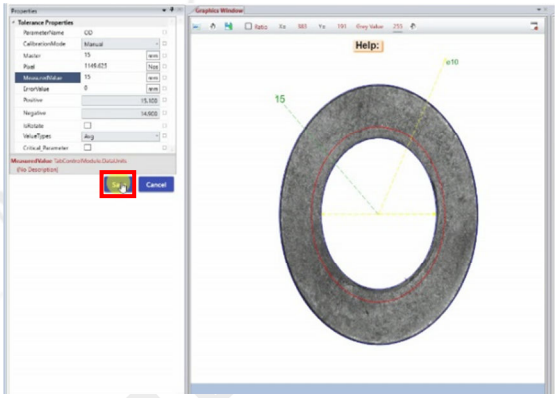
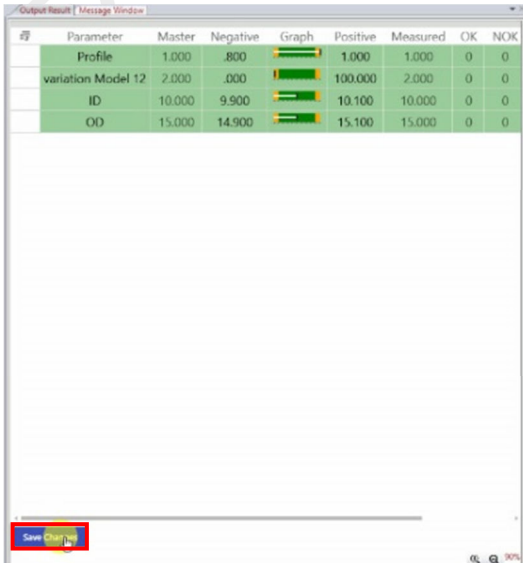
4. Right click to apply parameter.	
5. Select **'Line'** parameter again and draw a rectangle as shown in figure.	
6. Adjust the parameters properties as per requirement and right click to save.	

7. Expand left sided '**Shape Selection**' panel by clicking arrow button & select '**Dimensions'** parameter' then select **'Line To Line'** parameter.	
8. First select line drawn at base, then select upper line.	
9. Right click to apply the parameter.	

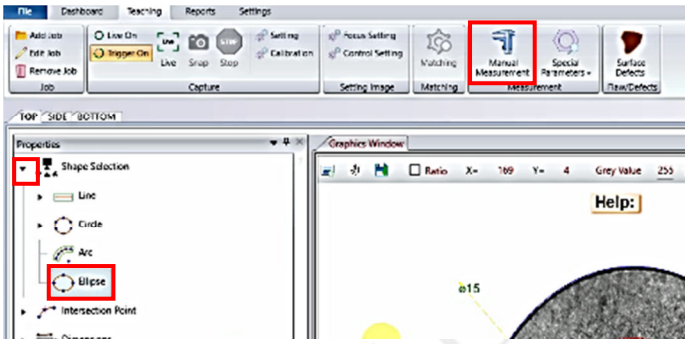
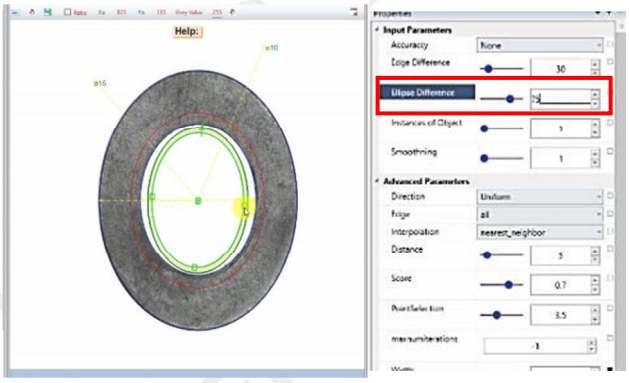
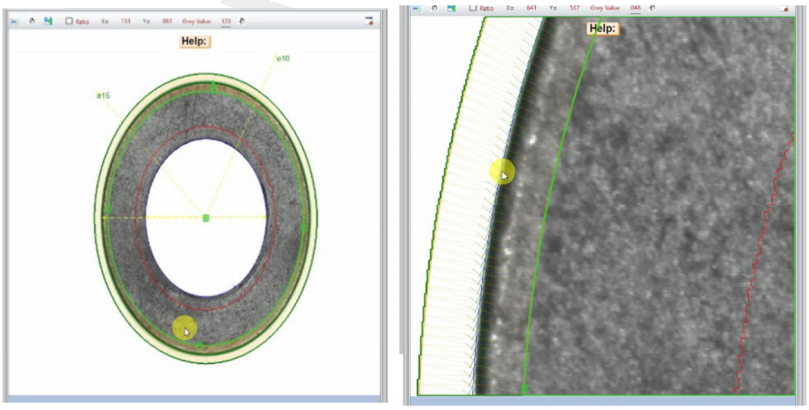
10. Enter the required data & click on ‘**Save**’ button.	
11. Saved parameter will be displayed next to part image.	
12. Select ‘**Top**’ for top camera. Then from ‘Teaching’ menu click on **‘Manual Measurement’**. Afterwards click on **‘Shape Selection’**. Expand left sided ‘**Shape Selection'** panel by clicking arrow button & select ‘**Circle**’ parameter.	 

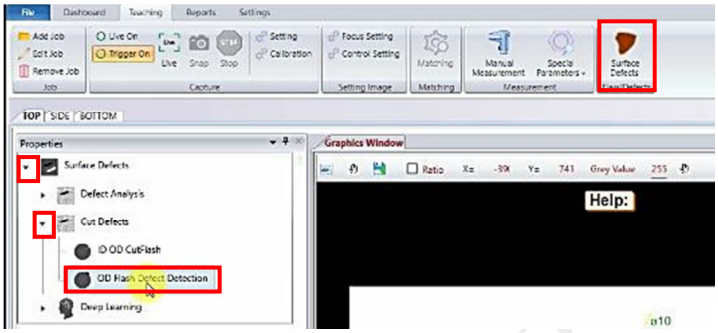
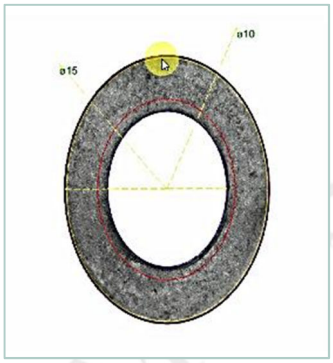
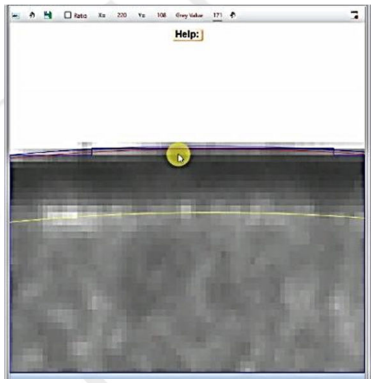
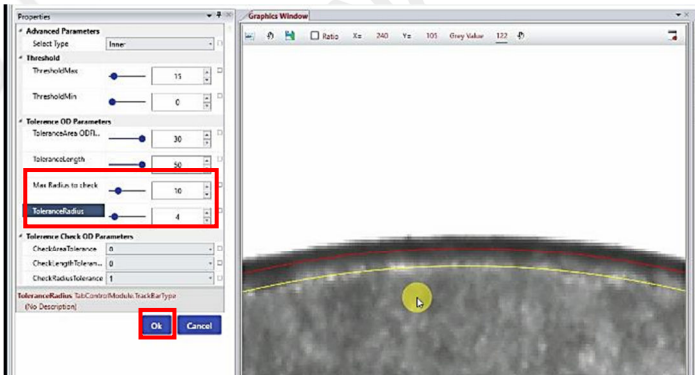
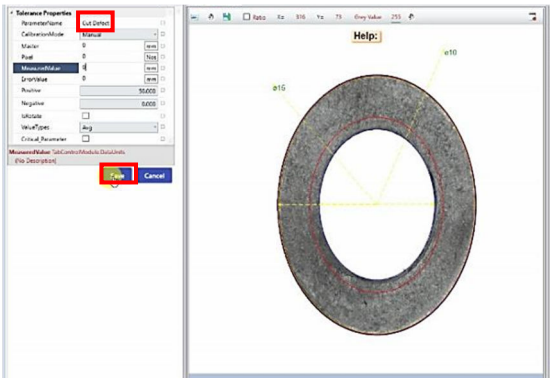
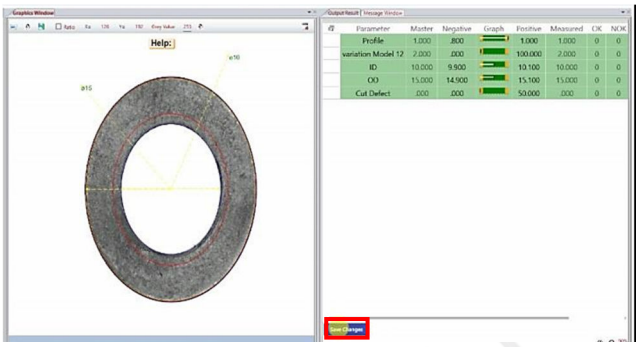
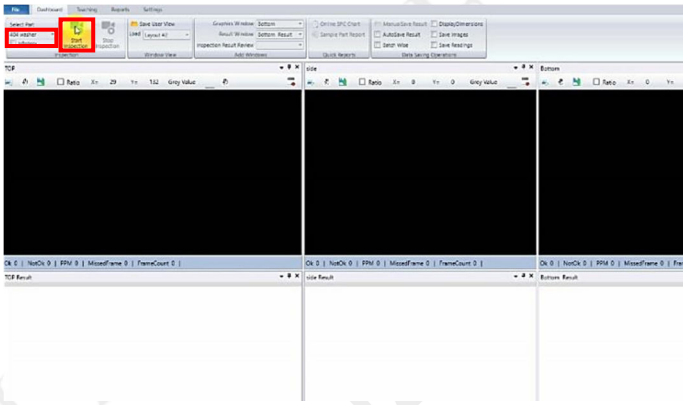
13. Draw a circle by dragging cursor (by dragging circle node points). Cover the parts portion (inner diameter) as shown in figure.	 
14. Select the desired area. Inspect by zooming. Adjust the properties as per need.	
15. Then right click to save. Blue border will appear on parts image.	
16. Later on select '**Circle'** parameter again & drag on parts image to select outer portion.	

17. Right click to save.	
18. Select **'Diameter'** by expanding **Dimensions** sub menu.	
19. Then click on inner edge of the part.	

20. In **'Tolerance Properties'** panel adjust the properties as per need. Click on '**Save'** button to save the parameter. Yellow colored dotted lines will be appeared as parameter is saved.	
21. Then again select 'Diameter' parameter as above and now click on parts outer edge. Adjust the properties as per need. Click on '**Save'** button to save the parameter.	
22. Saved parameters information will be displayed next to 'Graphics Window'. Then click on 'Save Changes'. 'Saved Successfully' pop-up window will appear.	

OD Flash Defect Detection:

1. Now click on **'Manual Measurement'**, expand **'Shape Selection'** then click on **'Ellipse'.**	
2. Drag to cover the outer edge of part by dragging nodes. Then add **Ellipse Difference**.	
3. Adjust the ellipse to parts outer edge as required. Zoom in to inspect. After adjusting right click to save.	

4. Then first click on '**Surface Defects**'. Afterwards by expanding **'Cut Defects'** sub menu, select '**OD Flash Defect Detection'** parameter.	
5. Click on outer edge of parts image. Zoom in for detailing.	 
6. Adjust **'Max Radius to Check'** (in yellow outline) and '**ToleranceRadius'** (in red outline) etc. Adjust the properties as per need. Click on '**Ok'**.	
7. After adding parameter name; click on **'Save'** button to save.	

8. Parameter is added next to 'Graphics Window. Click on **'Save Changes'.** Ensure to save changes for all cameras. Then select part from '**Dashboard**' sub menu & click on '**Start Inspection'.**