












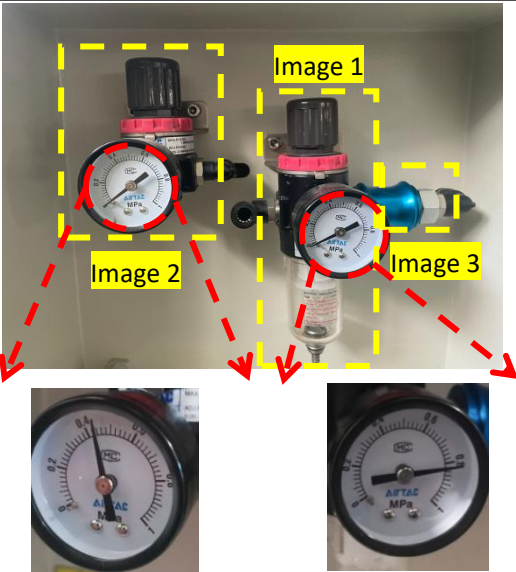


## CHAPTER 1 :      Function introduction of machine buttons and switches


S/N	Function Introduction	Image
1	LED light regulator: it is to set LED brightness	 A black, circular button with a small white indicator line. Above it is a label with Chinese characters 'LED灯调节' and English text 'LED light regulator'.
2	light switch with lock: turn on-off LED	 A circular button with a green LED ring that is currently lit. Above it is a label with Chinese characters '灯开关' and English text 'Light Switch'.
3	valve spray : press round button down , spray gun is in spray mode. Press again , exit spray mode .	 A metallic, circular button. Above it is a label with Chinese characters '阀喷射' and English text 'Valve spray'.
4	Valve jogging: press button down , the selected spray gun will spray two 'dots'.	 A metallic, circular button. Above it is a label with Chinese characters '阀点动' and English text 'Valve jogging'.
5	cylinder : button with light and lock . control spray gun valve on and off . press 'Cylinder' down , software ' valve' and machine interface valve button will working .	 A circular button with a green LED ring that is currently lit. Above it is a label with Chinese characters '缸' and English text 'Cylinder'.
6	Valve : button with light and lock . control spray gun paint valve open and off . Press 'Valve' down , button light is on to open material valve . press again , button light is off to close material valve .	 A circular button with a green LED ring that is currently lit. Above it is a label with Chinese characters '阀' and English text 'Valve'.

7	<p>heating switch : machine has 2 heating buttons to control spray gun 2 heating block .</p> <p>Heating button with 24v light and lock . it is to control spray gun heating device . press button down , heating device power on; press button up , close heating device power .</p>	
8	<p>Emergency stop : 220V normal-locked power switch ,located at machine left side , it is used for emergency stop machine power , but will do not close LED light and computer power .</p> <p>press button down , machine power is off, turn clock-wise ,power is on .</p>	
9	<p>general power switch :it is a 220V power rotary switch , located at machine right side , it is to control machine general power , exclude computer and camera power.</p>	
10	<p>Material pressure : clock-wise and counter clock-wise to Adjust spray gun air pressure . ( clock wise is to raise pressure , counter clock wise is to reduce pressure ) . turn material pressure 1 , pressure value displayed on digital meter .</p>	
11	<p>Suction nozzle vacuum : it is to set the crystal nozzle pick and place stone vacuum .</p>	
12	<p>Start : it is to start working</p>	

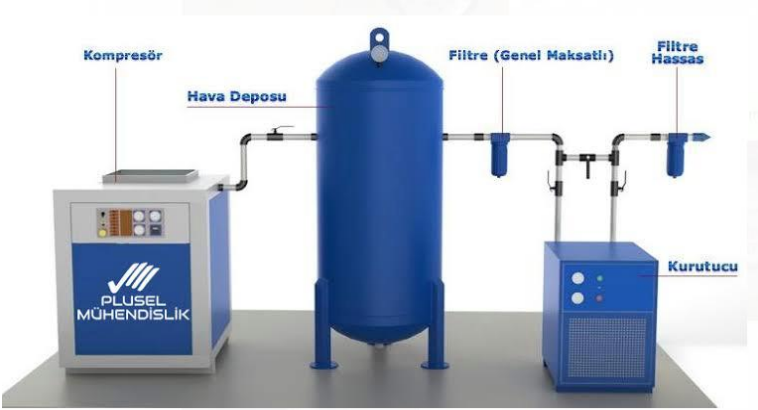



13	Stop location : it is machine goes to stop	
14	Pause :button with light and lock , press button down ,machine will pause current working . press button up ,and press Start button to continue current working.	
15	Stop: button with light and lock , stop current working . press button up , and press start button to continue current working .	
16	temperature meter : it is to display temperature value. The temperature is already set before shipment , no need to reset by end-user.	
17	General pressed air regulator : regulate general air pressure in , directly affect whole machine air pressure .pressed air value : 0.8Mpa (image 1)	
18	cylinder air pressure : it is to adjust cylinder up and down speed . proper pressure please adjust between : 0.4Mpa-0.5Mpa . (image 2)	
19	air discharge valve : it is to open and close general pressure air in and off .	

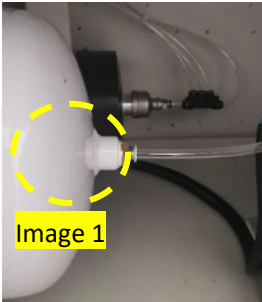
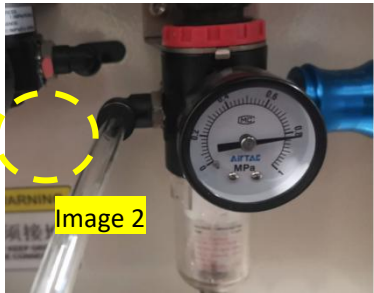

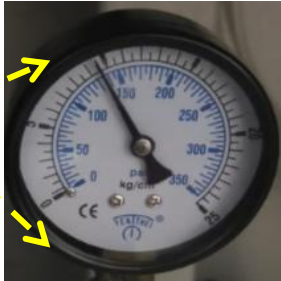
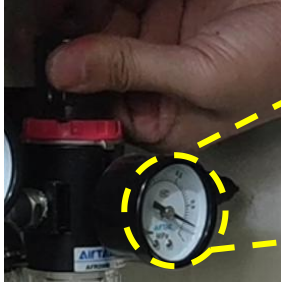



## CHAPTER 2 : Contact air and power and turn on machine and software for registration

### Part 1:checking machine



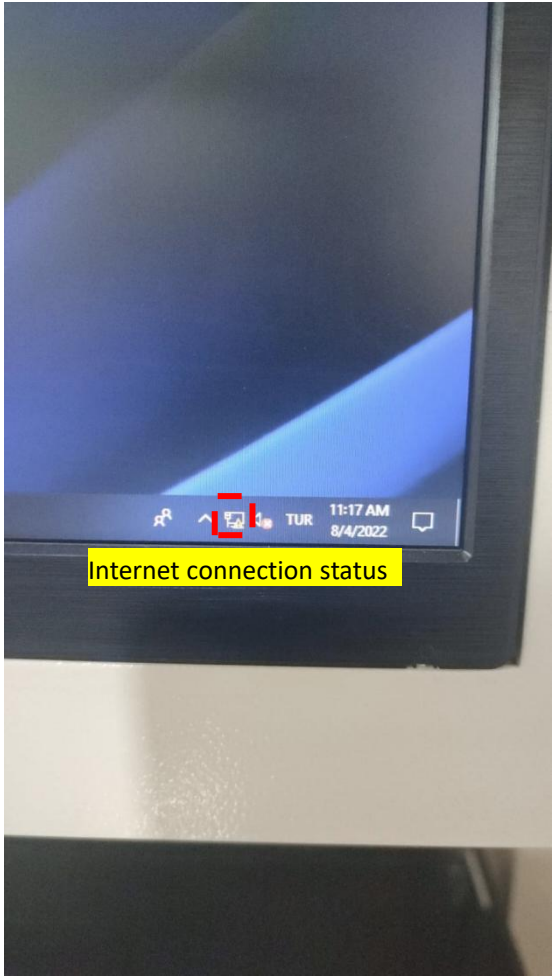
S/N	Operation procedures	Operation image
1	Check any objects on machine not to ensure machine working smoothly.	
2	check machine left down side to get power plug , put plug on 220v socket .	

### Part 2: Connect pressed air

1	Customer prepares dried and clean stable pressed air source more than 8 kg .	
2	open machine back door to get out air booster out .	
3	Prepare air tube , one side connect air compressor machine (image 1), another side is to air booster tube fitting (image 2)	<div style="display: flex; justify-content: space-around;">   </div>

4	get 8mm air tube 2pcs ,tube length based on each equipment distance. One side connect at the end of air booster , another side is to machine general regulator air tube fitting .	 
5	please turn air booster regulate to set air pressure to 10kg , pressed air goes through booster, pressed air will be 1Mpa .	 
6	set general air button to set general air value to 0.8MPa.	 
7	cylinder pressure normally set 0.4Mpa before shipment , normally no need to reset .	 

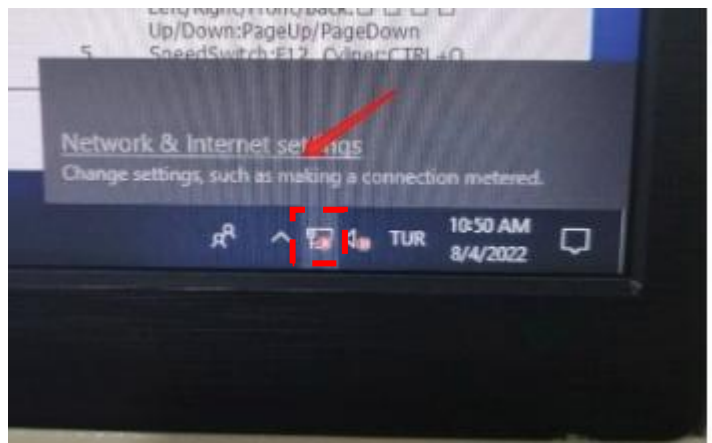
**Part 3: Connect 220V power and Check Machine IP**

1	Turn 90 degree to turn on machine power	
2	machine computer at power cabinet	
3	Machine and computer is well connected .	<p>Internet connection status</p> 

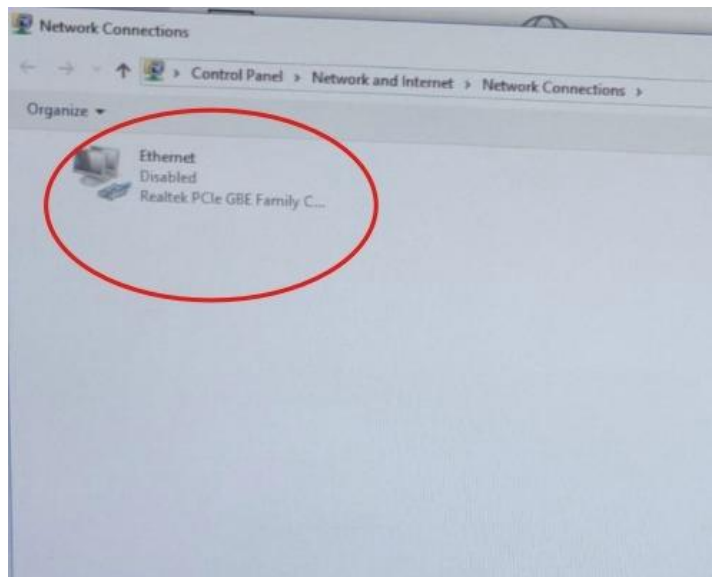


4

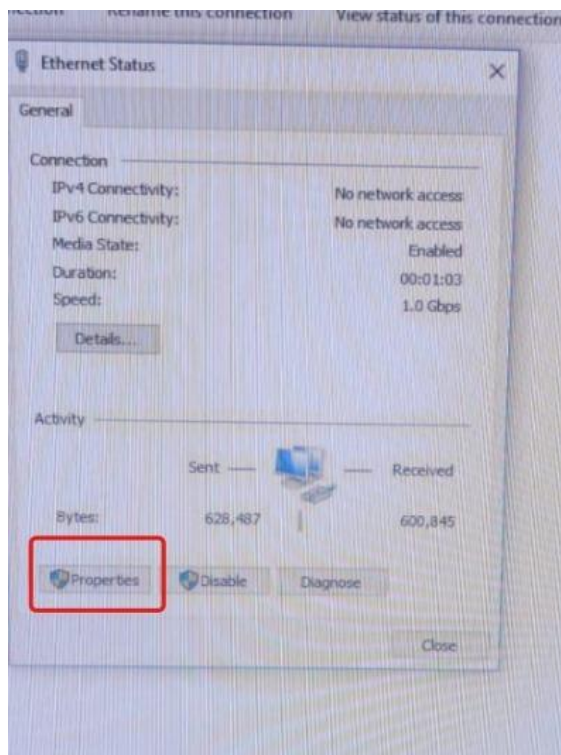
Machine and computer is not well connected .  
Please click the icon to enter 'Ethernet'



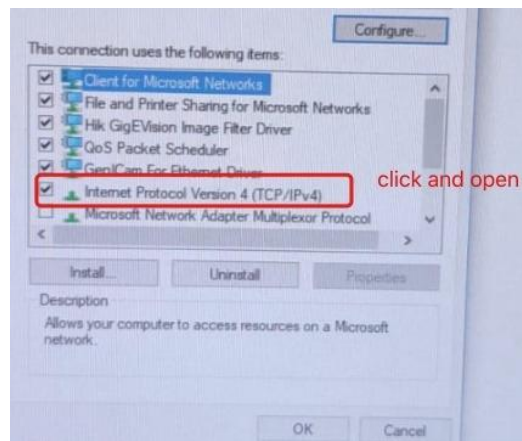
Please click 'Ethernet' .



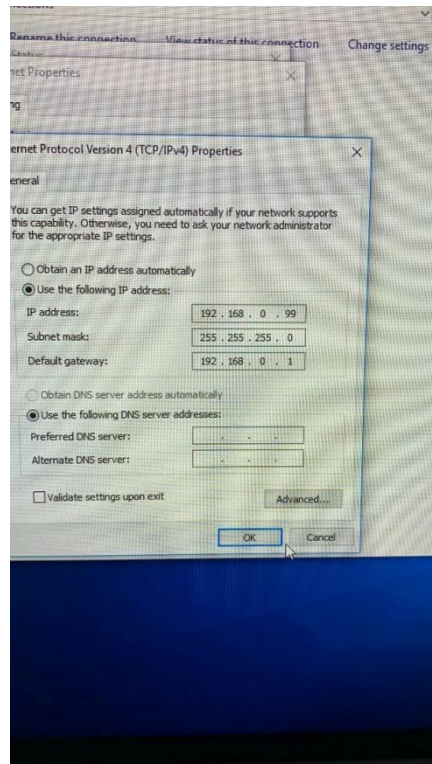
Please click 'Properties'.



Please click and open 'Internet protocol Version 4'

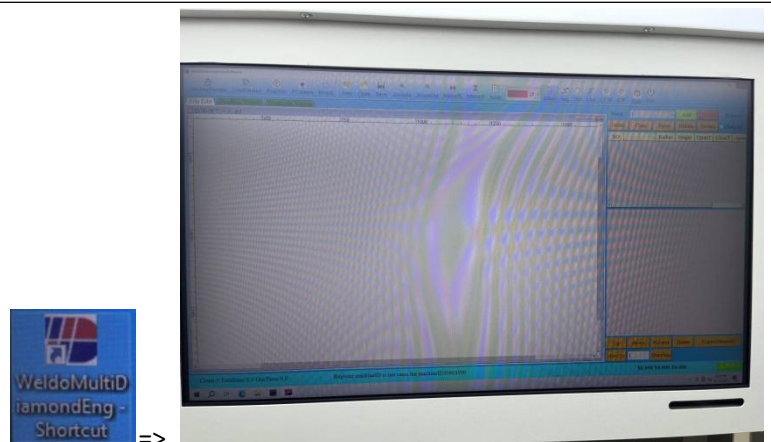


Change IP as below image .



5

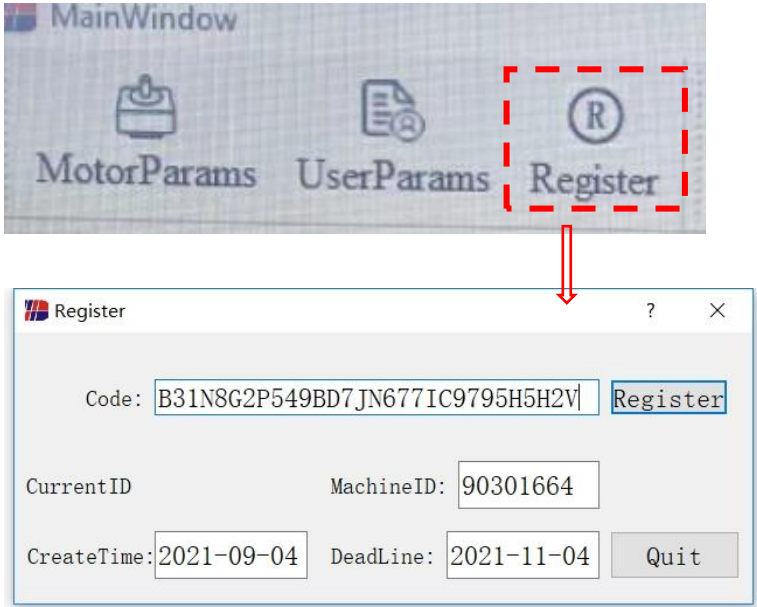
turn on computer monitor and double click intelligent visual automatic machine software and open to program interface .





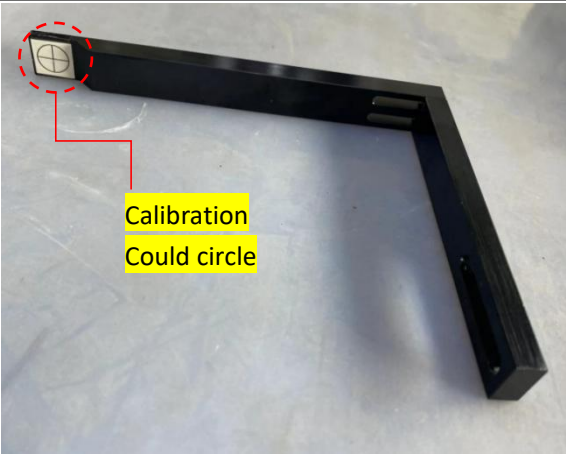

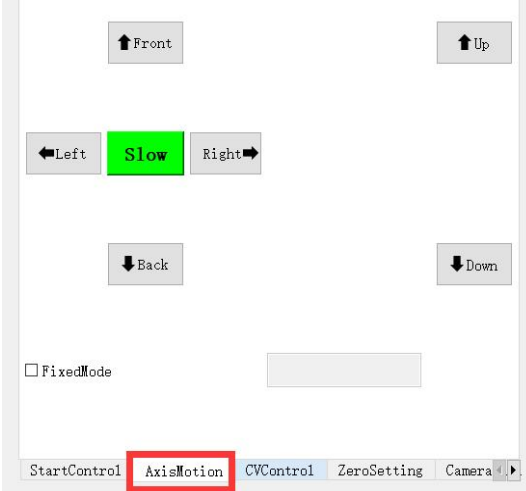
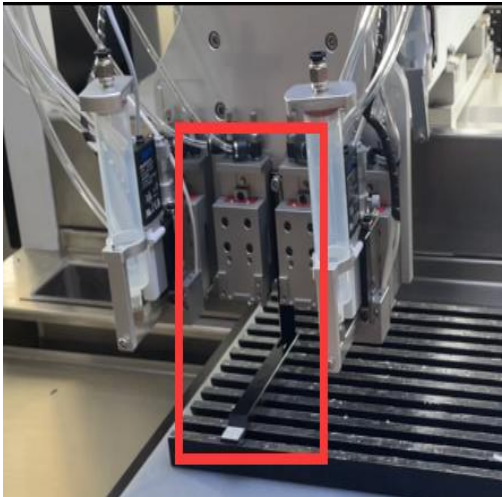
Part 4: Registration

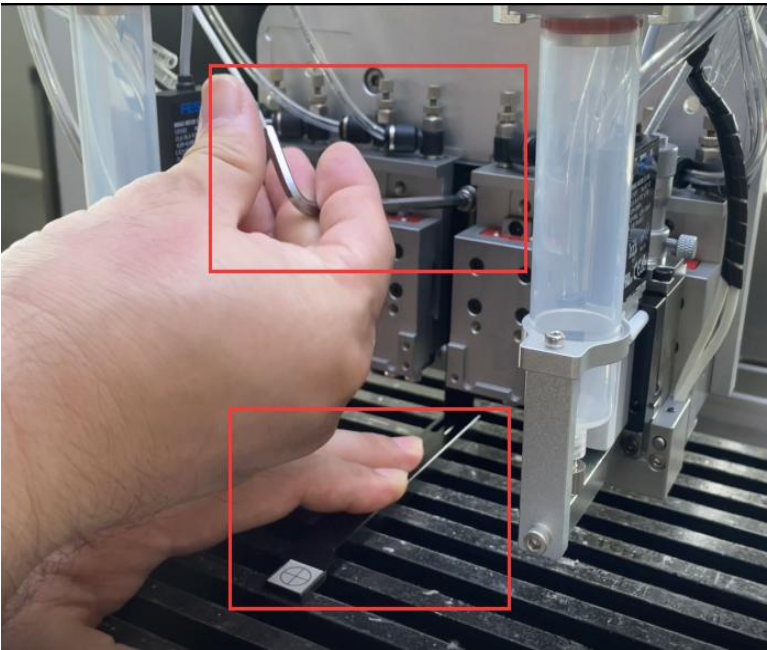
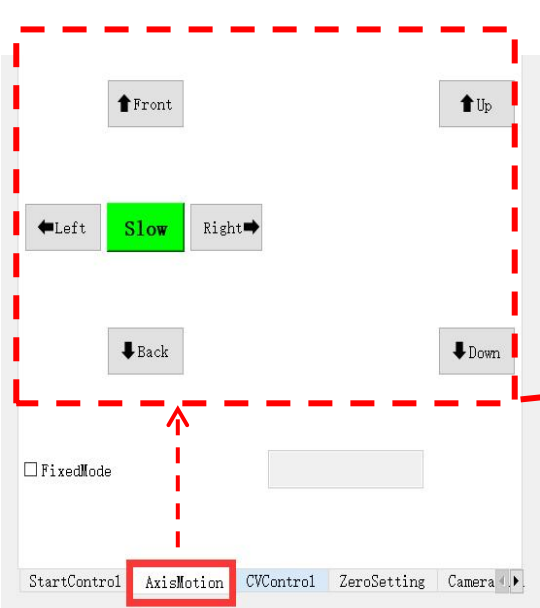
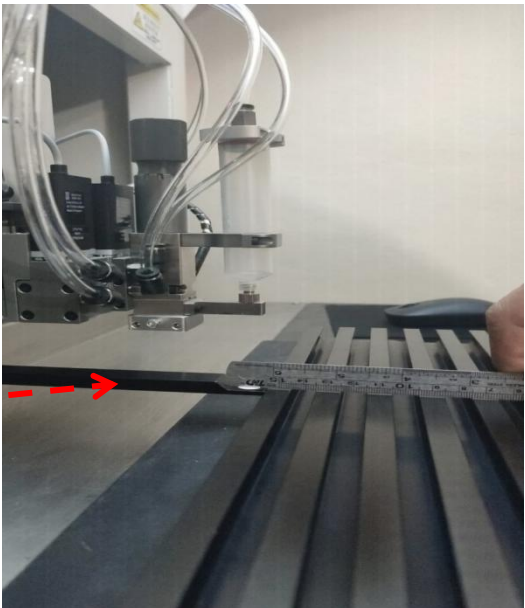

Click 'register' register window pops out to inform to register , please provide Machine ID to Weldo related person to create a long term register code to register machine .





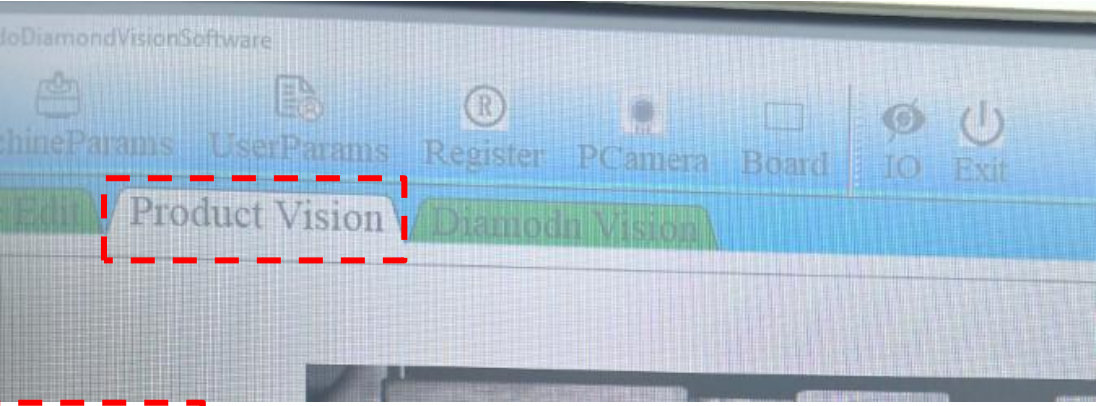

# CHAPTER 3 : Calibration

## Part 1 : Install calibration bar

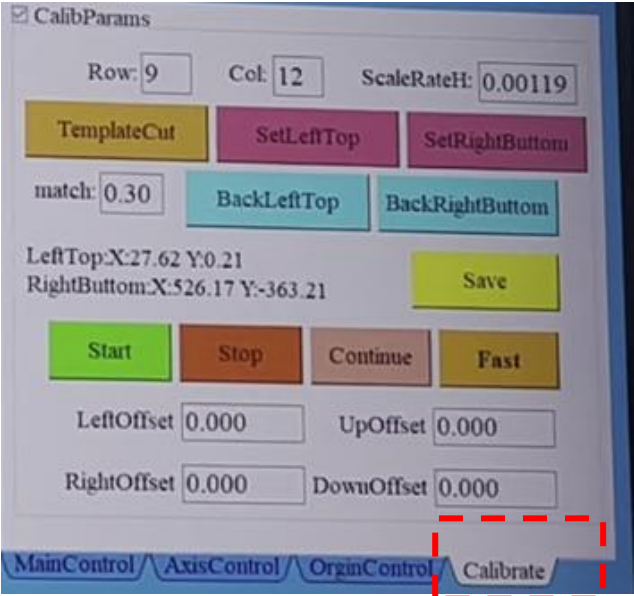

S/N	Operation procedure	Operation image
1	Calibration bar : it is to ensure the machine enamel precision .	
2	put calibration bar . With 4mm wrench hexagon install calibration bar at center of any of hole . half tighten the screw .	
5	Press direction key to control XYZ and move calibration bar on tray .	<div data-bbox="470 1417 997 1906">  </div> 

6	<p>Please one hand press calibration bar end to ensure bar in level and flat on tray .</p> <p>Another hand tighten the screw as left image .</p>	
7	<p>Press direction key on keyboard , or click Axismotion direction key, softly move X,Y,Z axis to let calibration bar white circle keep same height of tray . (there are 3 speeds Fast , middle , slow for shift . when calibration bar move close to tray ,please shift to slow to let bar slowly close tray .)</p>	<div data-bbox="442 819 984 1424"></div> <div data-bbox="999 819 1525 1424"></div>
8	<p>take the tray out off table .</p>	

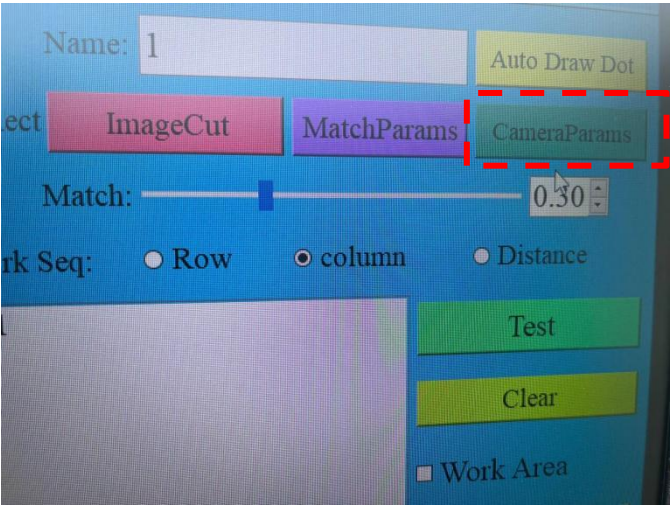
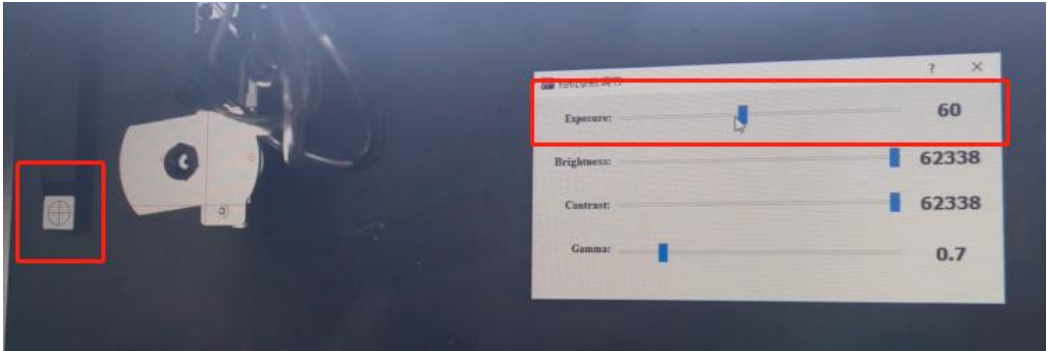

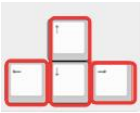
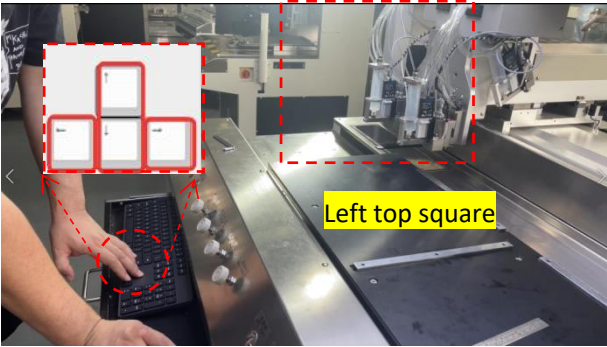
Part 2: Start Calibration

<p>1</p>	<p>Click and open software</p>	<div data-bbox="443 369 702 631"></div> <div data-bbox="662 604 702 631"><p>=&gt;</p></div> <div data-bbox="443 654 1321 1303"></div>
<p>=&gt; open 'Product Vision' page</p>		<div data-bbox="443 1361 1544 1765"></div>
<p>=&gt; Open 'calibrate' page , tick 'Calibparams'</p>		<div data-bbox="430 1758 651 1821"></div>



		
2	turn on dimmer to adjust LED brightness until camera displays calibration bar white round clearly .	
3	If dimmer to its biggest value , camera but can not clearly display white round, please left click ‘camera parames’. Camera parameter page pops out to set	

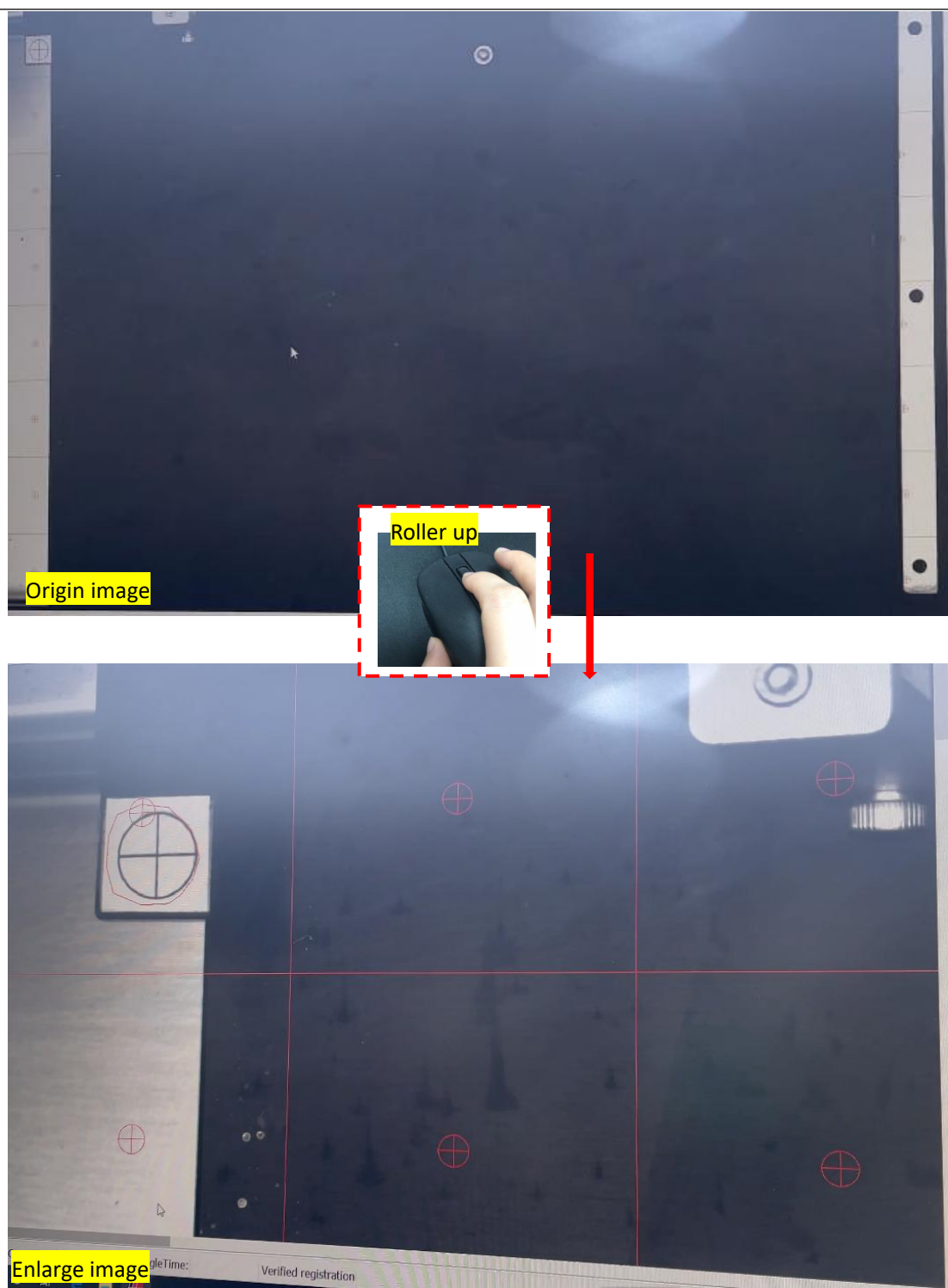


	exposure.	
4	Click left mouse to slide the block to set camera exposure to make white round clearly under camera . (exposure value can not be too big or too small , otherwise white round will misty in camera . )	
5	after set exposure ,left click“✕”to close ‘cameraparams’ .	
6	dont change calibration height. Press direction key  on keyboard , move X,Y axis to let white round at center of left top square. 	

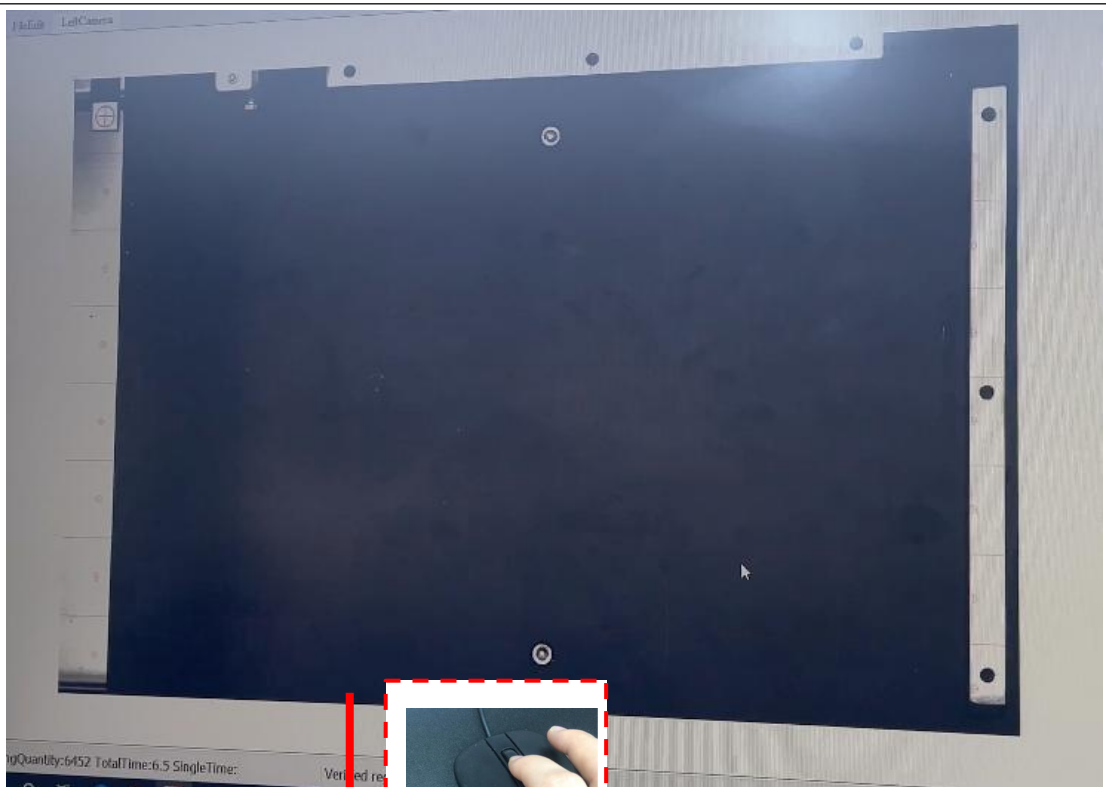
7

Mouse Roller Function :  
(i) mouse roller up to  
enlarge camera image .

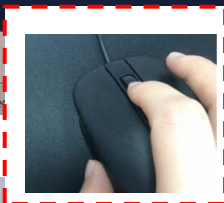
⊕ Red circles are  
last time calibration  
round ,please ignore it  
in mesh .



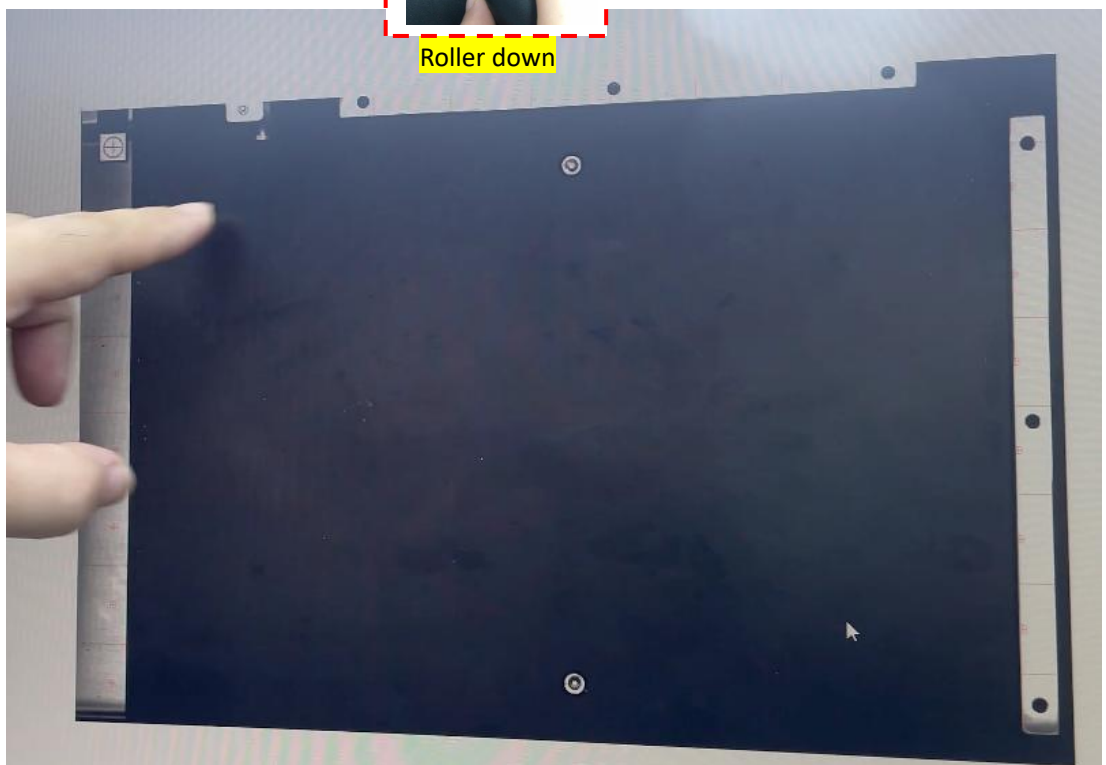
(ii) roller down to shorten camera image



Origin image

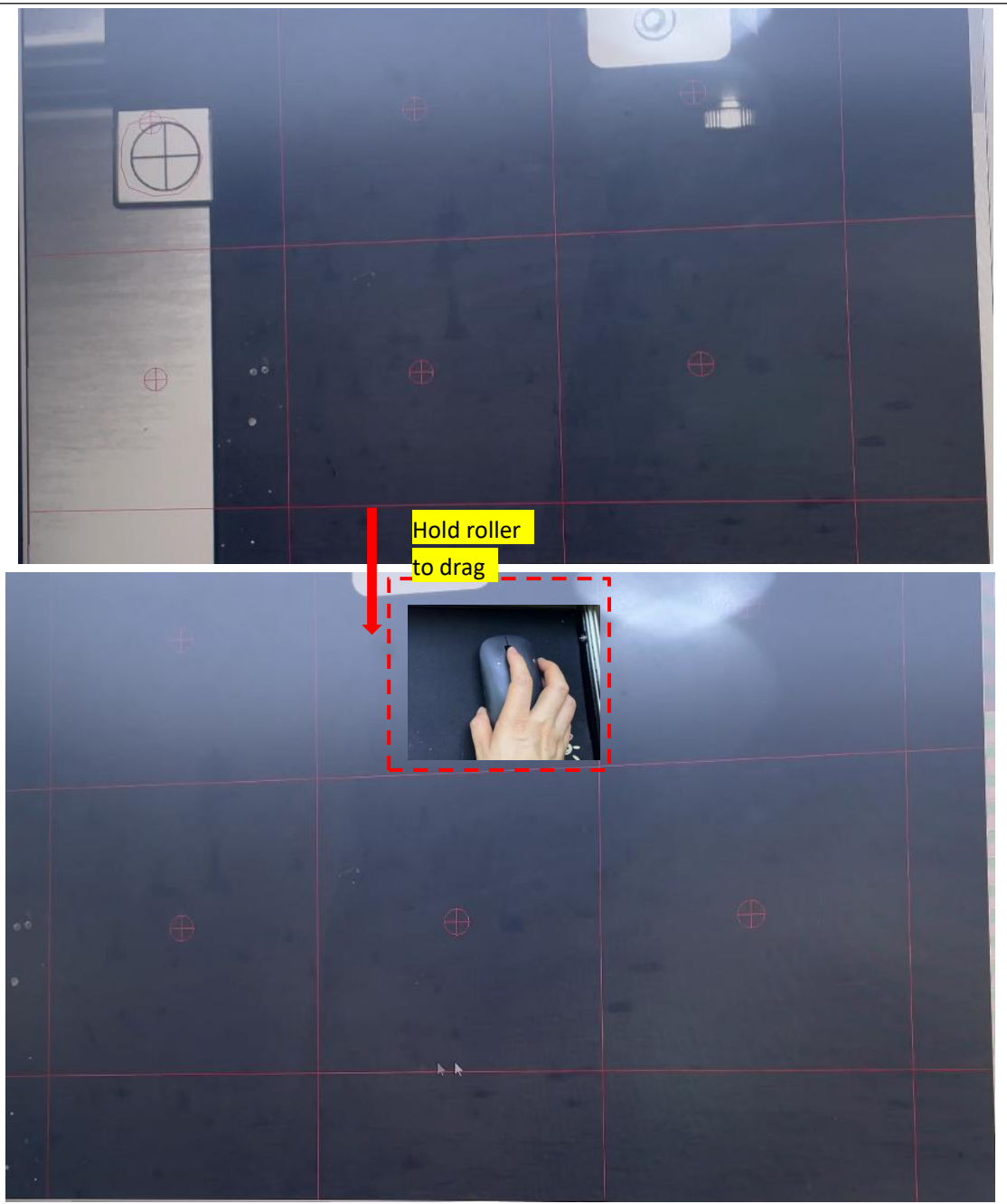


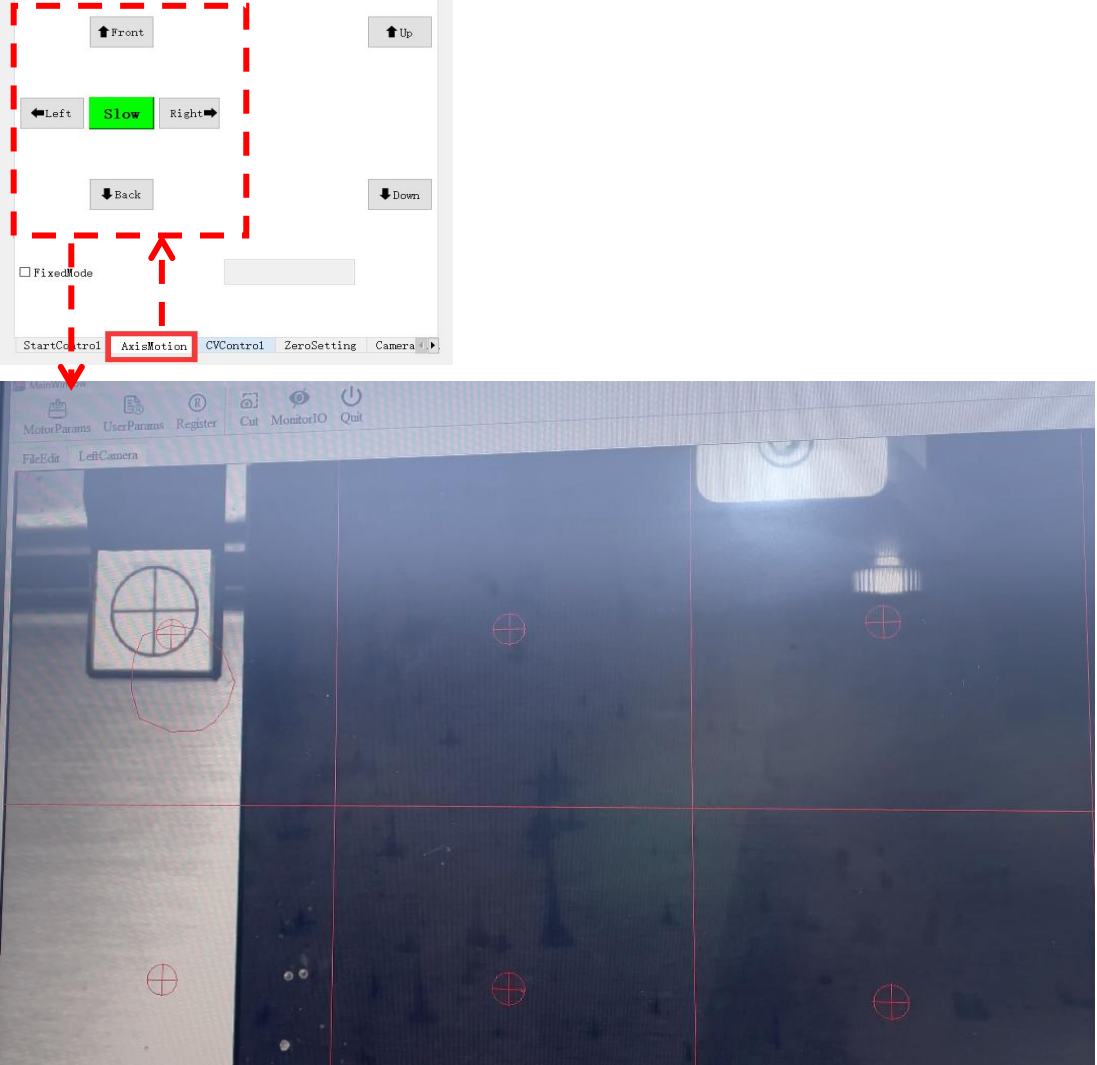

Roller down



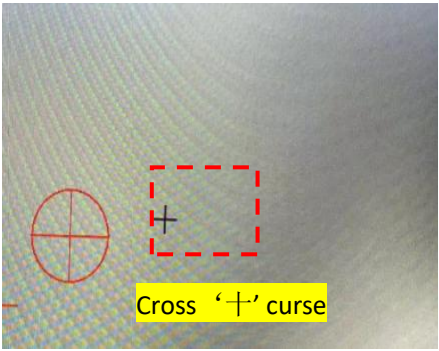
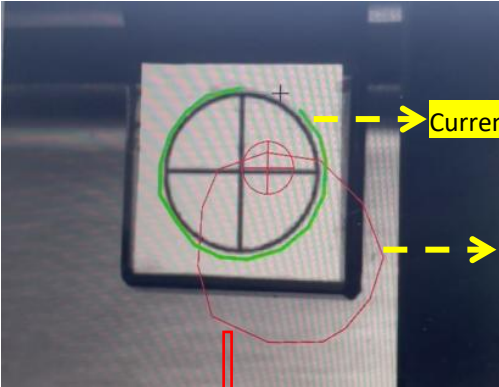
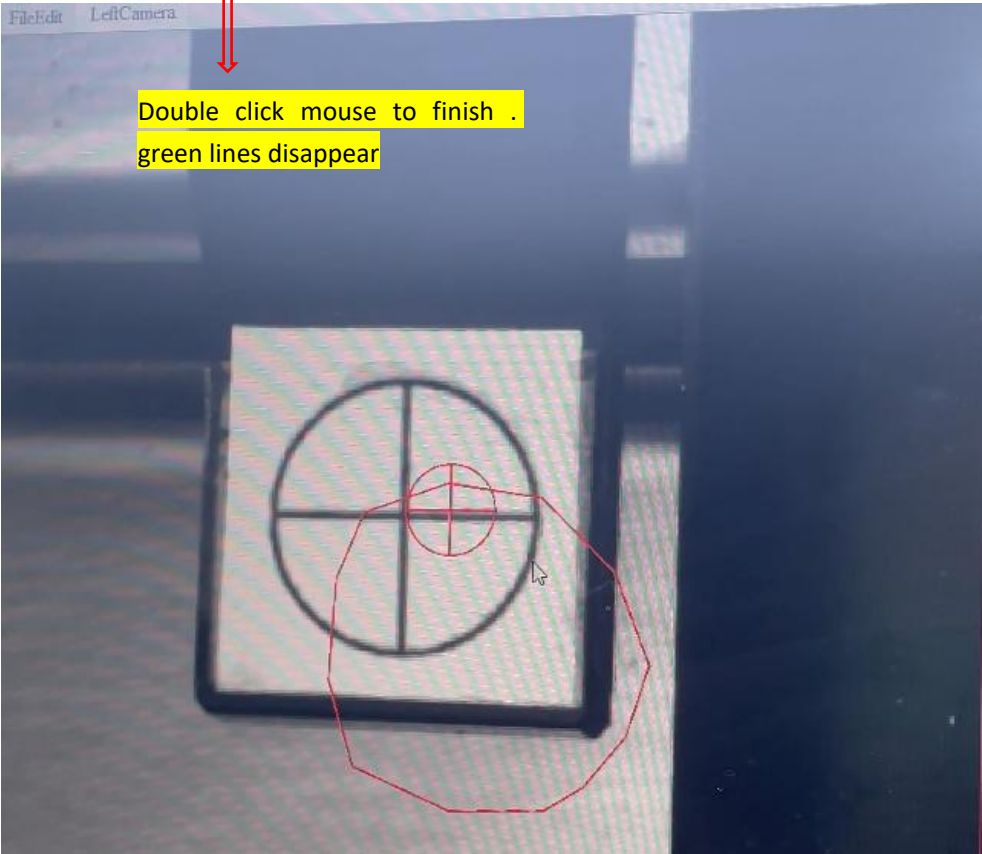
Shorten image

(iii) hold the roller to pull image down or up, or pull to left or to right .



<div>8</div>	<div><p>If the red frame can not be clearly see , please roller up mouse to enlarge frame .</p><p>Click X,Y direction key on software to move calibration white round to the center of left top position .</p><p>Attention ⊕ red cross is not the center of square . please ignore it .</p></div>	<div></div>
<div>9</div>	<div><p>continue click X,Y direction key to make ⊕ white round at left top center frame .</p></div>	<div><div data-bbox="890 1850 1308 1930">It is for last time calibration ,please ignore</div></div>

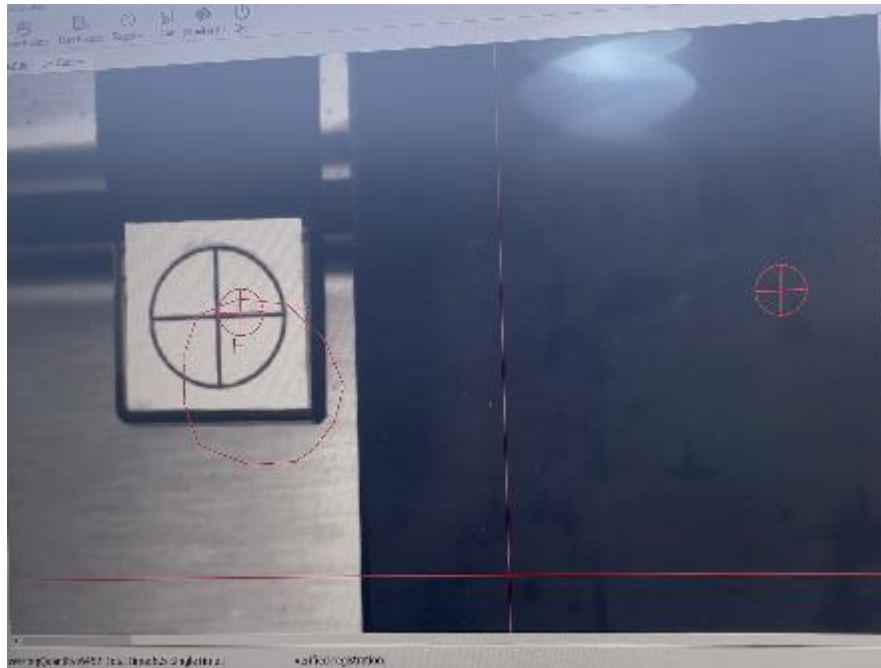
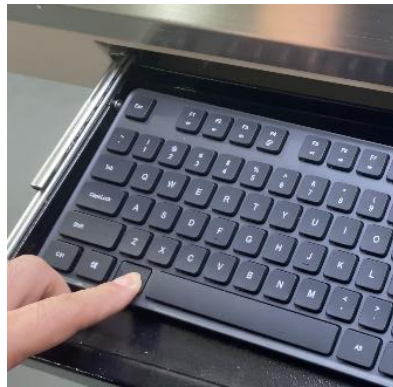



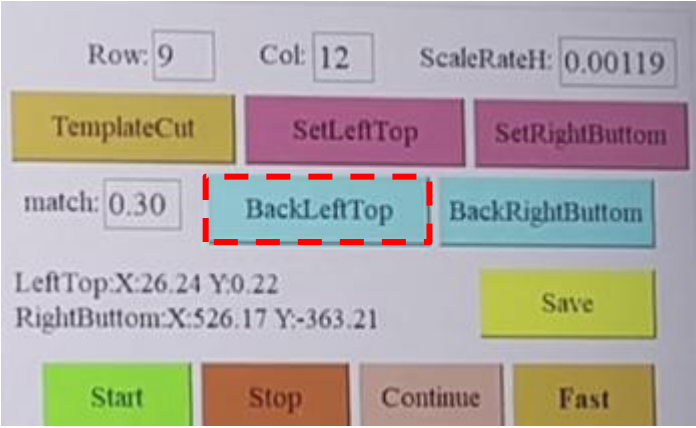
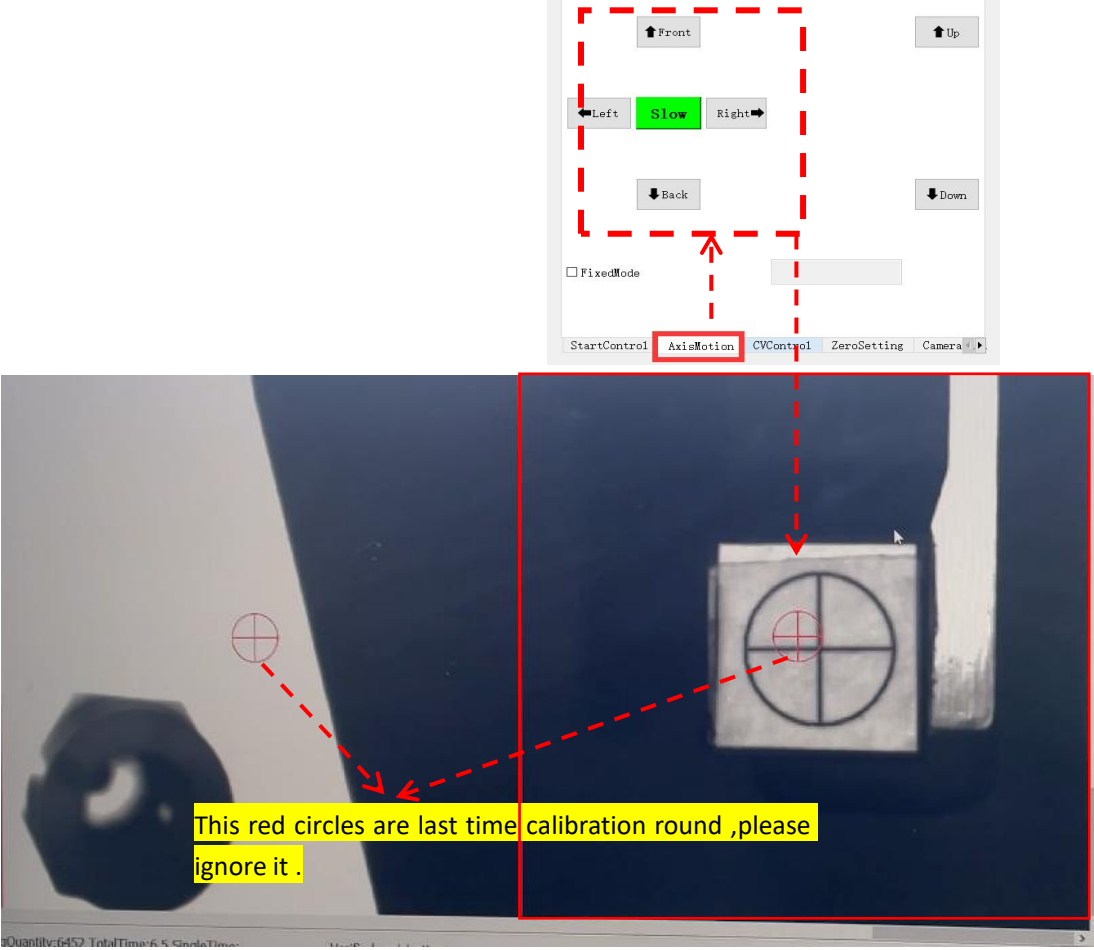
10	left click 'template cut', mouse curse changed to cross ' + ' status in image.	<div><div>Row: 9Col: 12ScaleRateH: 0.00119</div><div>TemplateCutSetLeftTopSetRightButtom</div><div>match: 0.30BackLeftTopBackRightButtom</div><div>LeftTop:X:26.24 Y:0.22RightButtom:X:526.17 Y:-363.21Save</div><div>StartStopContinueFast</div></div> <div></div>
11	left click and move ' + ' curse to draw calibration white round outline. Drawing process left click ->move curse ' + ' ->left click -> double click to finish. Green lines disappear .	<div><div></div><div><div>This red circle is last time drawing calibration bar position ,please ignore.</div></div><div><div>Double click mouse to finish . green lines disappear</div><div></div></div></div>

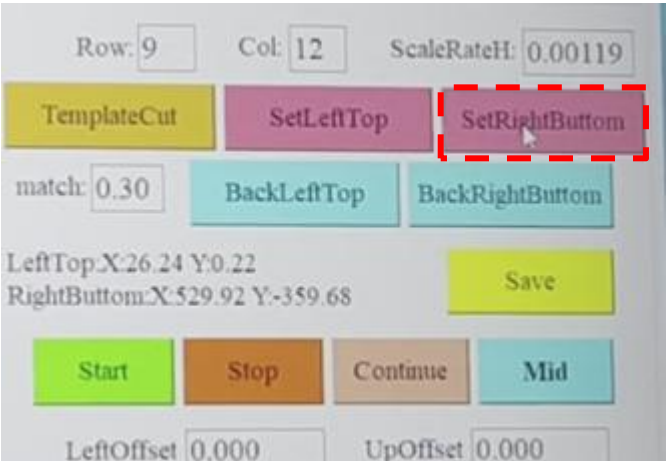
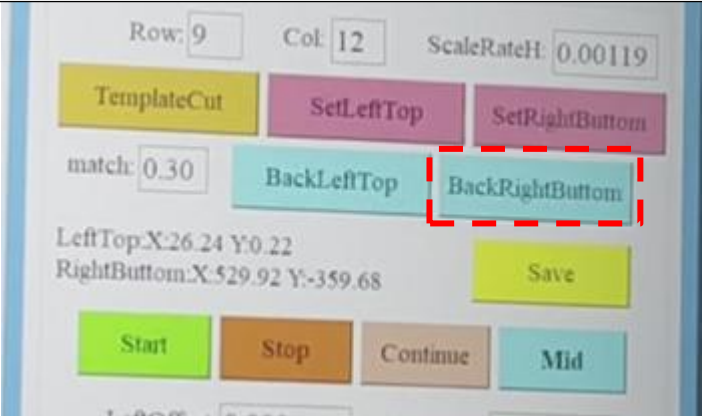

12

Checking the drawing

Left hand press 'Alt'

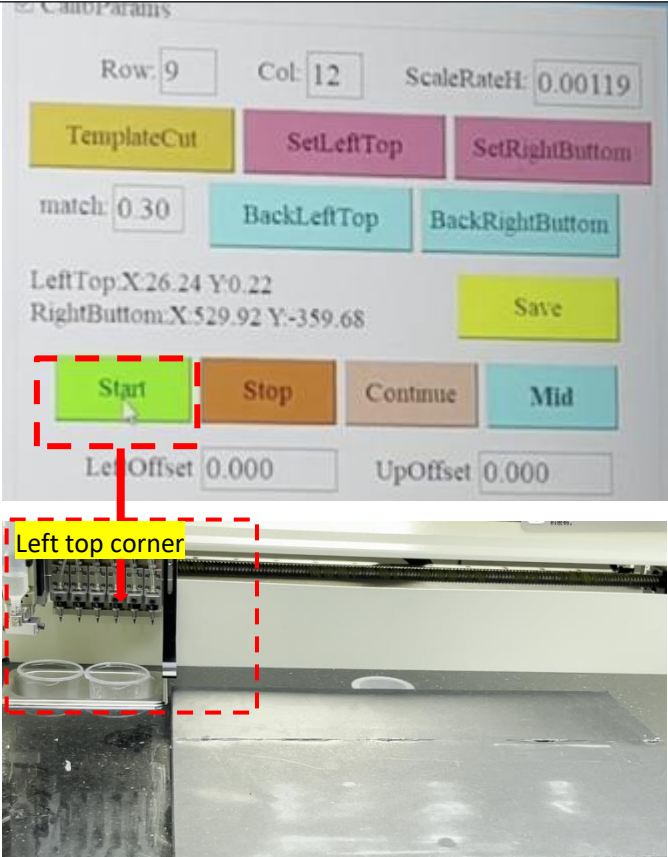
Right hand left click the  
Calibration bar circleA pink circle out  
outside of calibration  
circle

13	left click ‘ SetLeftTop’, calibration bar left position location parameter is out .	
14	left click ‘BackTLPos’ , calibration bar white round will not move that mean left top calibration setting is done .	
15	Click X,Y direction key , move calibration bar to the center of right down square	

16	left click 'SetRightButton' . calibration bar at right down location parameter will be out .	
17	left click 'BackBRPos', calibration bar white round does not move that means Right down calibration is finished .	
18	Roller down mouse to shorten image to see the calibration bar moving image .	

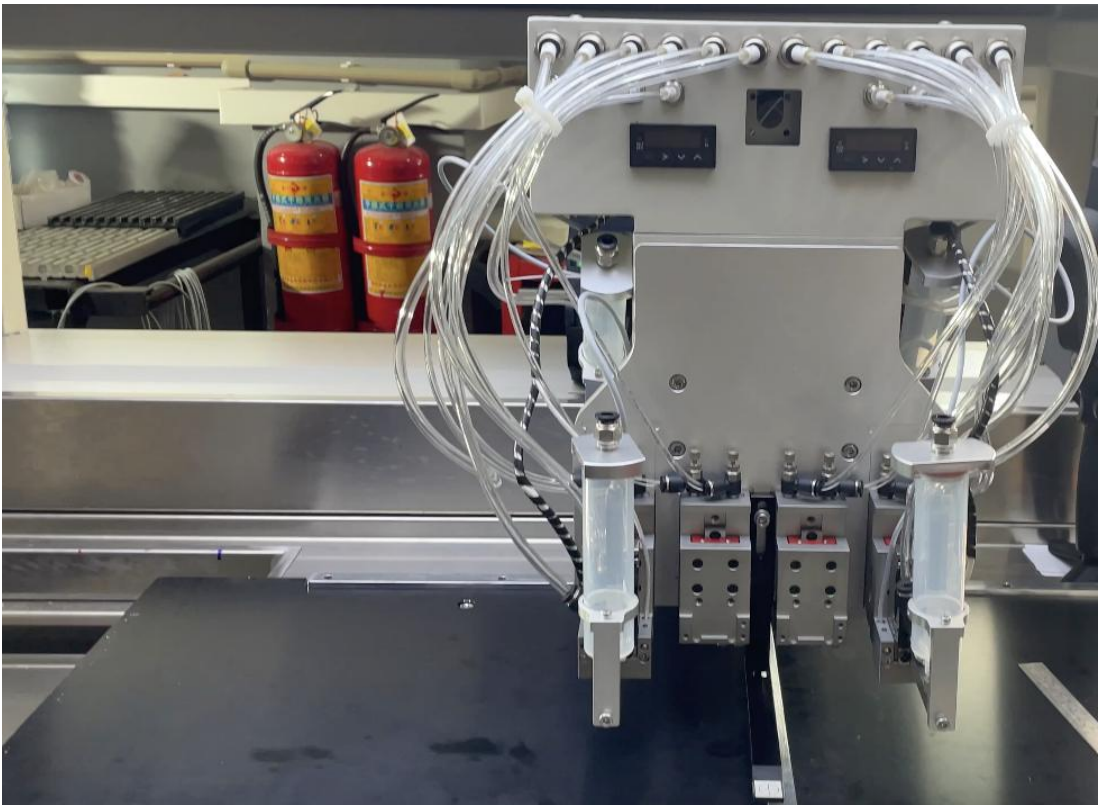


19 left click 'Start' , calibration bar automatically back to left top corner starts to calibrate from left top move to right down one by one frame . the calibration time is approx 1mins.  
(during calibration , white round dot can not be covered by any object ).

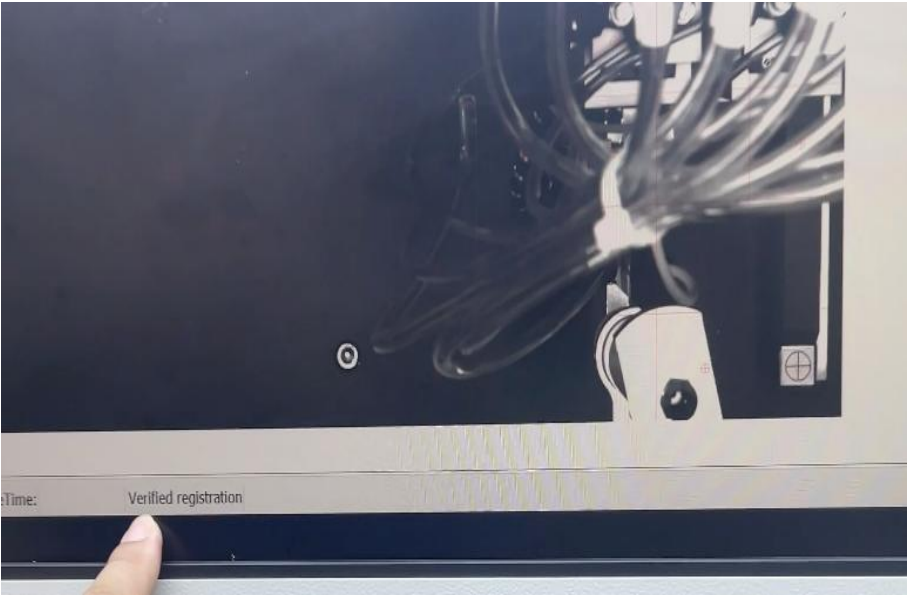
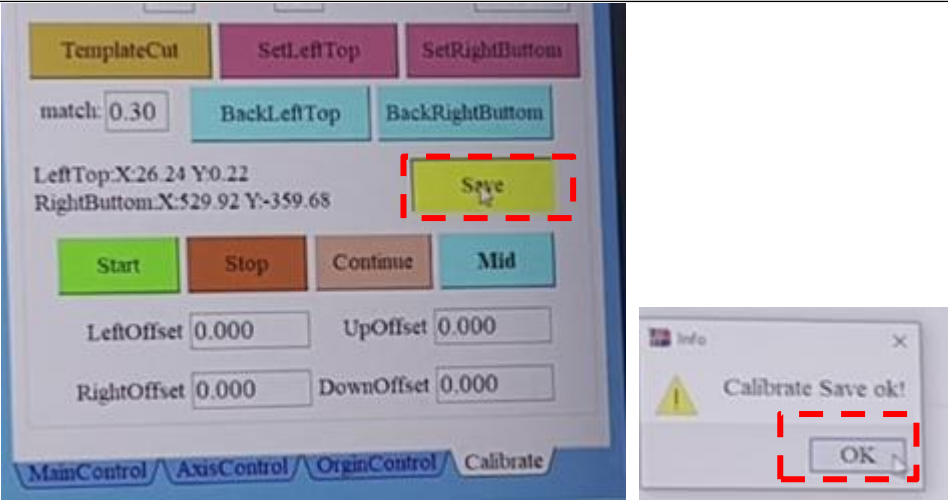



Stop at Right down corner to end calibration .

In software there is a phase about 'calibration finish '.





		
20	after calibration done , left click' Save' . left click'OK' to close .	
21	Click'Stoploc' to let machine back to machine stop location .	

# CHAPTER 4: Installation of spray gun nozzle and check leakage

## Part 1: Spray gun construction :

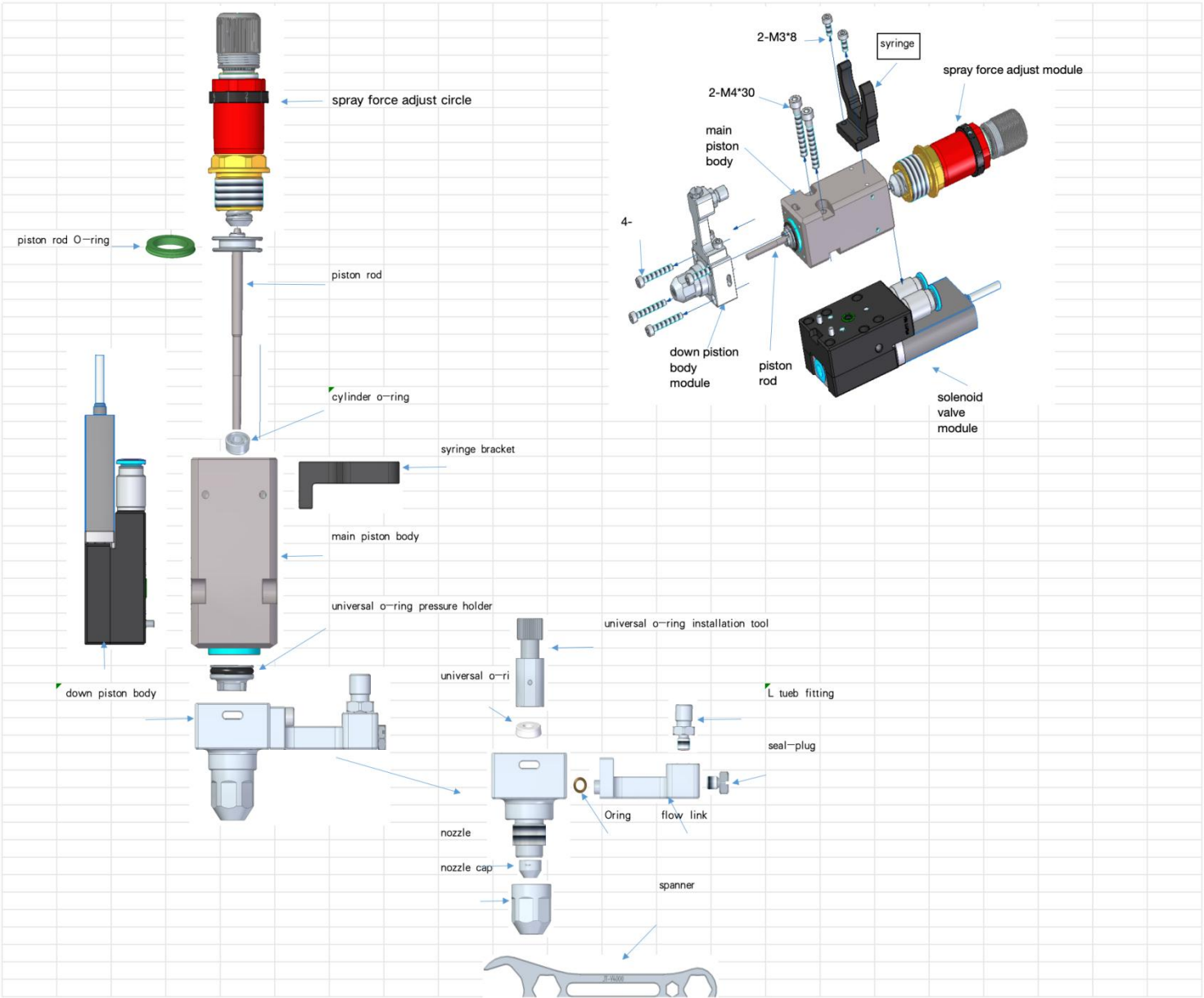



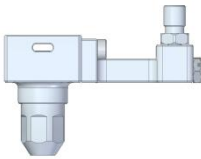
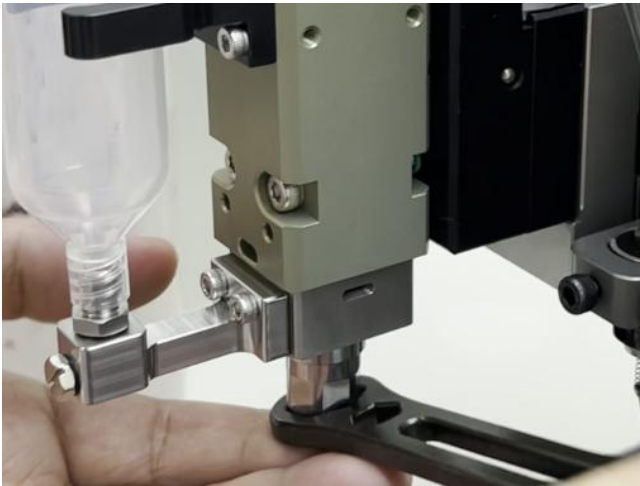

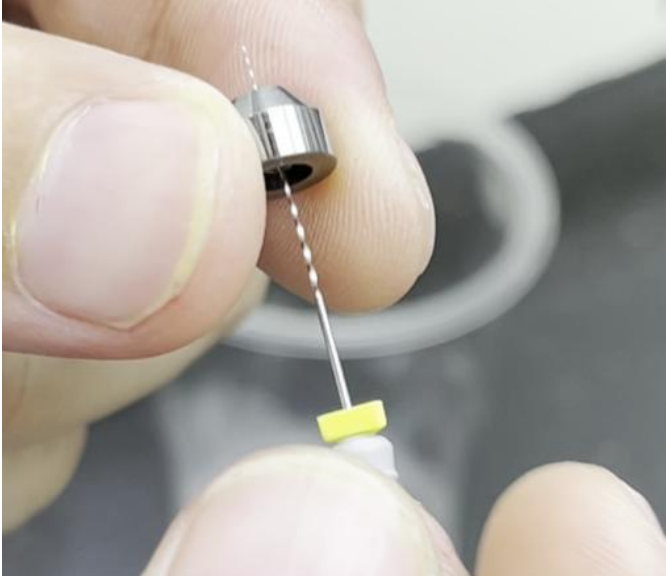

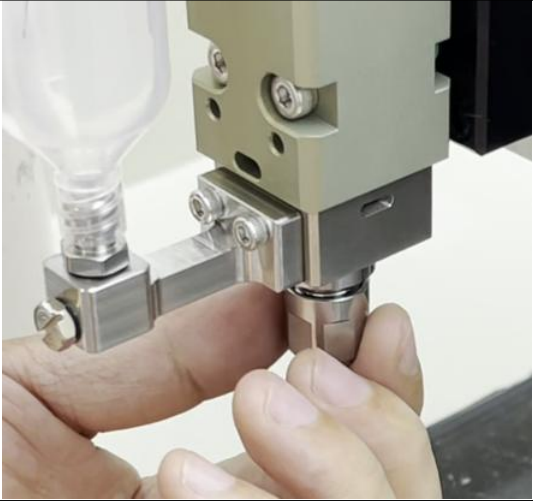
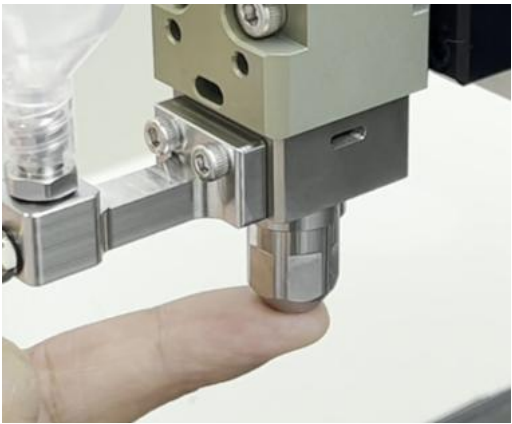


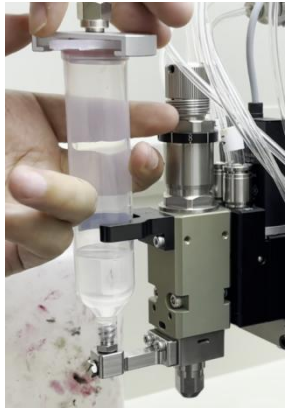

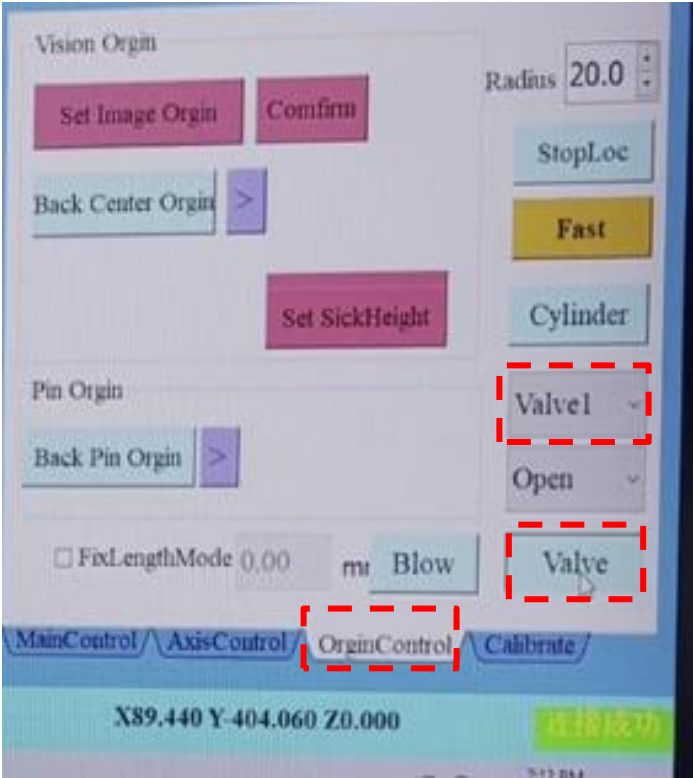


Image	Name	Function	Image	Name	function
	spray force adjust module	it is to adjust piston rod length with spray nozzle distance .		nozzle (different size )	spray different amount of glue
	piston rod	hit glue to produce a spray force		down pistod body	it connects syringe to spray glue

## Part 2: Install nozzle & nozzle cap ,checking leakage

S/N	Procedure	Image
1	(1) se spanner loose the cap	
	(2) manual open the cap	
	(3) use pin to through the nozzle hole	

	<p>(4) put nozzle in spray cap correctly .</p>	
2	<p>(1) Half tighten( turn clock wise 2-3 circles) screw cap with nozzle on spray gun in horizon level .</p> <p>Spray cap should be installed softly and can not be twisted ,do not completely tighten the cap on spray gun.</p>	
	<p>(2) after installed ,use finger to feel the nozzle flatness .</p>	
	<p>(3) use spanner tighten the nozzle cap</p>	

<div>3</div>	<div><b>Add thinner in syringe</b></div> <div>(1) close air pressure to, open aluminum cap and add thinner in syringe</div> <div>(2) Open air pressure</div> <div>(3) Choose ‘Valve 1 ‘ , click and open ‘Valve ’ in’ OriginControl’ page .</div>	<div><div></div><div></div></div> <div></div> <div></div>
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(4) press button ‘ valve spray ‘  
please check the spraying line must be  
straight .






4 (1) close air press , open syringe cap to add  
glue .



	(2) put on heating block	
5	<p>open pressure</p> <p>press button ' spray valve' 5-6 times to discharge air out from nozzle .</p>	<div></div>

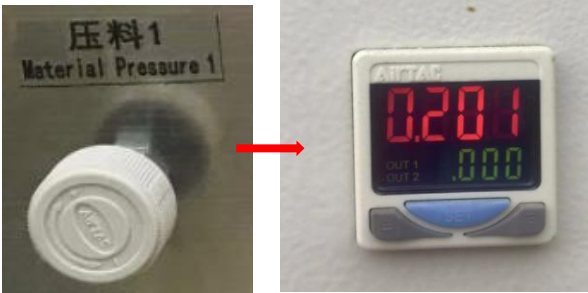
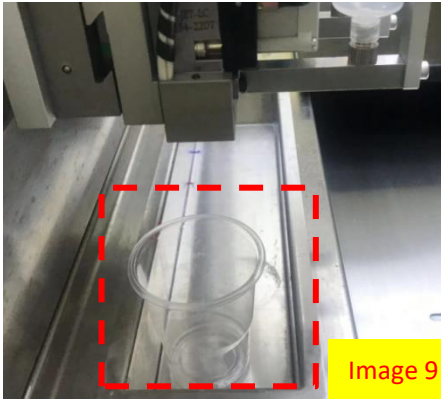

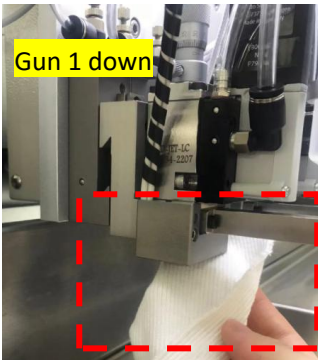
## Chapter 5 Set spray gun spray force

### Part 1 : Set proper air pressure and add color in syringe .

S/N	Procedure	Image
1	Set cylinder air pressure between 0.4-0.5 Mpa (image 7) Enter air pressure to machine is > 0.8Mpa. (image 8 )	
5	Open spray gun material pressure . based on gluing area to set pressure . Min coloring area air pressure is : 0.01~0.03Mpa.	
6	Press 'cylinder' and 'valve' button to open spray gun Cylinder and Valve	

### Part 2: Discharge air bubble from spray nozzle

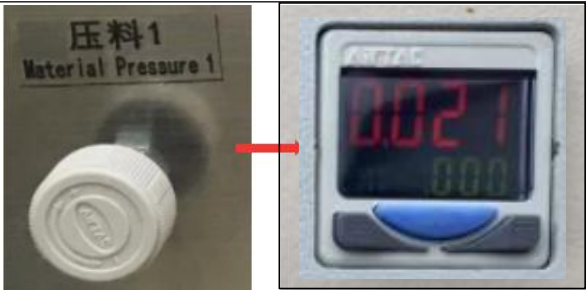

S/N	Procedure	Image
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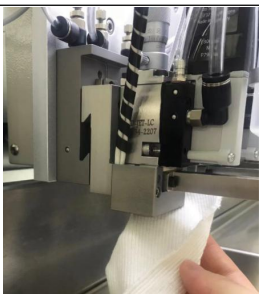
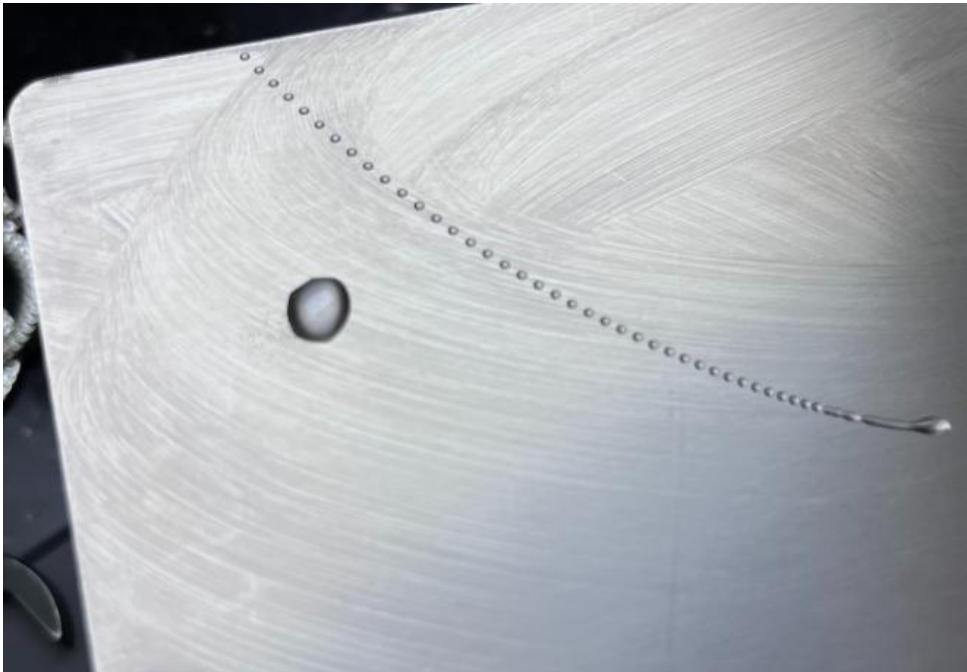
1	Set material pressure 1 to 0.2mpa	
2	Put cup under each gun separately (image 9)	
3	Click 'valve 1' to down gun	
4	Press 'Valve open' approx 10 seconds until no bubble from spray nozzle .	
5	Use clean cloth clean spray nozzle	

Part 3: Set spray gun force

S/N	Procedure	Image
-----	-----------	-------



1	Set material pressure to 0.02Mpa	
2	Click 'valve 1'	
3	<p>left hand hold plate under spray gun 2mm.</p> <p>Right hand manual press 'valve spray' button</p> <p>When press 'valve spray' button, left hand should fast move plate from left to right to check the spray track.</p> <p>If the spray track is splashed</p>	

	<p>dots means spray gun force is too big .</p> <p>Please follow up below instructions to reset gun force</p>	
4	Use clean cloth to clean up spray nozzle first .	
5	<p>Reset spray gun force :</p> <p>(i) Loose the spray screw .</p> <p>(ii) Slight and softly turn clock wise approx 10-20degree each time.</p> <p>(iii) Left hand take plate , right hand press ‘Valve spray until normal regular dot sprayed in a line .</p> <p>(iv) Each time finished manual discharge , please use cloth to</p>	

	clean the spray tip .	
--	-----------------------	--


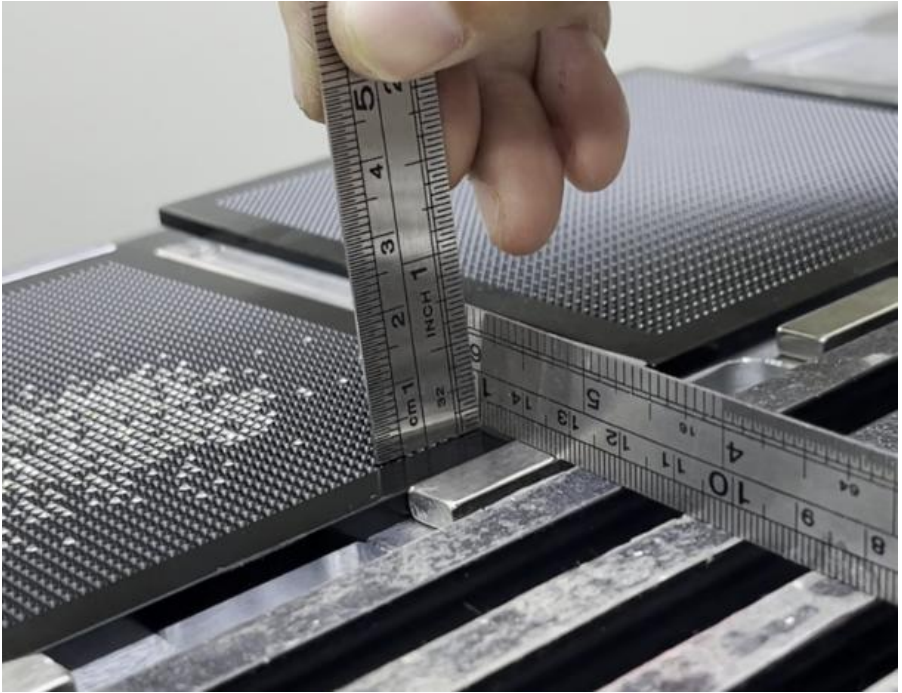
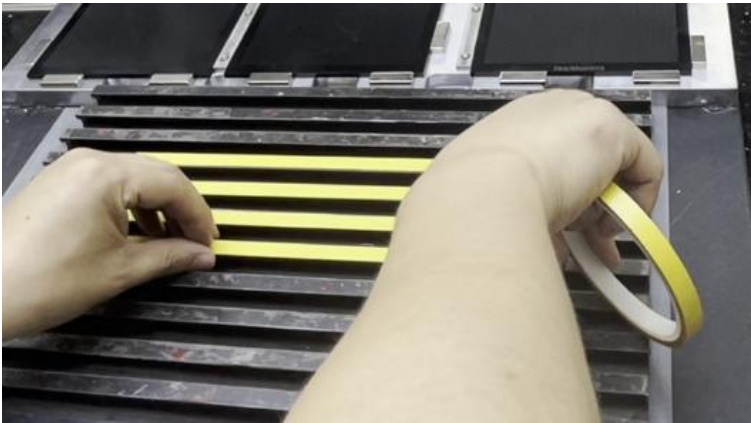
#### Part 4: Skill instruction


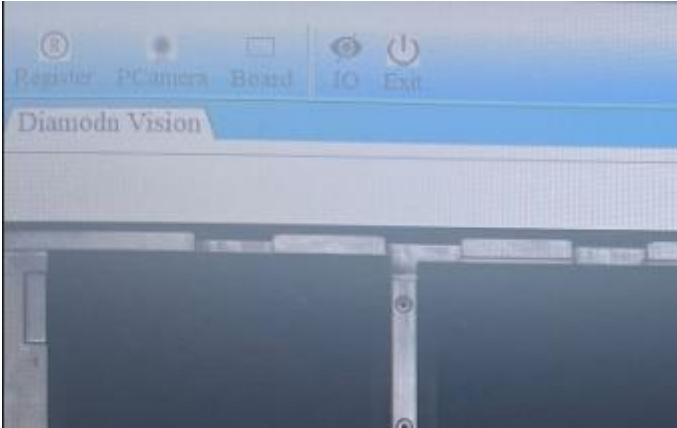
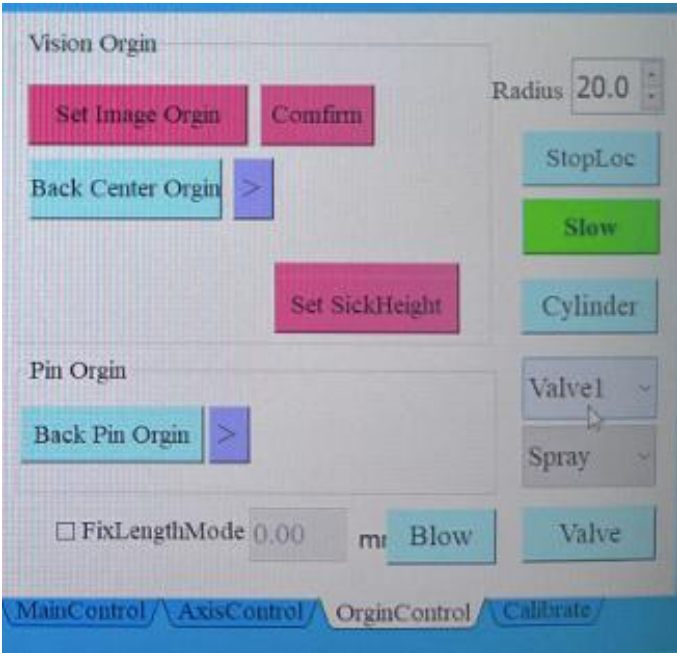
1	Adjust spray force is to turn piston screw , it likes to turn normal screw , turn close wise to let spray gun force small .
2	Turn counter-clock wise is to loose screw let piston rod more distance with nozzle, the sprayed dot will be splayed .
3	Turn clock wise is to shorten the distance between piston rod and nozzle , spray gun force is small.
4	<p><b>Hear spray sound :</b></p> <p>(i) if the spray sound is big , it means piston screw loose too much , please turn clock-wise to change small.</p> <p>(ii) if spray sound is soft , it means piston screw loose too small ,please counter clock-wise approx 10- 20degree slightly .</p>
5	<p><b>Paint do not come out.</b></p> <p><b>Reason :</b> If paint can not sprayed out , the piston rod touches and sucks the spray nozzle , color does not come out .</p> <p><b>Operation :</b> Turn piston screw counter clock wise slightly and softly approx 10-20degree to make piston rod has space with spray tip to let paint sprayed out.</p>
6	<p><b>Paint splashed .</b></p> <p><b>Reason :</b> piston rod and spray nozzle has big distance .</p> <p><b>Operation :</b> please turn clock wise slightly and softly ,shorten the distance between piston rod and nozzle .</p>
7	Clean nozzle : after finish each discharge , please use a clean and dry cloth clean up spray nozzle
<p>Above is to set the spray gun force basic steps . to set proper spray gun force that needs some time and patient to repeat above steps to get proper spray force without splash .</p>	

## CHAPTER 5    Origin Point Setting

**In this chapter will detailed introduce how to set camera image origin, valve 1 origin, nozzle 1 origin ,and nozzle1 sickheight**

### 1.1 The 1<sup>st</sup> time to spray dot to set camera image origin point

S/N	Operation procedure	Operation image
1	please use non-dust cloth with small thinner to clean spray gun 1 . ( it is to avoid any paste to increase precision )	
2	<p>put on crystal plate and products tray .</p> <p>user ruler to measure the distance between crystal plate and tray .( example image distnace is : 2mm )</p> <p>put stiker on tray</p> <p>Put products on stiker</p>	 

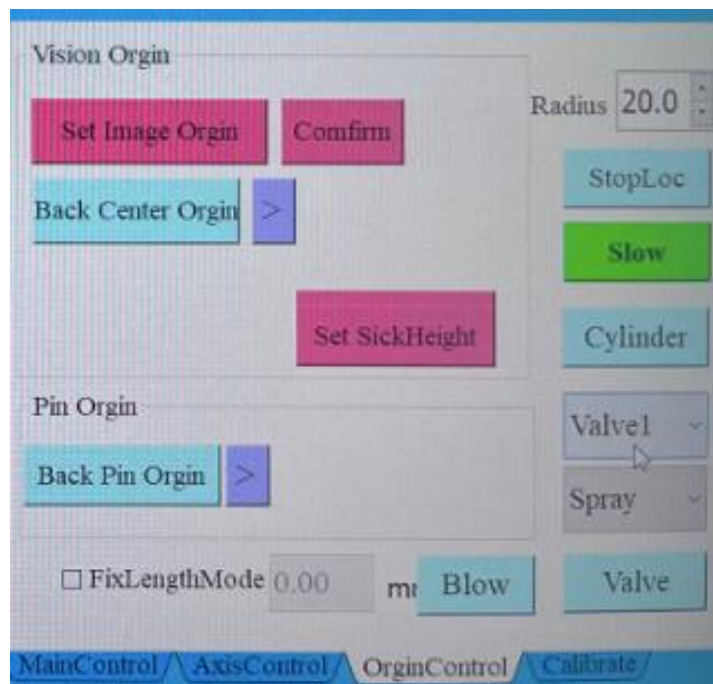
		
3	please left click 'Diamond Vision'	
4	please left click 'Origin Control'	



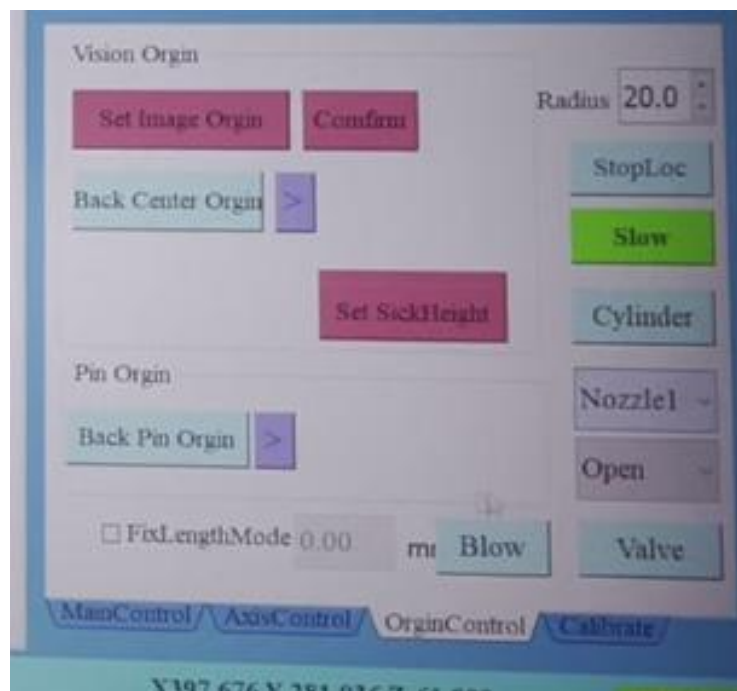
5

Check spray gun and nozzle height

(1) Click 'Valve 1' => Click 'Cylinder' 'down' spray gun .

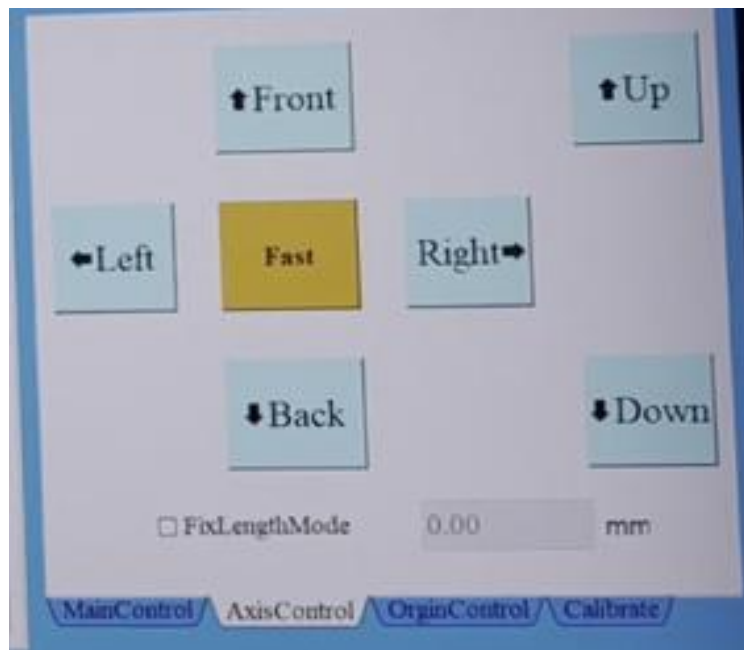


(2) Click 'Nozzle 1' => Click 'Cylinder' 'down' nozzle 1 down .



(3) Move XY to let gun and nozzle touch the metal plate to see the gun tip and crystal nozzle tip in same height

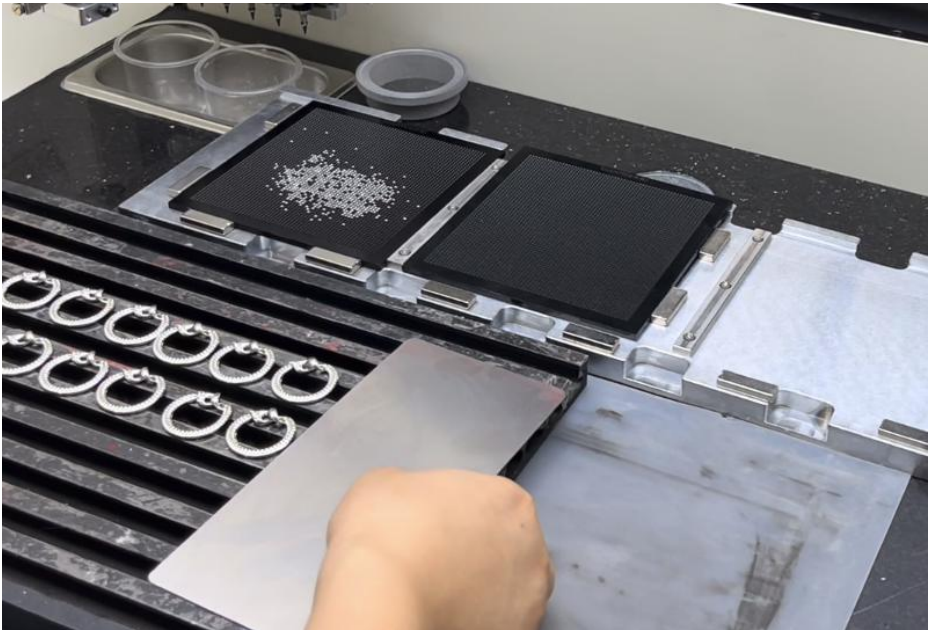
not .



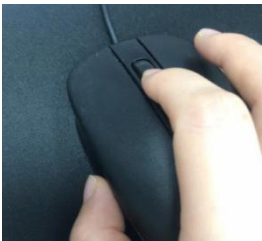
Attention :  
gun and nozzle height  
must be at same height .  
if crystal tip cant touch  
the metal ,please loose  
the screw to let tip slight  
down and tighten the  
tip .

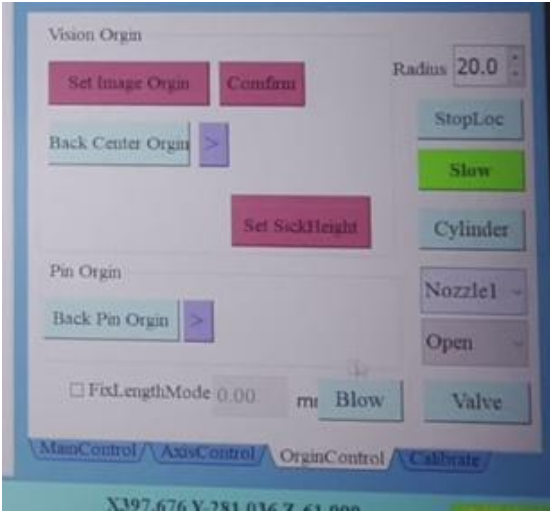



6  
move the plate under  
camera

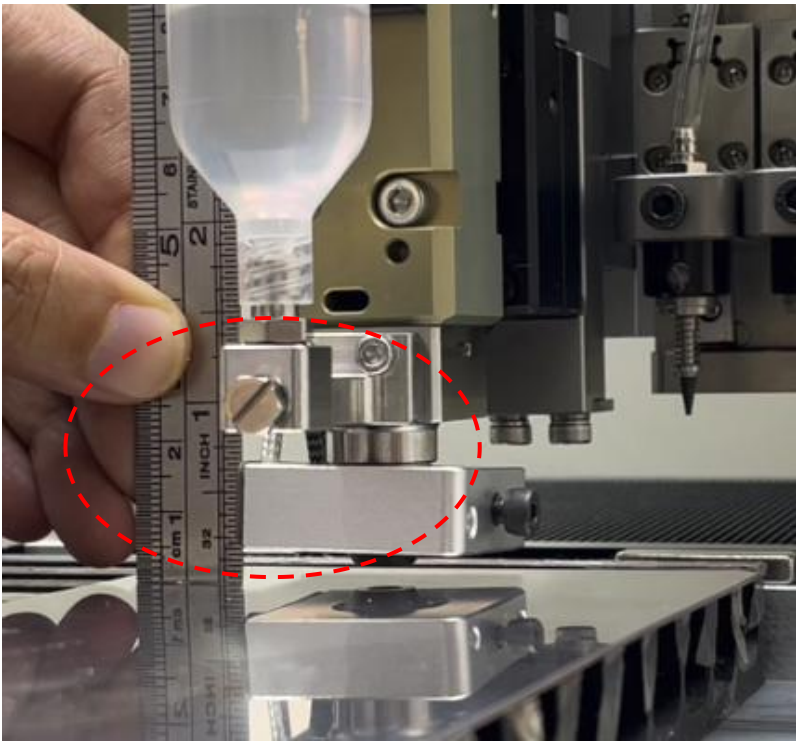


7  
roller mouse to enlarge  
the camera window until  
see the camera red cross'  
+ ,

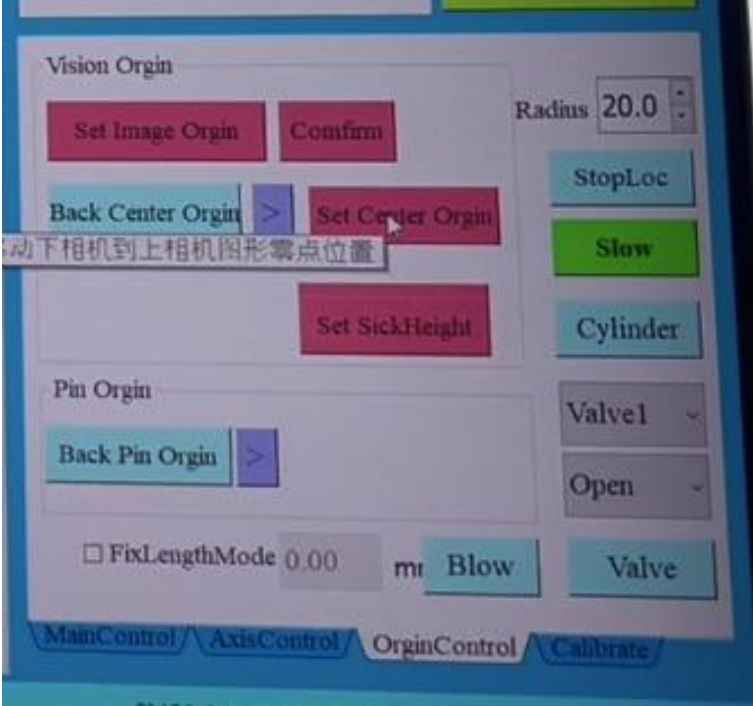


	<p>Click 'Valve 1' =&gt;Click'Cyliner ' down spray gun .</p>	 
5	<p>Left hand Move direction key 'Left ,Right ,Up and <b>Down</b> ' to move the spray gun at center of camera .a camera red cross '+' displayed . Roller mouse to zoom in the screen.</p>	

6  
Press direction button'  
↓Down' to low down  
gun tip to metal  
plate2- 3mm .



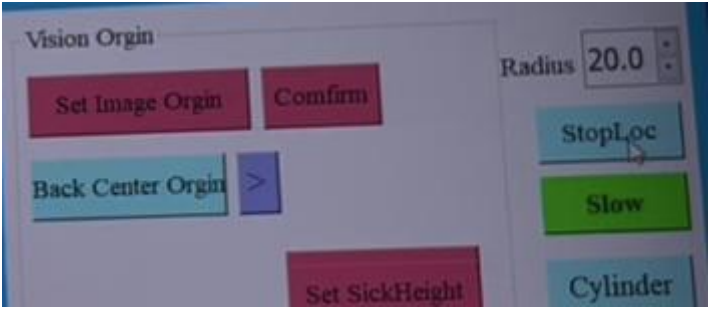



9  
click ' Back Center  
Origin'>'Set Center  
Origin'. there is a  
Bee sound produced  
to set the first time  
origin .



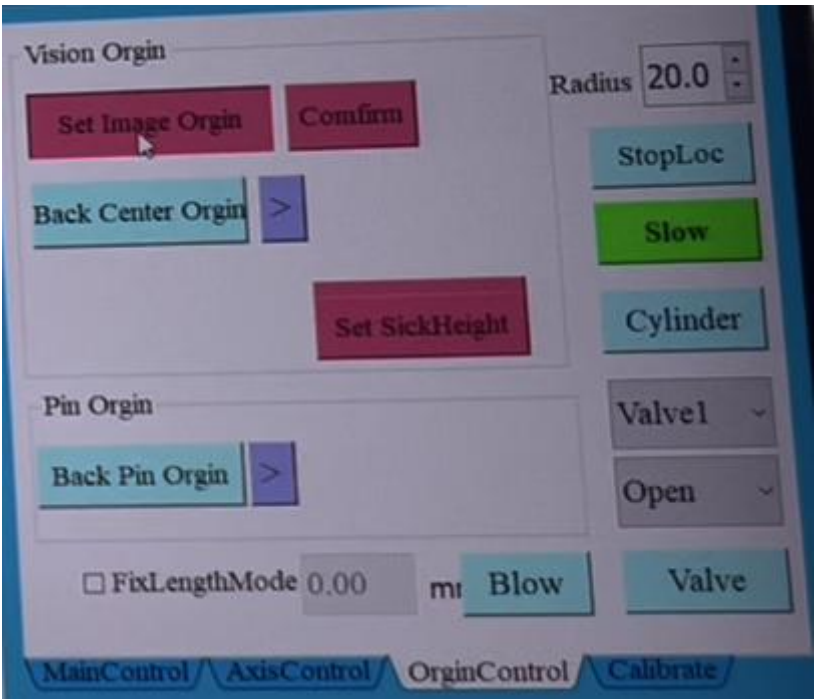
10  
adjust the air pressure  
=> press 'Valve  
Jogg' . Gun sprays  
a round dot .



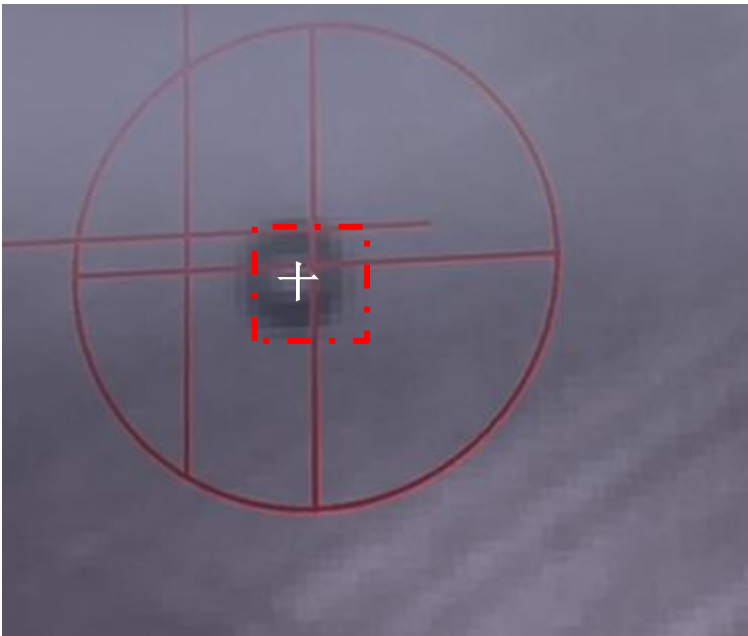








11	<p>Click ‘StopLocation’ gun back to stop location automatically.</p> <p>Round dot on metal plate</p>	 
13	<p>See the round dot . The dot is not at the center of red cross ‘’. It means Valve 1 is not at camera center , and need to correct Valve 1 origin .</p>	
1.2 The 1 <sup>st</sup> time to correct Valve 1 origin to check at center of camera not .		

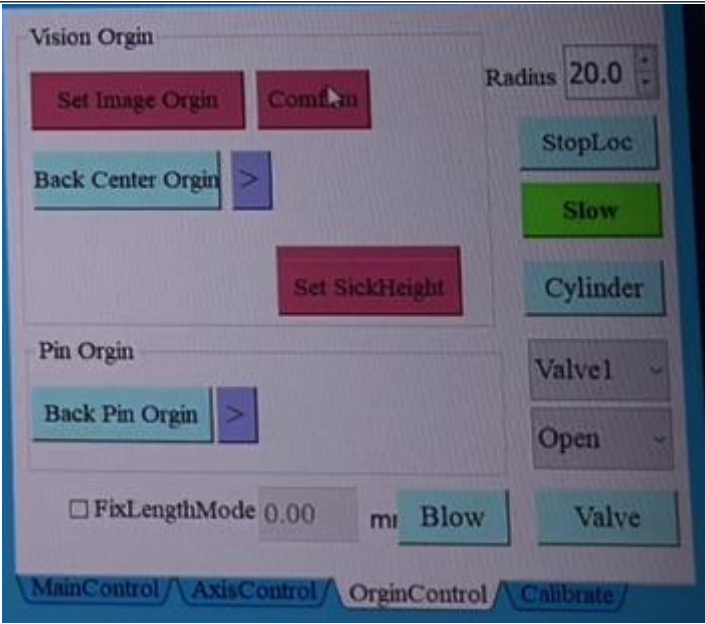

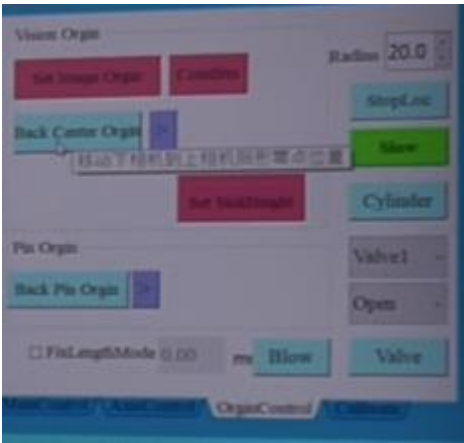


1 click' Set image origin'

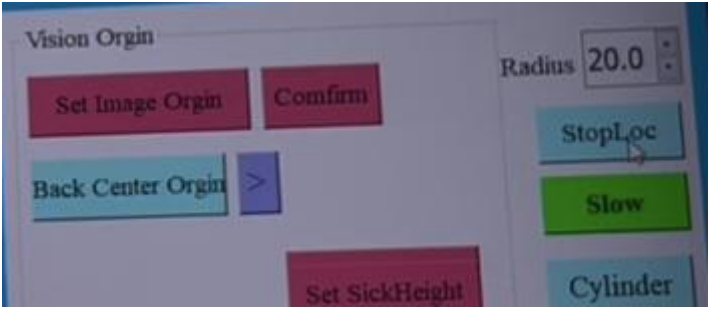
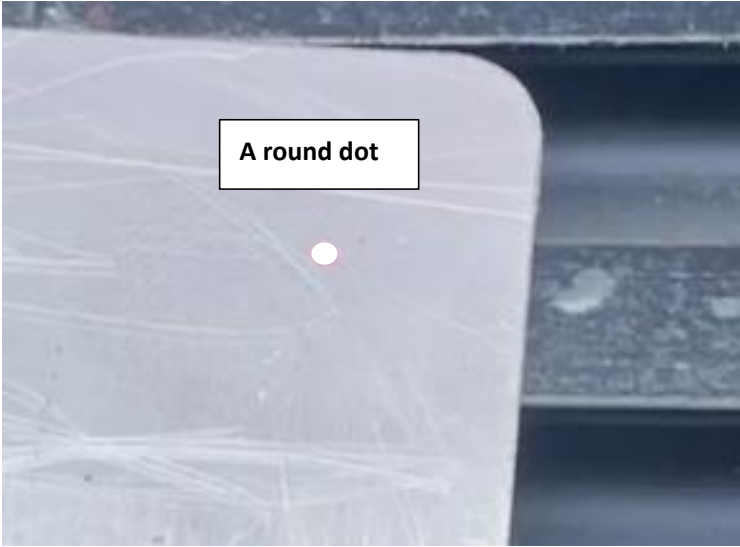

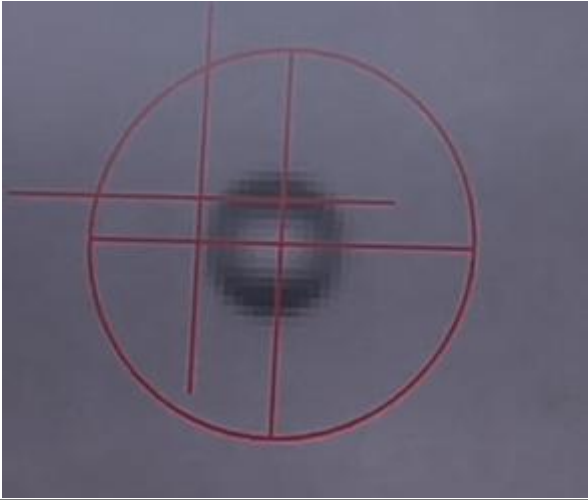



2 Move mouse and put the white curse '+' at center of round dot



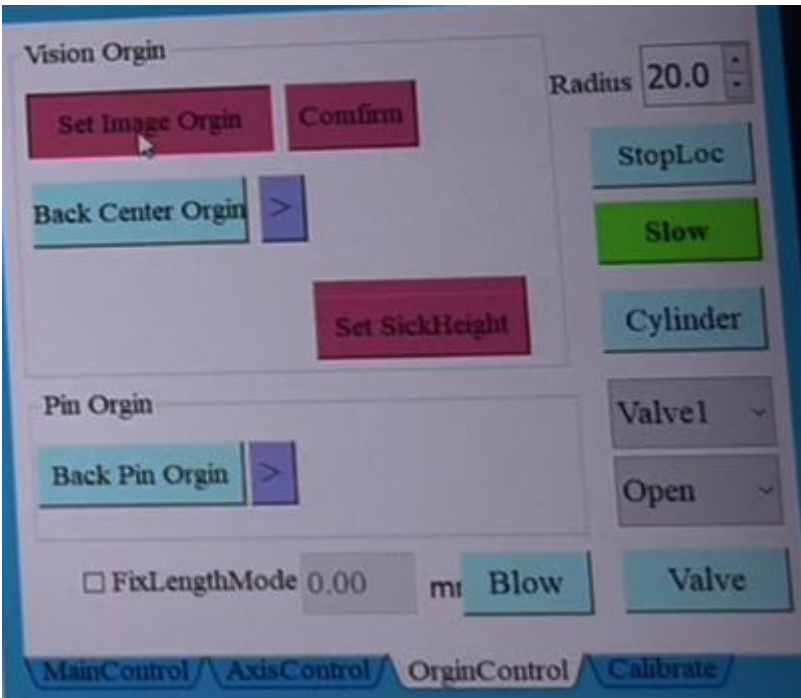

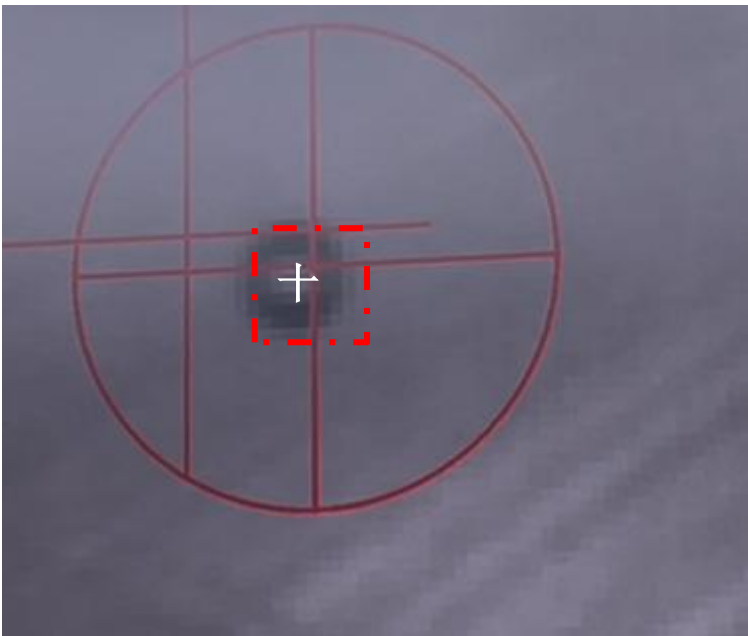
3	<p>Left click the dot center , a red round cross</p> <p> out .</p>	
4	<p>If the red round cross is not  right at the center of dot , please use direction key</p>  <p>on keyboard to move the red round cross  .</p>	
5	<p>Click ‘ <b>Confirm</b>’. a Bee sound produced .</p>	

		
6	clean the dot on plate . press	
	click 'back center origin'	<div data-bbox="544 1196 1010 1637" data-label="Image">  </div> <div data-bbox="1026 1196 1386 1637" data-label="Image">  </div>
6	press 'valve joggle ' to spray a dot	

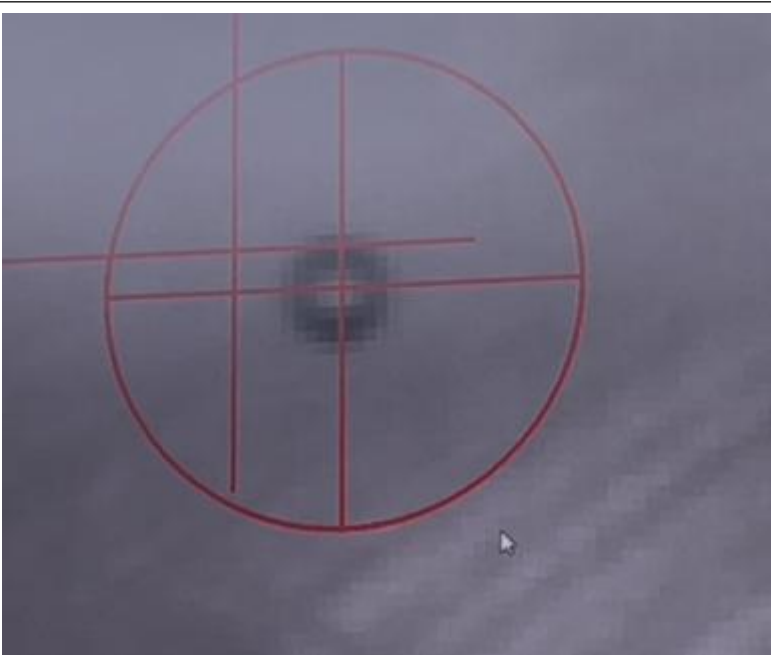
	<p>Click ‘StopLocation’ gun back to stop location automatically.</p> <p>Round dot on metal plate</p>	 
7	<p>See the corrected round dot . The dot is close at the center of red cross ‘’ . but Valve 1 origin is not at camera center , and need to correct Valve 1 origin position again .</p>	
8	<p>clean the glue dot on metal plate</p>	



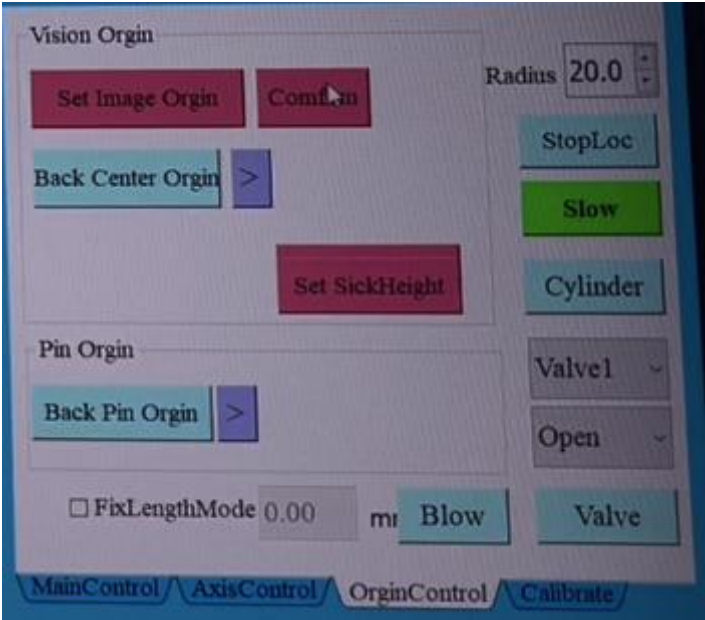
### 1.3 The 2nd time to Correct Valve 1 origin position to check at center of camera not .

1	click' Set image origin'	 
2	Move mouse and put the white curse ' + ' at center of round dot	

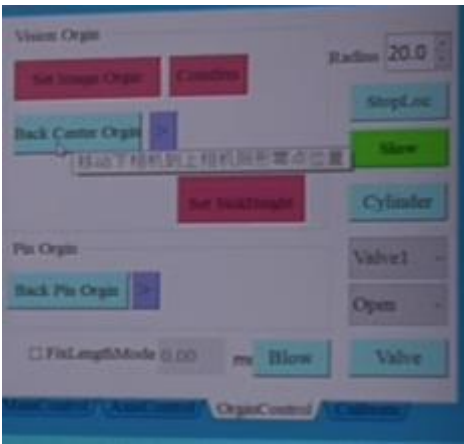
3  
Left click the dot center , a red round cross out .


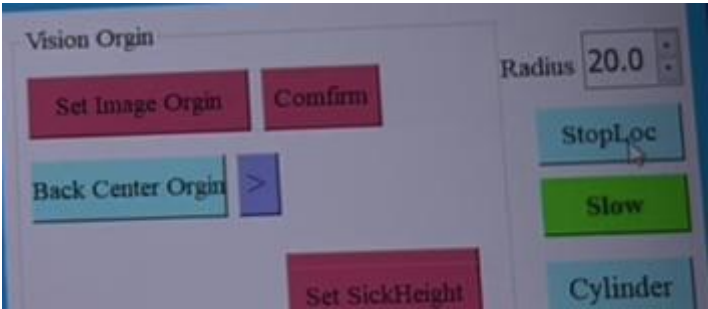
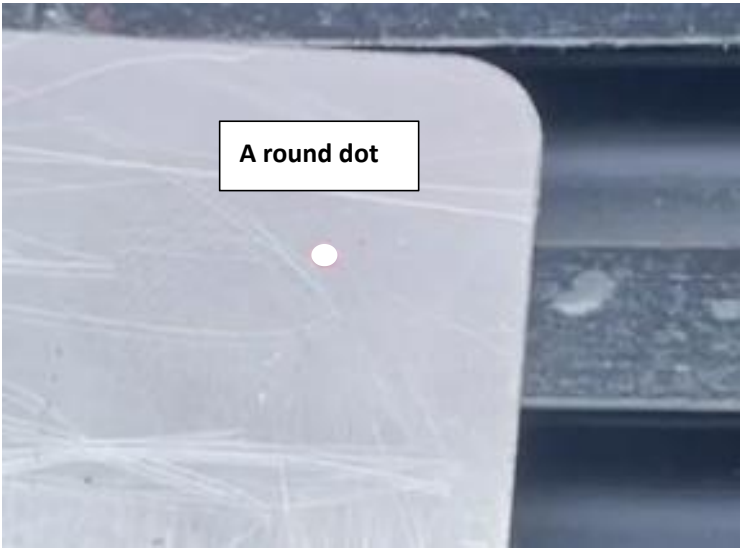



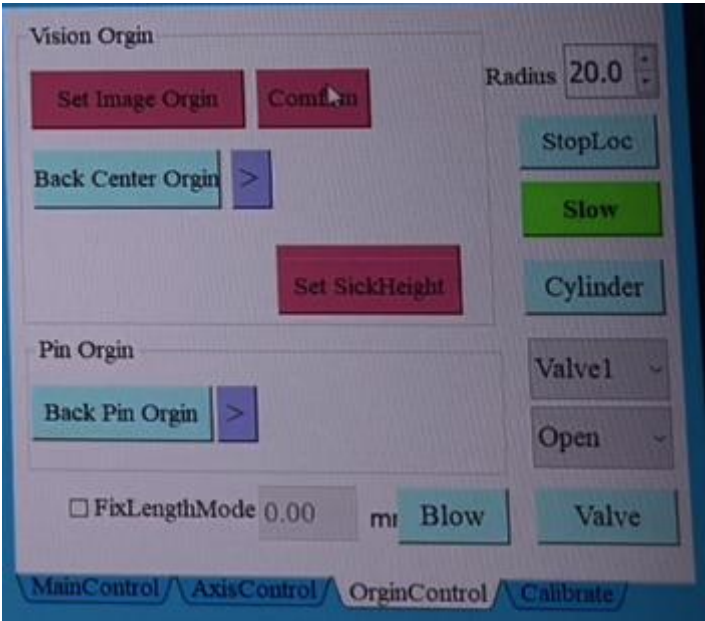
Click ‘ **Confirm**’. a Bee sound produced .



2  
click ‘back center origin’



4	press 'valve joggle ' to spray a dot	
5	<p>Click 'StopLocation' ' gun back to stop location automatically.</p> <p>Round dot on metal plate</p>	 

6	the red cross at center of glue dot .	
7	Click ‘ <b>Confirm</b> ’. a Bee sound produced .	

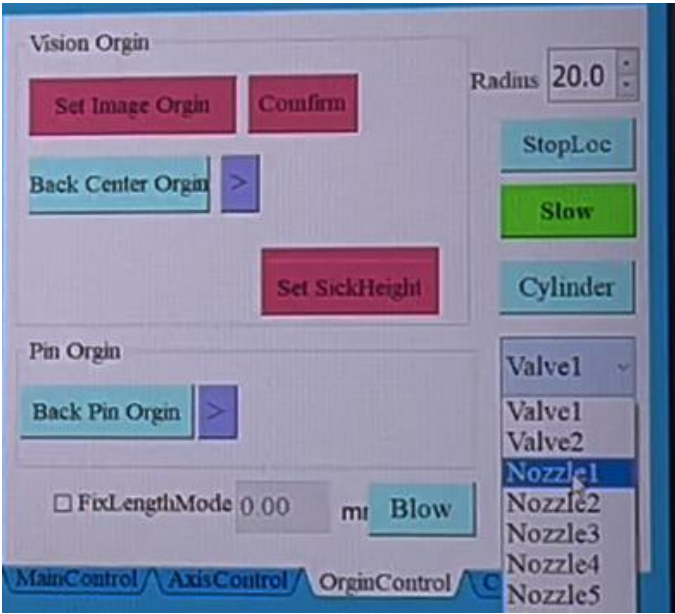
## 2. Set SickHeight ( nozzle height )

S/N	Operation procedure	Operation image
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1

choose 'Nozzle 1'  
click 'Cylinder'

Nozzle 1 pressed down



2

Click X Y Z movement  
speed button 'Slow' shift  
to fast





3

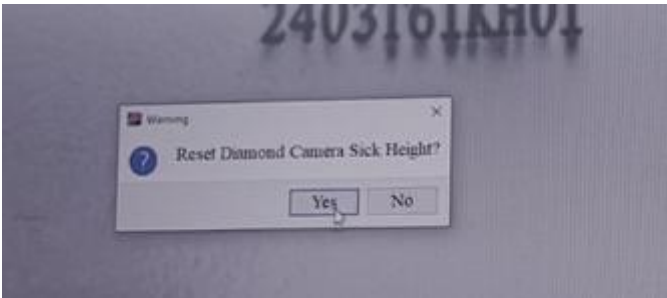
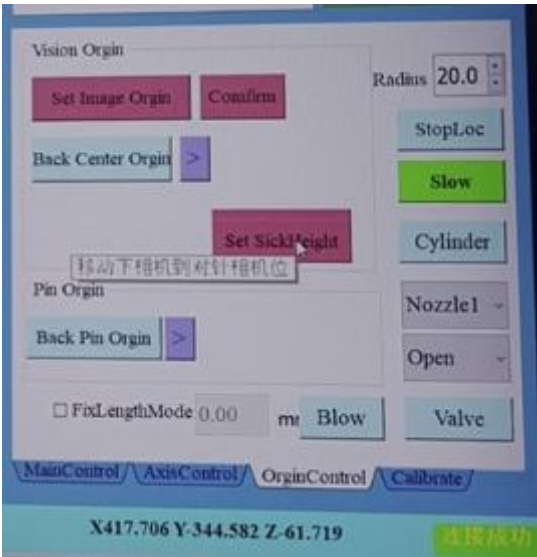
please use direction  
key  
on keyboard to move  
nozzle 1 aim at the  
glue dot on metal .



4

Click'Set sickheight' is  
to set the nozzle height

Click'yes' to 'Reset  
Diamond camera sick  
height' .A Bee sound  
produced .

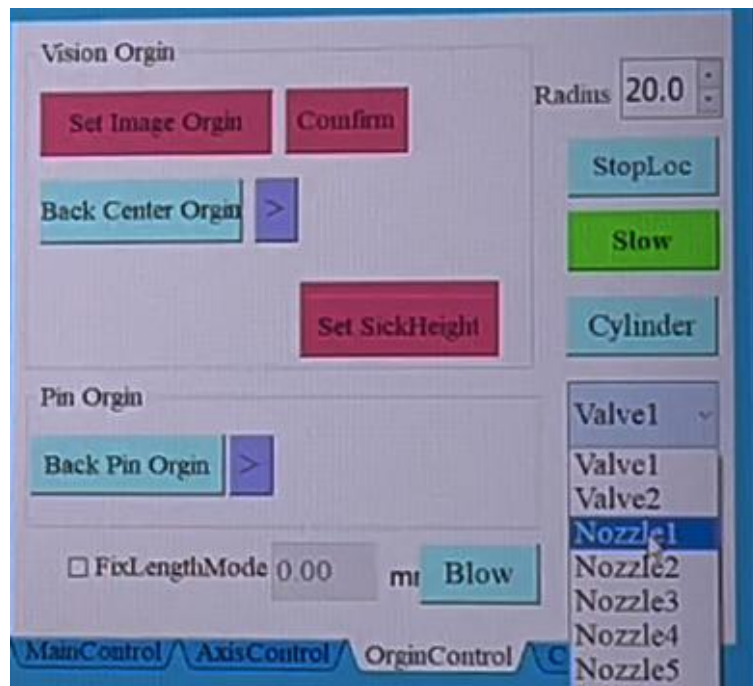


3. Set Pin origin ( Set Valve 1 pin origin and nozzle 1 pin origin )

S/N	Operation procedure	Operation image
-----	---------------------	-----------------

choose 'Nozzle 1'  
click 'Cylinder'

Choose 'Valve 1'  
Click 'Cylinder'



Nozzle 1 pressed down  
Gun pressed down



please use direction



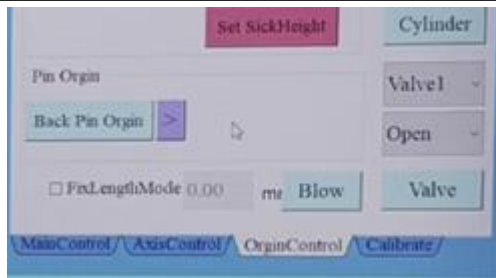
key

on keyboard to move gun 1 at top of metal 2mm aim. ( speed : slow , middle and fast . click the button to shift )

press valve joggle to spray a glue on metal .



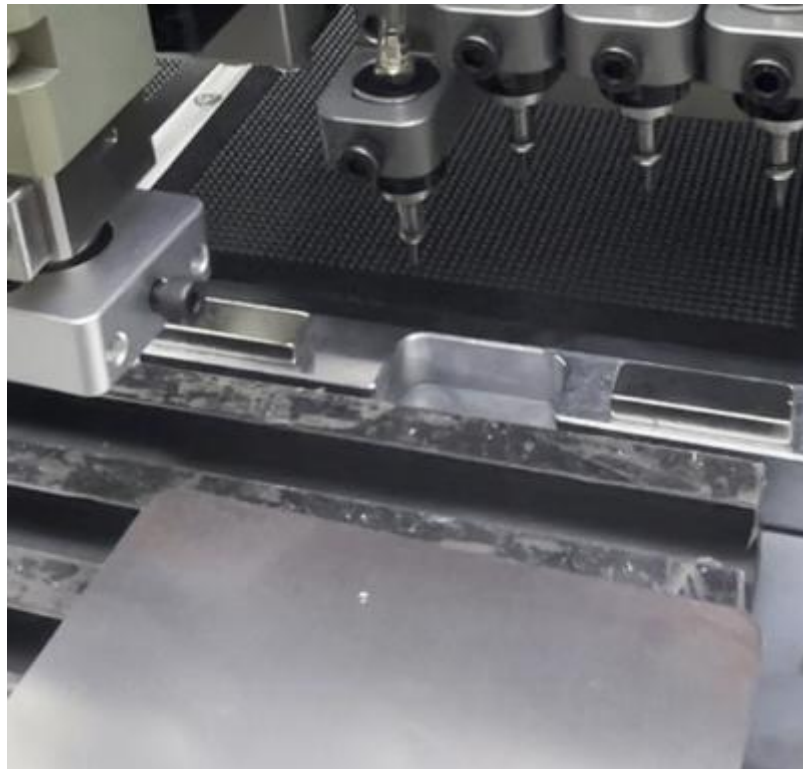
choose 'valve 1'  
click ' set the origin' . a bee sound produced that mean valve 1 pin origin set ok .



Click cylinder to raise  
up gun 1



a glue dot sprayed on  
plate



use direction key

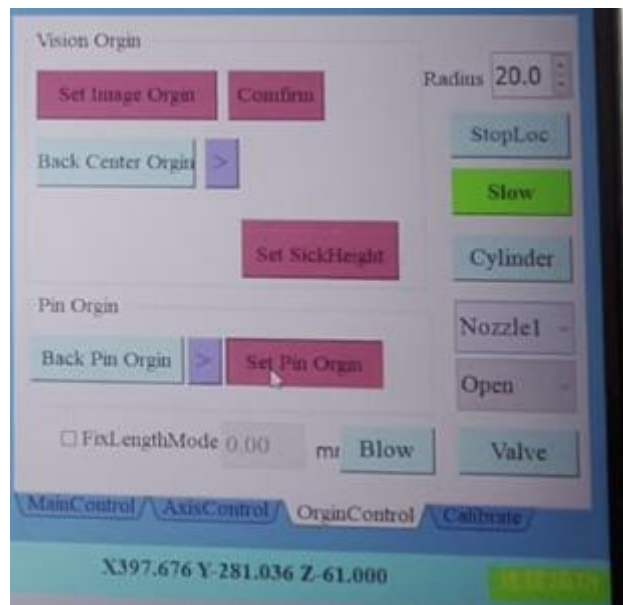


on keyboard to move  
nozzle 1 touch glue  
dot and aim at glue  
dot center . ( speed :  
slow , middle and  
fast . click the button  
to shift )



choose 'Nozzle 1 '

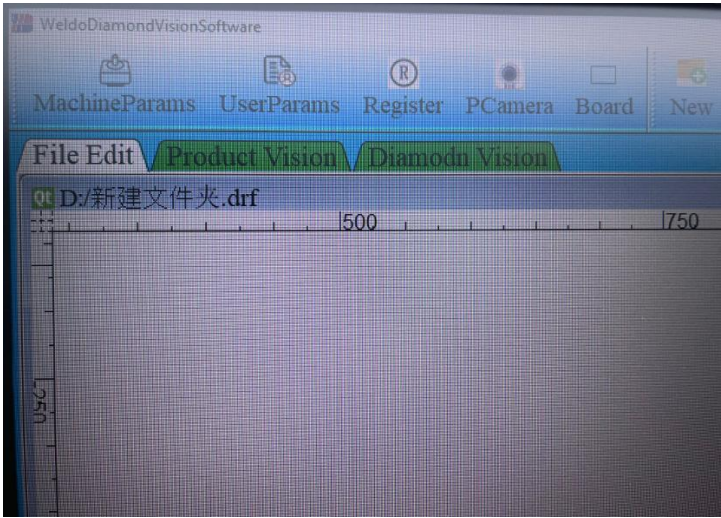
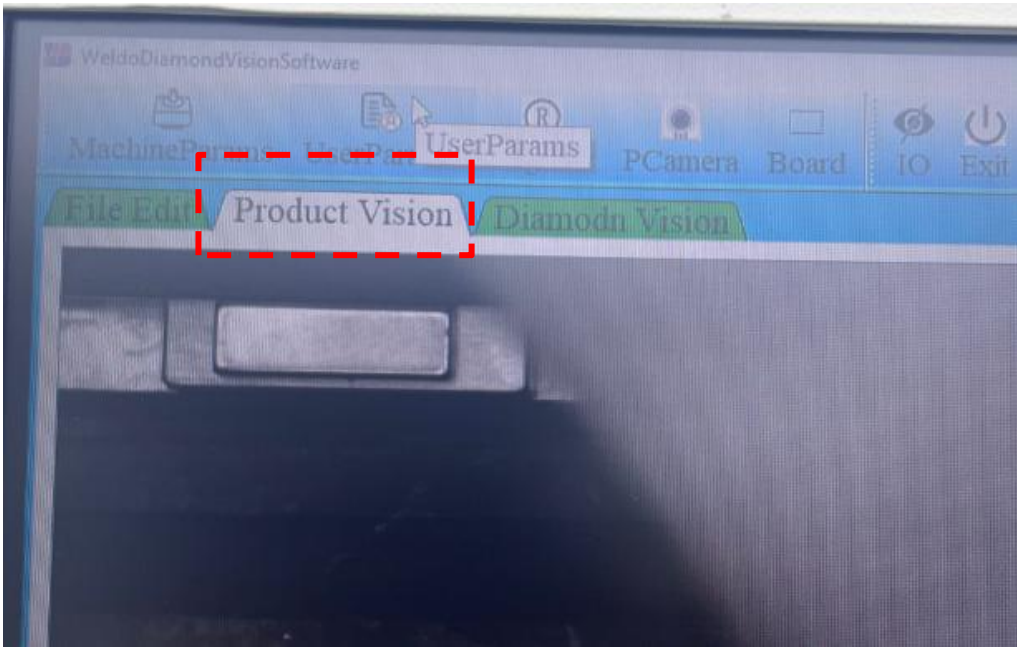
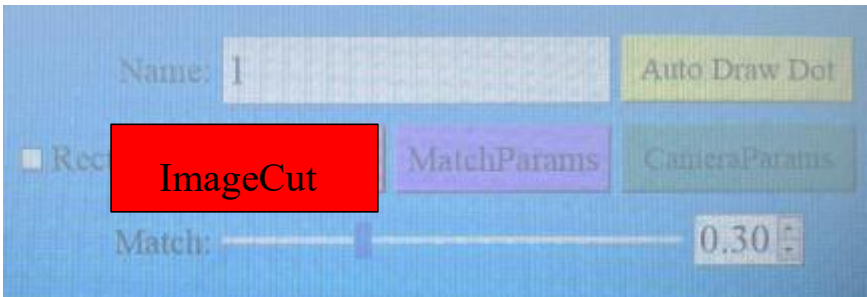
'Back pin origin' click  
' > ' Click' Set Pin  
Origin ' a bee sound  
produced that mean  
nozzle 1 pin origin set  
ok .


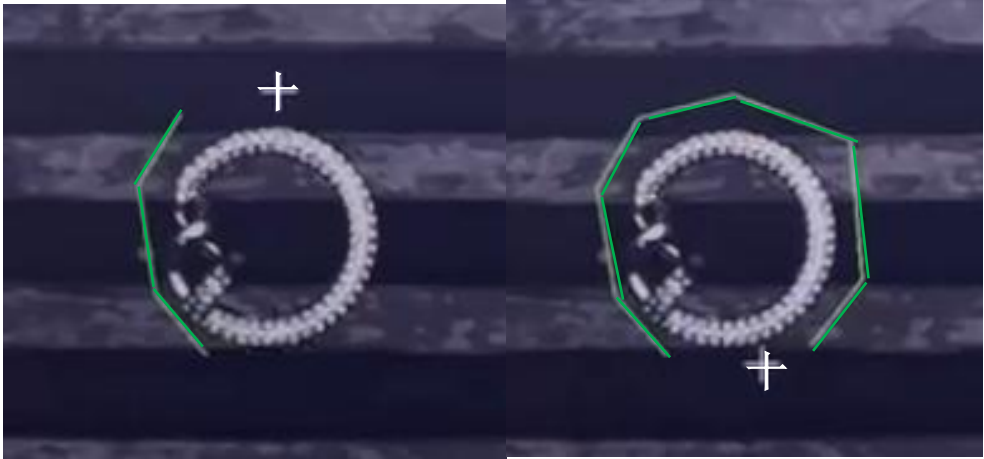

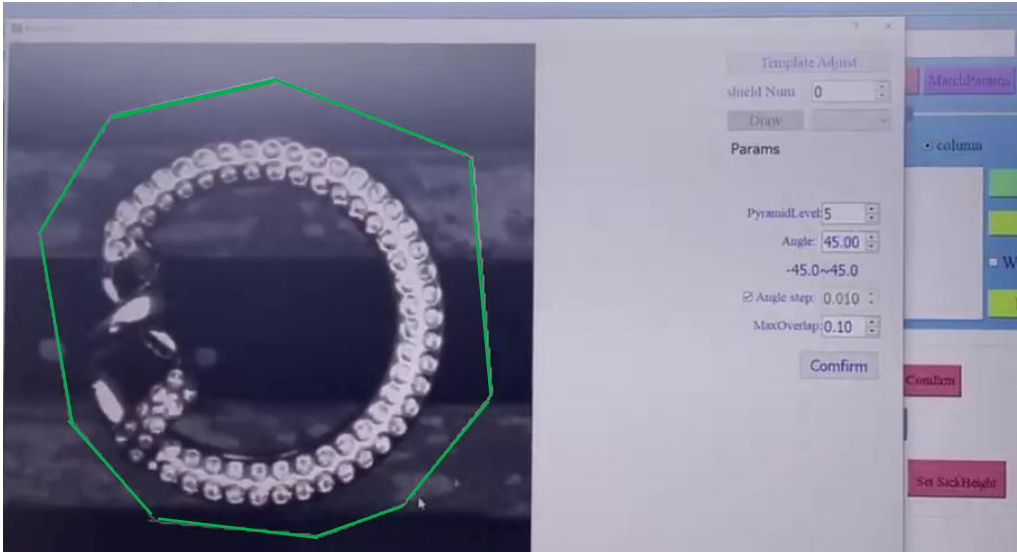


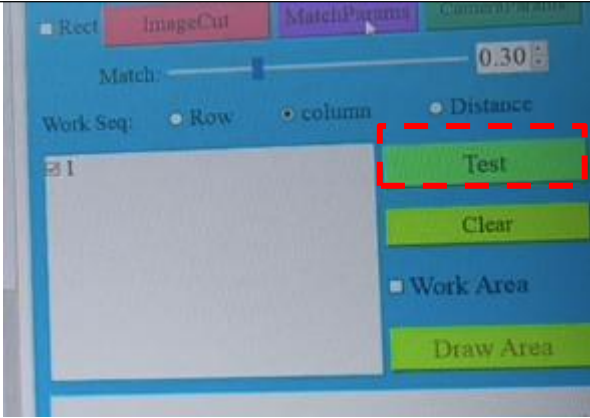

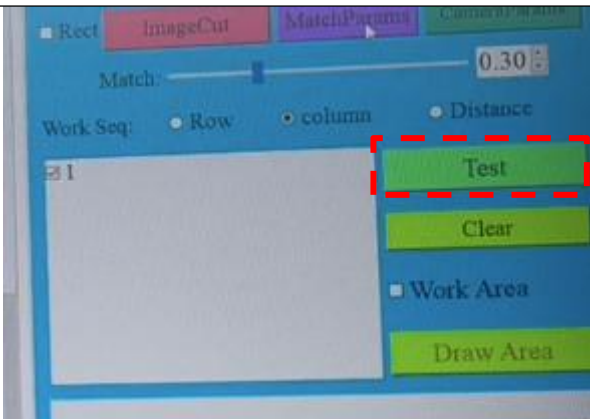



## Chapter 7 : Set Camera Detection Area

### Part 1 : set products template

S/N	opeartio	image
1	click 'file edit ' to creat a new file .	 A screenshot of the WeldoDiamondVisionSoftware interface. The top menu bar includes 'MachineParams', 'UserParams', 'Register', 'PCamera', 'Board', and 'New'. Below this, a secondary menu bar has 'File Edit', 'Product Vision', and 'Diamodn Vision'. The 'File Edit' menu is open, showing a file path 'D:/新建文件夹.drf' and a scale bar with markings at 500 and 750.
	Open' Product Vision'	 A screenshot of the WeldoDiamondVisionSoftware interface. The 'Product Vision' menu item in the secondary menu bar is highlighted with a red dashed rectangle. The background shows a camera view of a metal part.
	Left click ' image cut', a 'question 'window' pops out to ask ' Recaputre Image ' please click 'yes'.  Mouse curse changed to cross ' + ' status immediately .	 A screenshot of the 'ImageCut' dialog box. It features a 'Name' field with the value '1', an 'Auto Draw Dot' button, a 'Rec' checkbox, a 'MatchParams' button, and a 'CameraParams' button. A 'Match' slider is set to 0.30. The 'ImageCut' text is highlighted in a red box.

	<p>Left click to draw green lines slightly outside of product.</p> <p>Operation : left click -&gt;left click-left click ... green lines outs frame the image . double click exit the drawing function , cross' + ' change to arrow' ↑ ' 。</p>	 
	<p>Double click left to end the drawing ,green lines disappeared .</p>	
	<p>(i) Left click ' MatchParameters' , pops out ' template adjust' setting window. The green frame is outside of image . normally frame should be inside of image . please follow below to adjust the frame .</p>	

	<p>Click <b>Test</b> to do the camera detecting .</p> <p>Product image outside is framed by pink lines that camera detecting line .</p>	 
	<p><b>Test</b> put more pieces on worktable .Click , some pieces can not be detected , please do below adjustment .</p>	 

If products can not be detected ,please do below operation to adjust .

1) please raise LED brightness.

a. Adjust dimmer to set LED light.

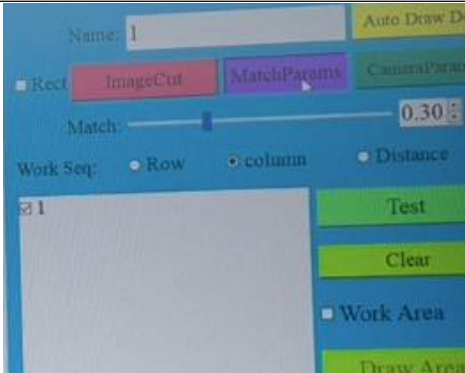
b. Click'cameraparameter',

Slide exposure to adjust exposure time

2) click'match params' to adjust parameter .

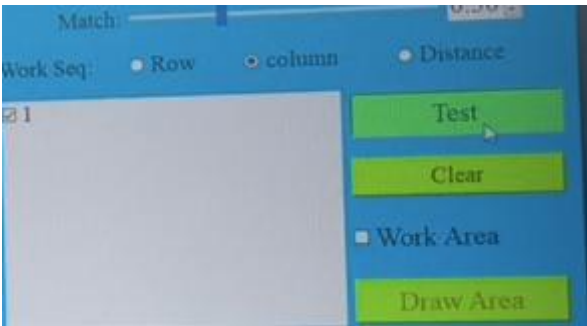
adjust 'MaxOverlap'value bigger and click 'confirm '.

click 'test' to match again .

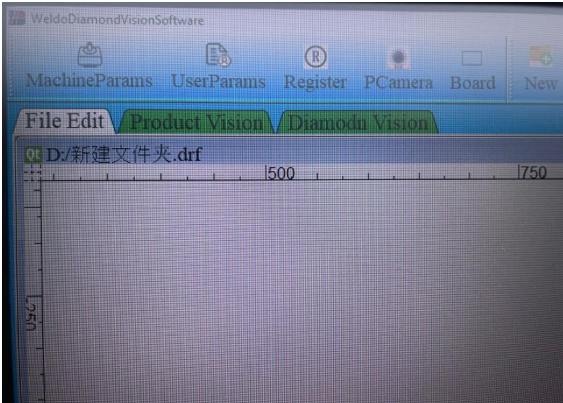




camera can detect all metals .

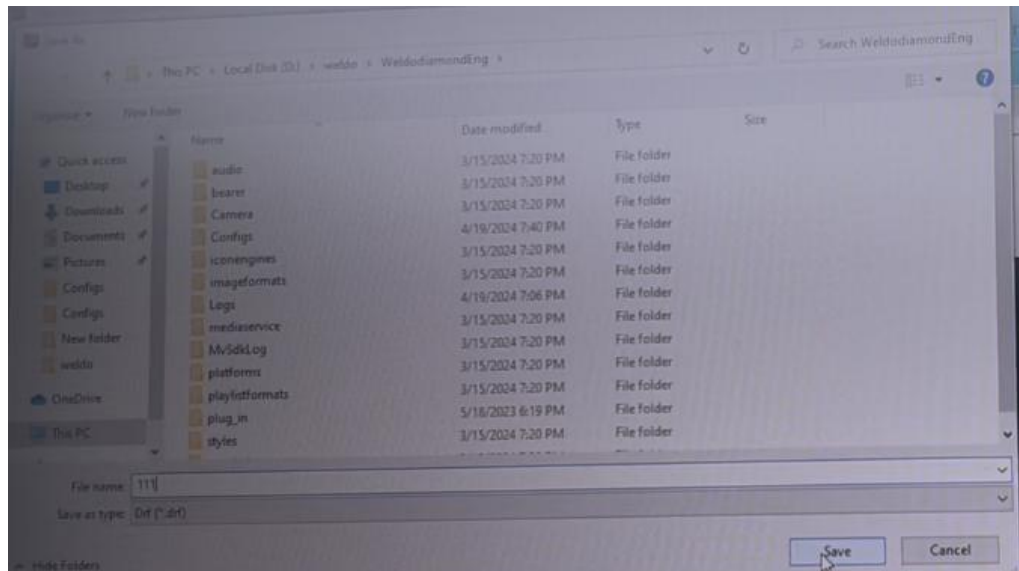
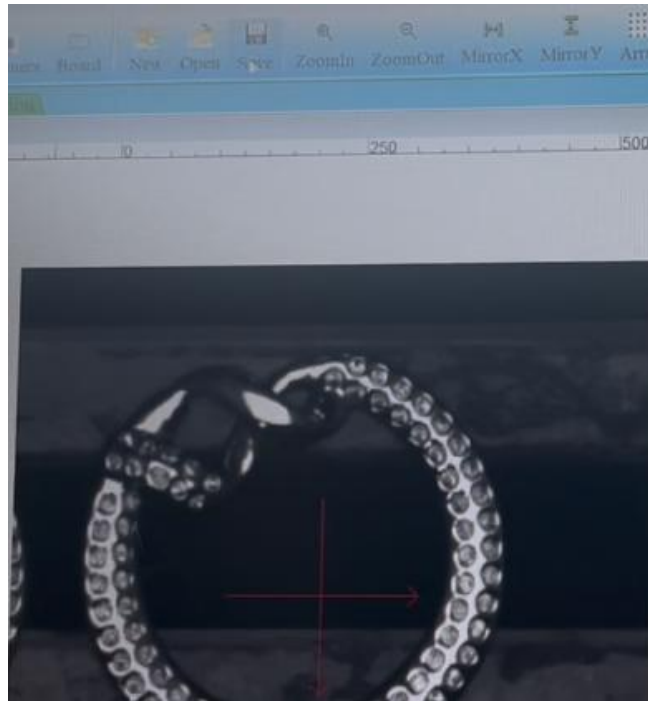


click File Edit , product image displayed in 'File Edit' page .



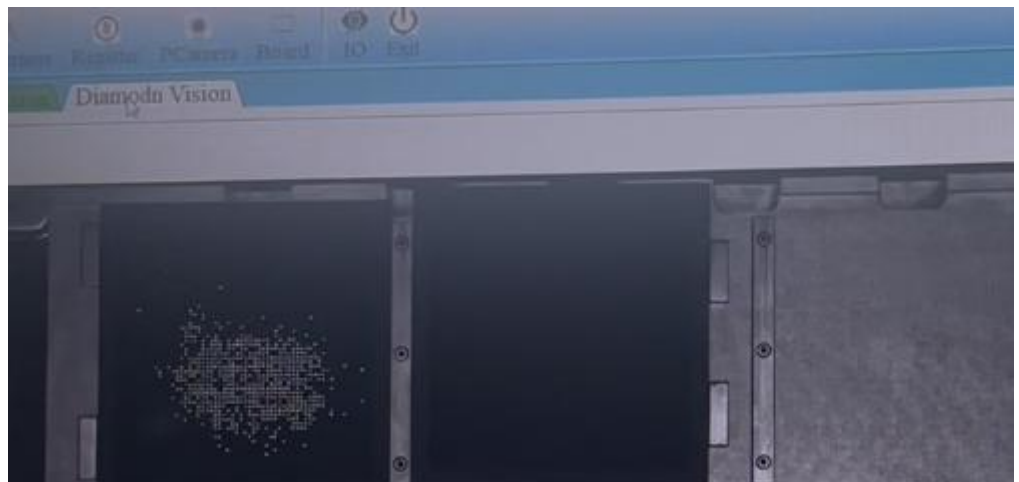


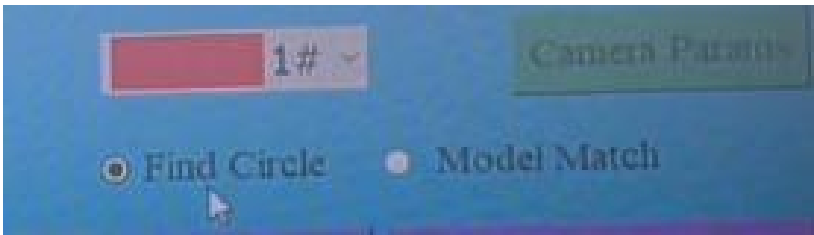
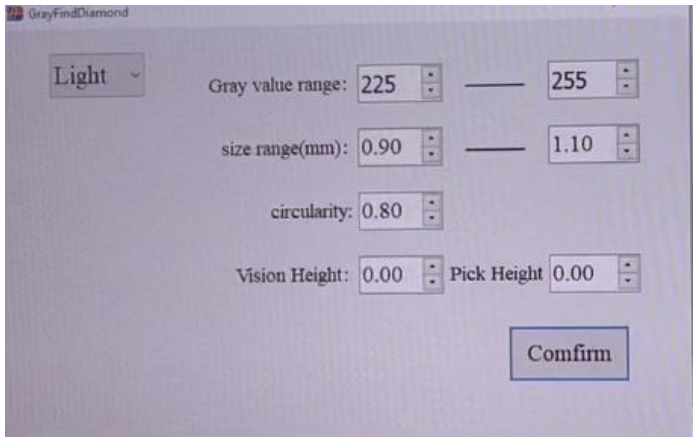



Click 'save'button to save the file.

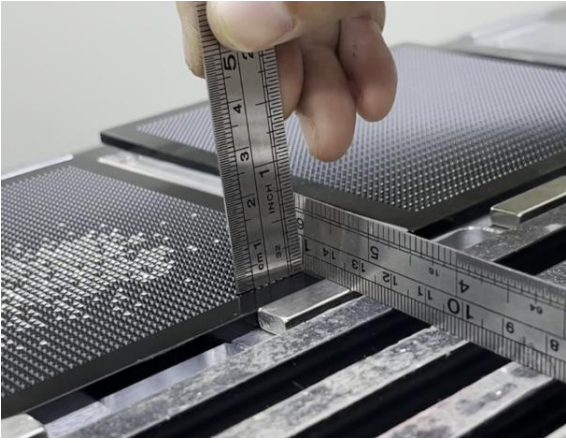
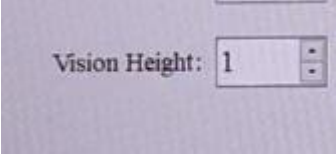

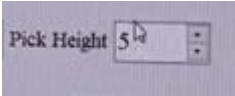



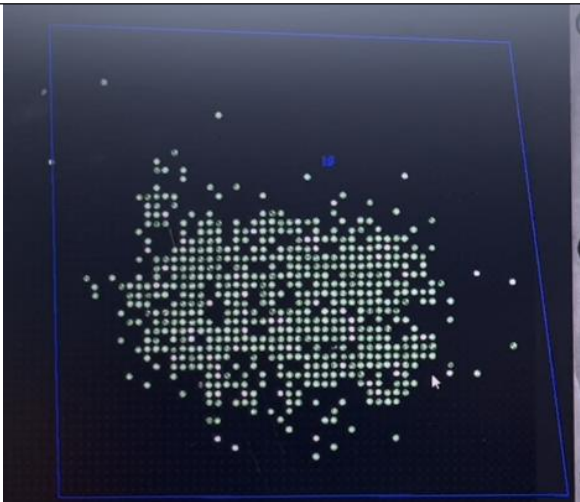
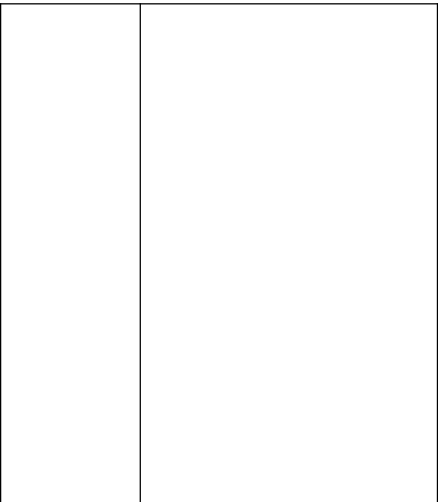
## Part2 : set diamond template : there are two methods to set diamond template

- 1 open diamond vision page to set camera detect diamonds. there are two methods to set camera detection area .



2	method 1 : find circle . it is to detect stone round surface	
	method2 : model match . it is to detect stone template	
	click find circle	
	click match parameter	
	light means light stone black means black stone	
	gray value range value : the value is big, the stone color is more white . if the vaule is small , the stone color is more dark .	
	size range : it is to set the stone size	
	circularity : it is to set stone roundness	

	<p>vision height : this value is the height of stone in crystal plate to metal tray .</p>		
	<p>pick height : it is the nozzle 1 pick height from crystal plate to metal product .</p>		
	<p>click 'Draw work area' is to set the pick stone area</p>		



click 'test' . camera automatic detect the stone



some stones are not detected . click match parameter to adjust the paramter.

GrayFindDiamond

Light

Gray value range: 225 — 255

size range(mm): 0.90 — 1.50

circularity: 0.80

Vision Height: 1.00 Pick Height 5.00

Confirm

Find Mode: Find Circle

matchParameters

Match: [Slider]

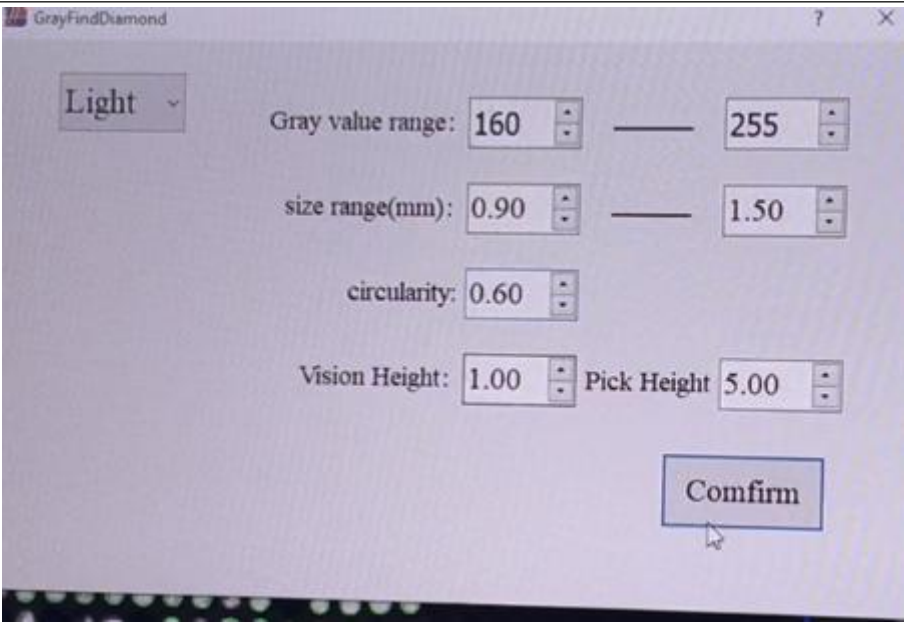
	Diamond	Count	Acti
1	1#	286	Del

Insert Speed [Slider]

Reset Pause



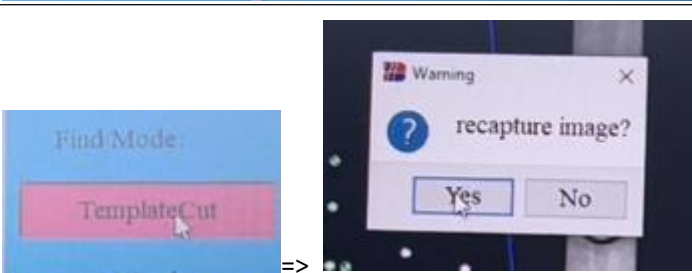
adjust the gray value and circularity and click confirm . and click test to match .



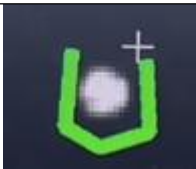
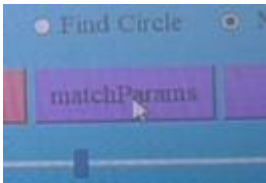
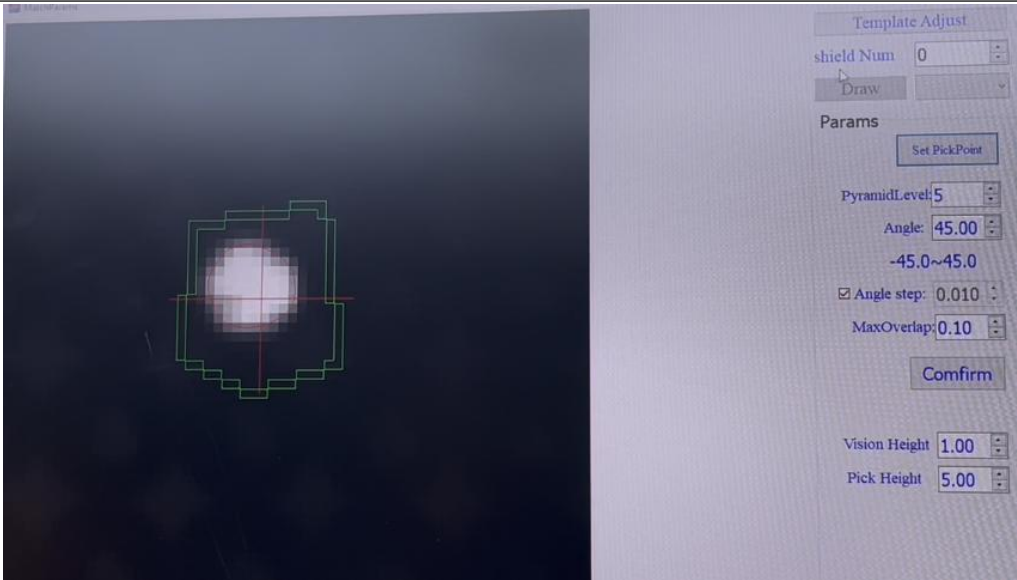
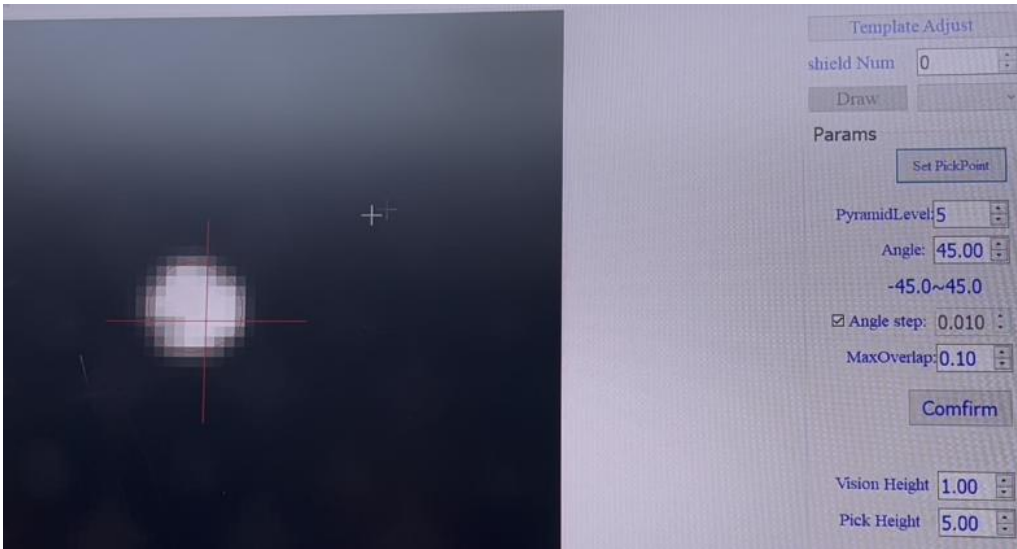
method 2 ; model match

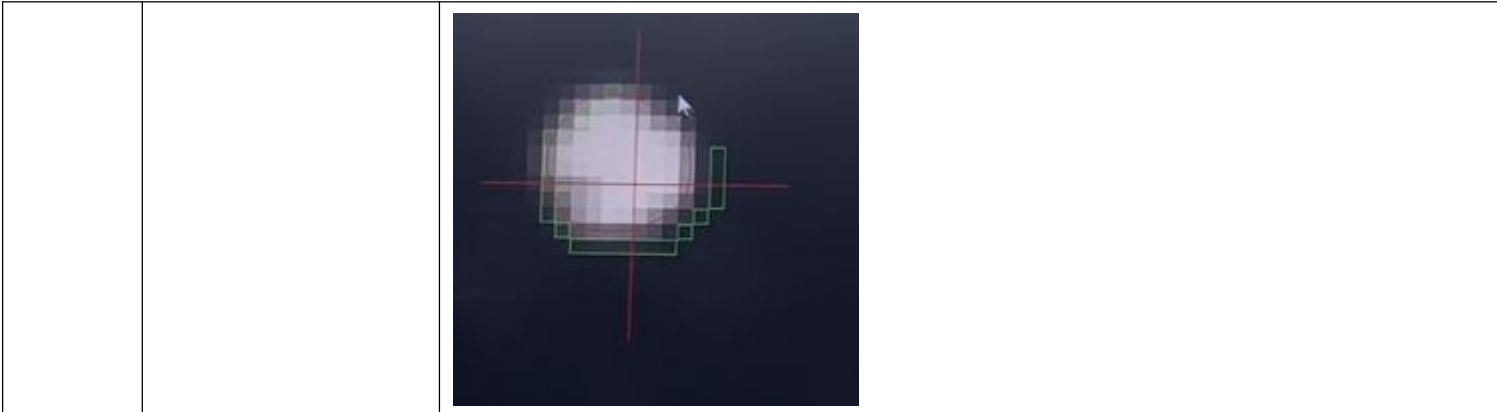



click 'template cut '





	mouse roller to enlarge the stone image ,and draw a stone .	
	click 'match paramems'	
	open	
	click 'template adjust to draw the stone outside. and click 'confirm'	



	<p>click' set pickpoint'</p>	<div data-bbox="544 571 946 969"><p>Params</p><p>Set PickPoint</p><p>PyramidLevel: 5</p><p>Angle: 45.00</p><p>-45.0~45.0</p><p><input checked="" type="checkbox"/> Angle step: 0.010</p></div> <div data-bbox="544 981 971 1433"></div>
--	------------------------------	---

set detect angle and  
click 'confirm'

Params

Set PickPoint

PyramidLevel: 5

Angle: 45.00

-45.0~45.0

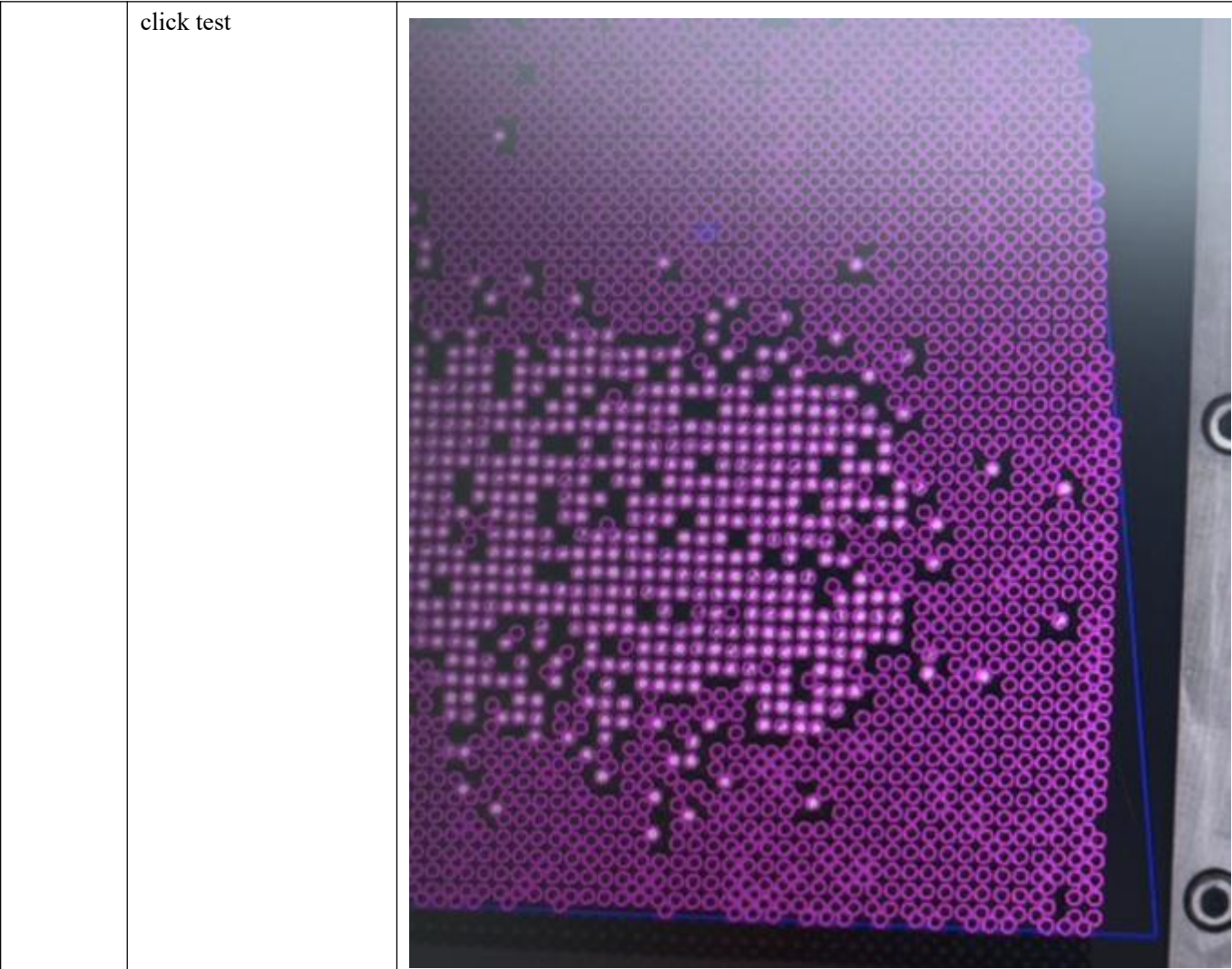
☒ Angle step: 0.010


MaxOverlap: 0.10

Confirm

Vision Height 1.00

Pick Height 5.00



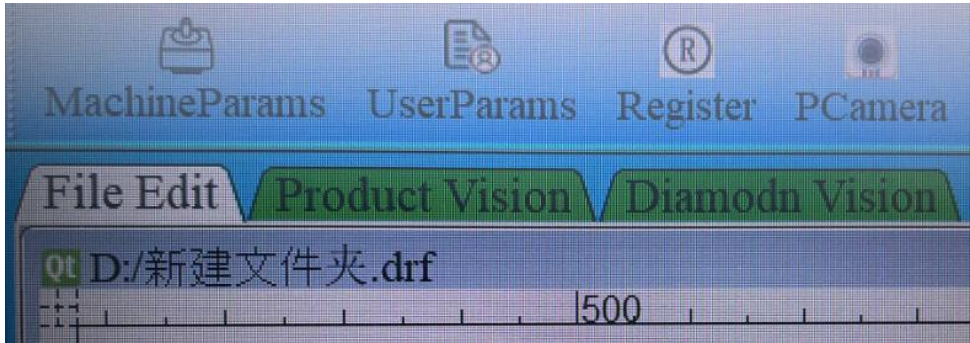
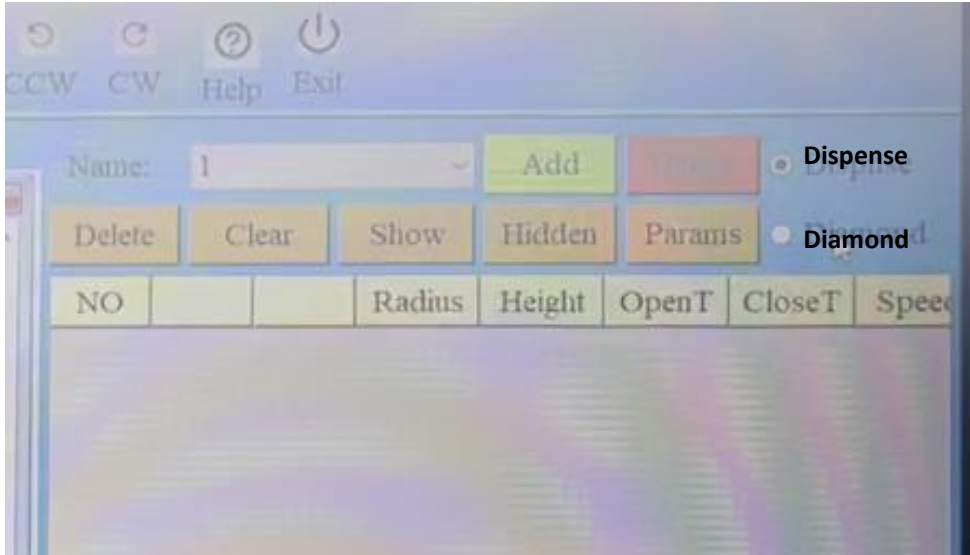

	click test	
--	------------	--

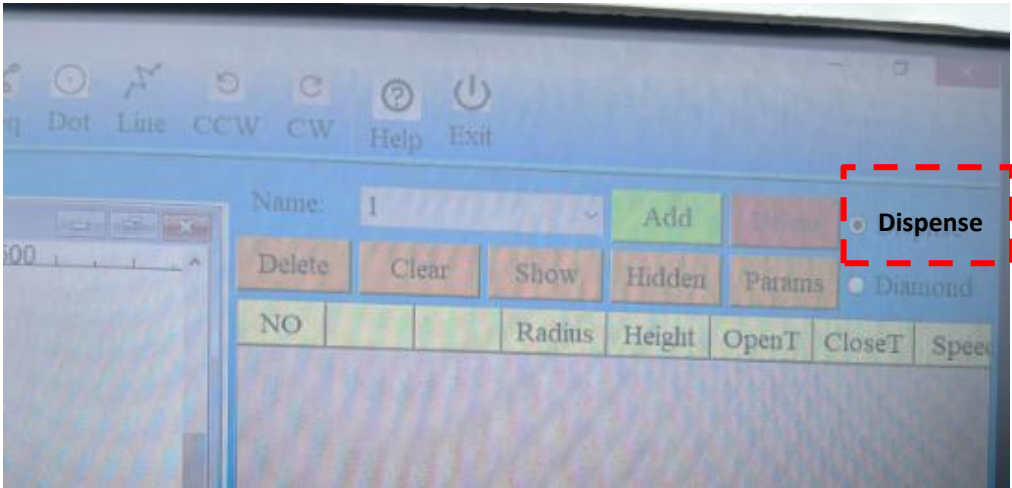
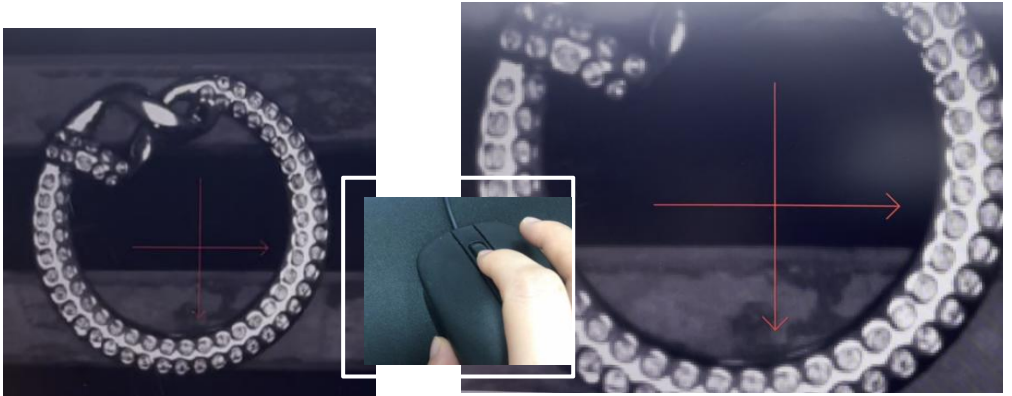



suggestion : find circle is more precision for camera to detect stones .


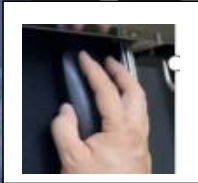
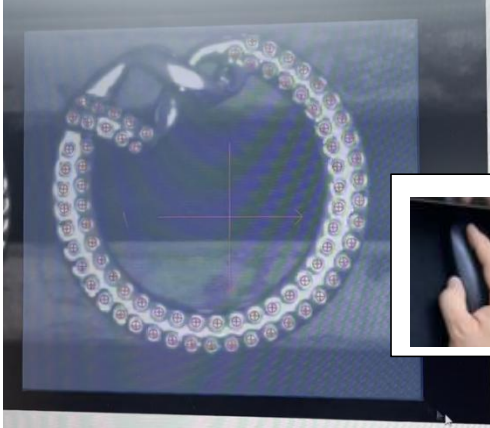
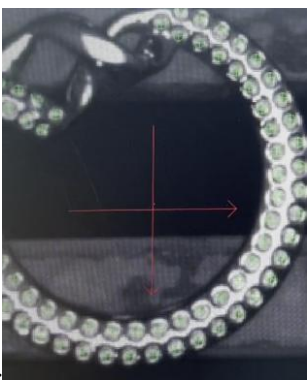
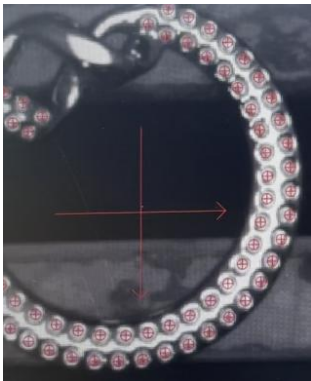

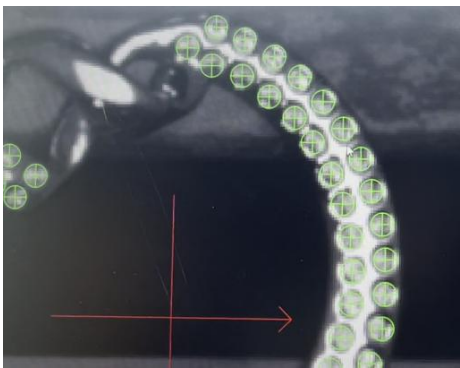


## Chapter 8 : Draw dispense and diamond path

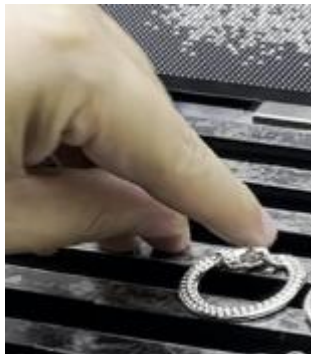
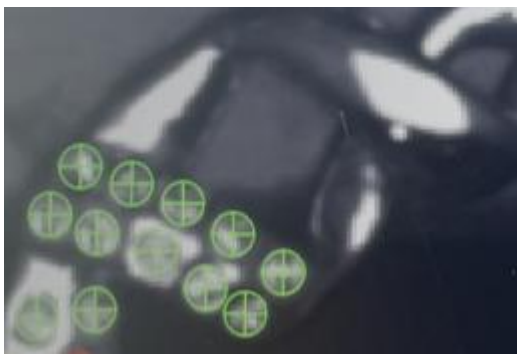
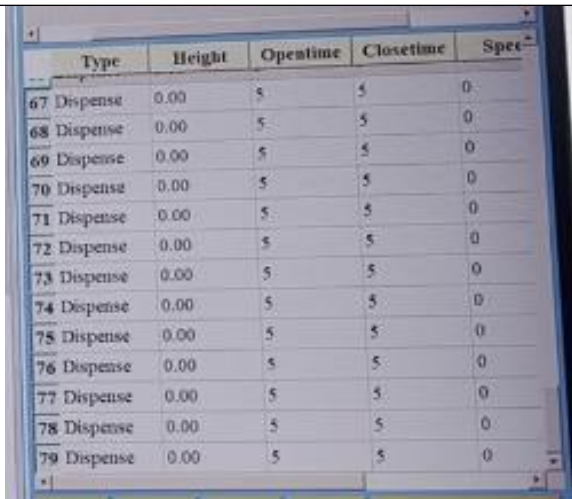
### Part 1 : Draw spray gun glue path and set quantity for Valve 1

S/N	Operation procedure	Operation image
1	<p>open FileEdit Page to program dispensing glue and diamond setting path .</p> <p>‘Dispense ‘ : set glue path ‘Diamond’: set stone picking and setting path .</p>	 
2	<p>First set glue path . Choose #1</p> <p>Choose ‘Dispense’</p>	



		
3	Put mouse in drawing curve , roll up mouse to enlarge curve . hold mouse roller that can pull curve to center .	
4	<p>Drawing dot process :</p> <p>=&gt;Choose drawing tool 'Dot' . mouse curse '  'changed to '  ' to start drawing .</p> <p>=&gt; put Cross at the center of holes and click , red round crosses left that are the glue path .</p> <p>=&gt; double click mouse exit drawing function .</p>	

5	<p>Set open valve time and close valve time for dots .</p> <p>(1) drag mouse to frame all dots . red dots changed to green .</p> <p>(2) loose mouse , green dots change to red color.</p>	<div></div>																						
6	<p>NO 1 for pin 1 # : it is to set all dot's valve open time , close valve time , and all lines'speed .</p>	<div><table border="1"><thead><tr><th>NO</th><th>Radius</th><th>Height</th><th>OpenT</th><th>CloseT</th><th>Speed</th></tr></thead><tbody><tr><td>1</td><td>0.51</td><td>0</td><td>5</td><td>5</td><td>100</td></tr></tbody></table><table border="1"><thead><tr><th>Radius</th><th>Height</th><th>Open T</th><th>CloseT</th><th>Speed</th></tr></thead><tbody><tr><td>it is to change dot size</td><td></td><td>Open valve time .default time 5 mseconds</td><td>Close valve time , default time 5 mseconds</td><td>Speed for line. default line speed is 100.</td></tr></tbody></table></div>	NO	Radius	Height	OpenT	CloseT	Speed	1	0.51	0	5	5	100	Radius	Height	Open T	CloseT	Speed	it is to change dot size		Open valve time .default time 5 mseconds	Close valve time , default time 5 mseconds	Speed for line. default line speed is 100.
NO	Radius	Height	OpenT	CloseT	Speed																			
1	0.51	0	5	5	100																			
Radius	Height	Open T	CloseT	Speed																				
it is to change dot size		Open valve time .default time 5 mseconds	Close valve time , default time 5 mseconds	Speed for line. default line speed is 100.																				
7	<p>Set Radius Value to change dot size for clear see.</p> <p>Frame dots =&gt; put the value in Radius ,press 'ENTER' to save =&gt; dot changed bigger</p>	<div><div><div><div>Radius</div><div>0.8</div></div><div>=&gt; Enter=&gt;</div></div><div></div></div>																						



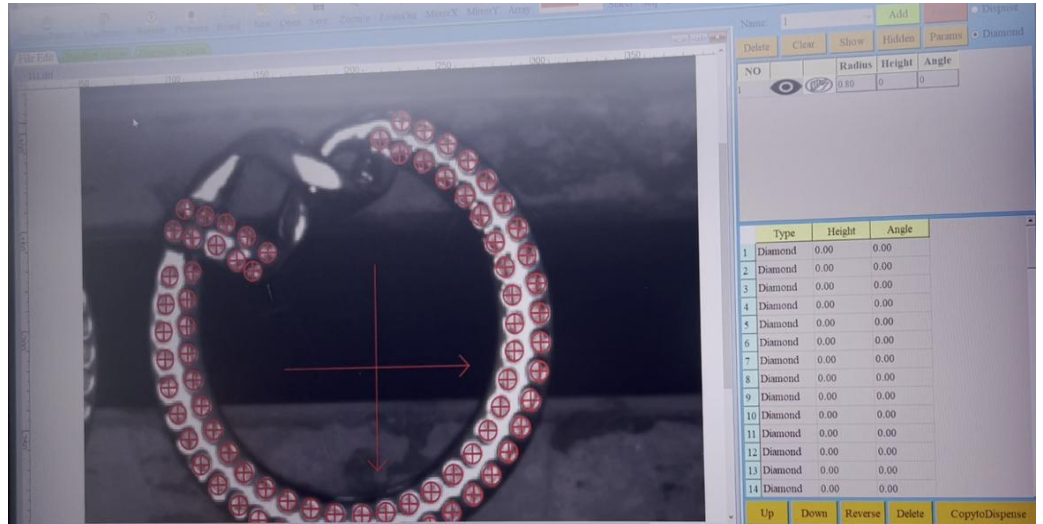
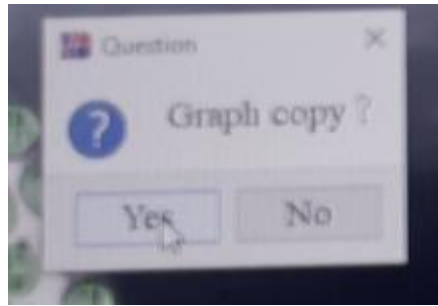
8	<p>Height : this height is the products height . some product has different height that set height value to raise up gun to dispense glue . Example part top area is higher than down area .</p> <p>the top area height value should be set</p>	 																																																																																				
9	<p>Set single dot list is to modify each dot height and open valve time and close valve time .</p>	 <table><thead><tr><th></th><th>Type</th><th>Height</th><th>Opentime</th><th>Closetime</th><th>Spec</th></tr></thead><tbody><tr><td>67</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>68</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>69</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>70</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>71</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>72</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>73</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>74</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>75</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>76</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>77</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>78</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>79</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr></tbody></table>		Type	Height	Opentime	Closetime	Spec	67	Dispense	0.00	5	5	0	68	Dispense	0.00	5	5	0	69	Dispense	0.00	5	5	0	70	Dispense	0.00	5	5	0	71	Dispense	0.00	5	5	0	72	Dispense	0.00	5	5	0	73	Dispense	0.00	5	5	0	74	Dispense	0.00	5	5	0	75	Dispense	0.00	5	5	0	76	Dispense	0.00	5	5	0	77	Dispense	0.00	5	5	0	78	Dispense	0.00	5	5	0	79	Dispense	0.00	5	5	0
	Type	Height	Opentime	Closetime	Spec																																																																																	
67	Dispense	0.00	5	5	0																																																																																	
68	Dispense	0.00	5	5	0																																																																																	
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70	Dispense	0.00	5	5	0																																																																																	
71	Dispense	0.00	5	5	0																																																																																	
72	Dispense	0.00	5	5	0																																																																																	
73	Dispense	0.00	5	5	0																																																																																	
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76	Dispense	0.00	5	5	0																																																																																	
77	Dispense	0.00	5	5	0																																																																																	
78	Dispense	0.00	5	5	0																																																																																	
79	Dispense	0.00	5	5	0																																																																																	

Part 2 : Draw diamond Setting Path for nozzle 1

1	<p>click left mouse to select all dots</p> <p>=&gt; click ‘CopyDiamond’</p>	  <table><tr><th></th><th>Type</th><th>Height</th><th>Opentime</th><th>Closetime</th><th>Spec</th></tr><tr><td>78</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr><tr><td>79</td><td>Dispense</td><td>0.00</td><td>5</td><td>5</td><td>0</td></tr></table> <div><div>Up</div><div>Down</div><div>Reverse</div><div>Delete</div><div>CopytoDiamond</div></div> <div><div>MoveTo</div><div>1</div><div>DrawSeq</div></div>		Type	Height	Opentime	Closetime	Spec	78	Dispense	0.00	5	5	0	79	Dispense	0.00	5	5	0
	Type	Height	Opentime	Closetime	Spec															
78	Dispense	0.00	5	5	0															
79	Dispense	0.00	5	5	0															

=> Click 'Yes' . Diamond file automatically produced

=> click 'Diamond' file button .all glue dots copied to diamond file .



set Stone placing height  
(1) use ruler to measure the lowest stone hole height :2mm



(2) measure the highest height is : 5mm

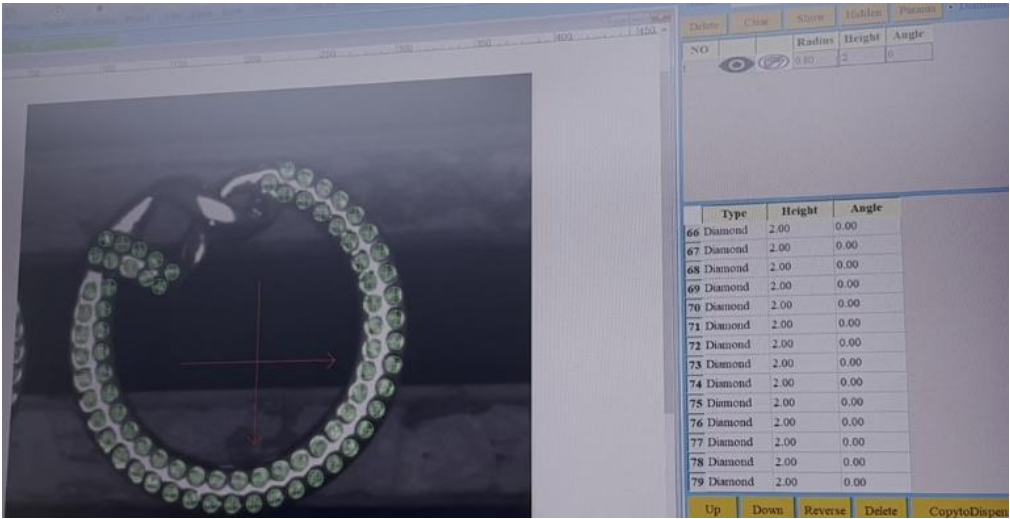


(3) click left mouse to



frame all dots and input value 2 to set the whole height .

press 'ENTER' to save .



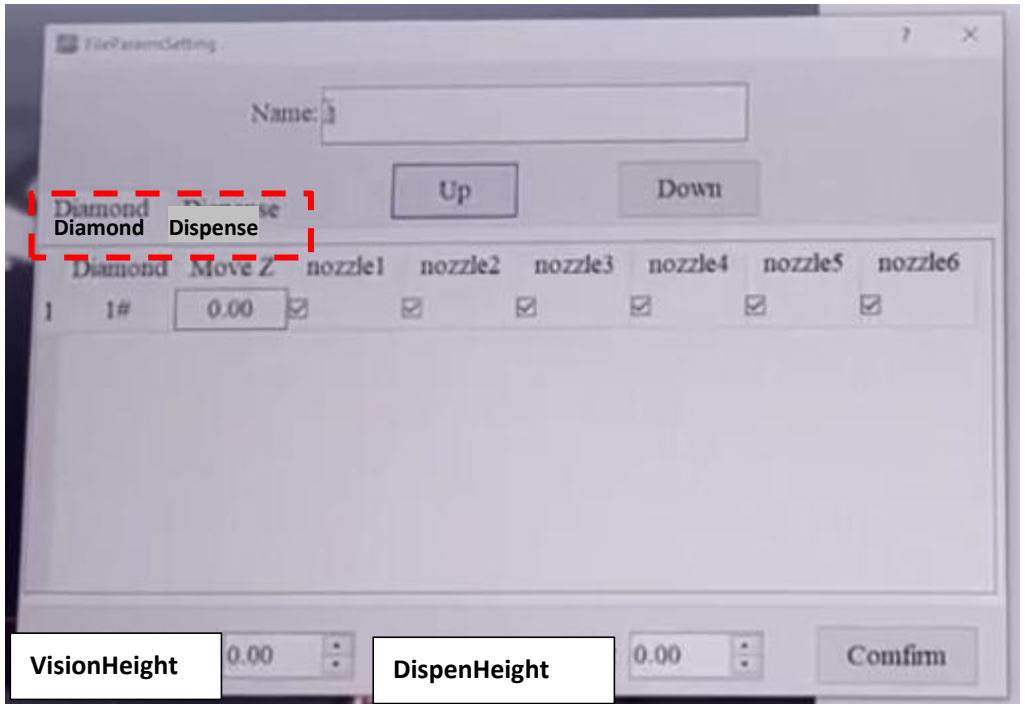


(4) click left mouse to click the hight area dots one by one to input value 5

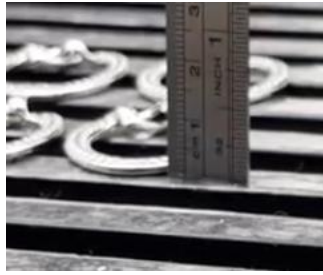


## Chapter 9 : Set Template Parameter

### Part 1 : set products template

S/N	opeartio	image							
1	Click File Edit to edit page .								
	click' params'								
	=> parameter setting : diamond and dispense parameter setting .								
	diamond parameters	<table><tr><td>MoveZ</td><td>NOZZLE 1</td></tr><tr><td>This value means nozzle 1 picking height from crystal plate to products tray ,normally vaule is 6 mm</td><td>choose nozzle quantity . only one nozzle , tick nozzle 1</td></tr><tr><td>Vision Height</td><td>Dispesing height</td></tr><tr><td>it is the products height , use ruler measure the product height .</td><td>it is spray gun spraying height , normally higher 2mm than vision height .</td></tr></table>	MoveZ	NOZZLE 1	This value means nozzle 1 picking height from crystal plate to products tray ,normally vaule is 6 mm	choose nozzle quantity . only one nozzle , tick nozzle 1	Vision Height	Dispesing height	it is the products height , use ruler measure the product height .
MoveZ	NOZZLE 1								
This value means nozzle 1 picking height from crystal plate to products tray ,normally vaule is 6 mm	choose nozzle quantity . only one nozzle , tick nozzle 1								
Vision Height	Dispesing height								
it is the products height , use ruler measure the product height .	it is spray gun spraying height , normally higher 2mm than vision height .								

Dispense parameter



**Diamond Dispense**

Name: 1

**Diamond Dispense** Up Down

	Color	Valve	Move Z	Mode
1	1#	Valve1	0.00	spray

Vision Height 2.50 DispenHeight 3.00 Confirm


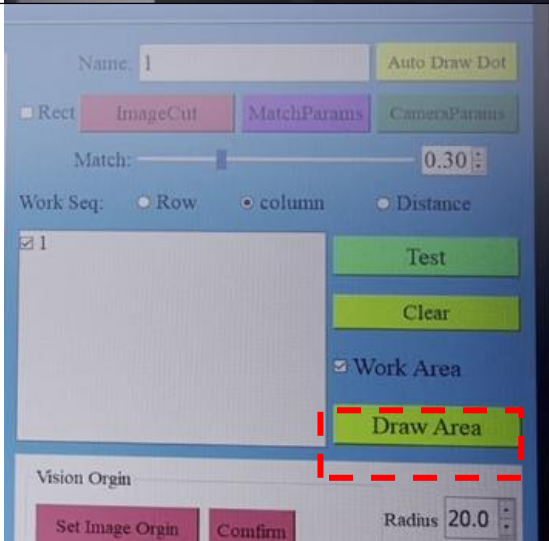
VisionHeight

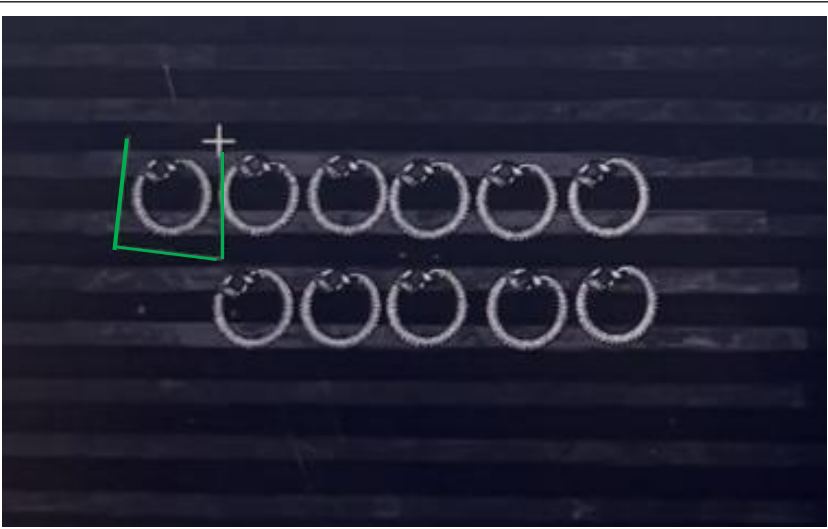
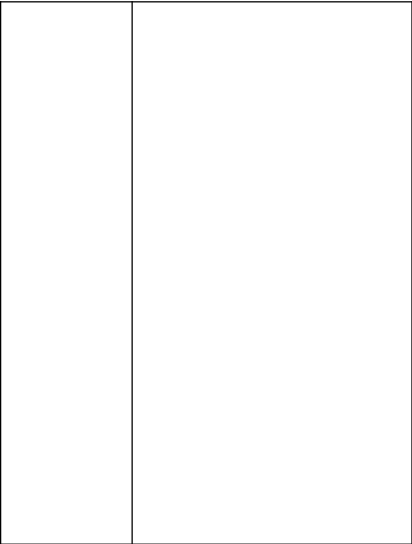
DispenHeight

Move z height : it is spray gun raise up height after spray glue .  
Mode :choose spray

## Chapter 9 : Test And Start

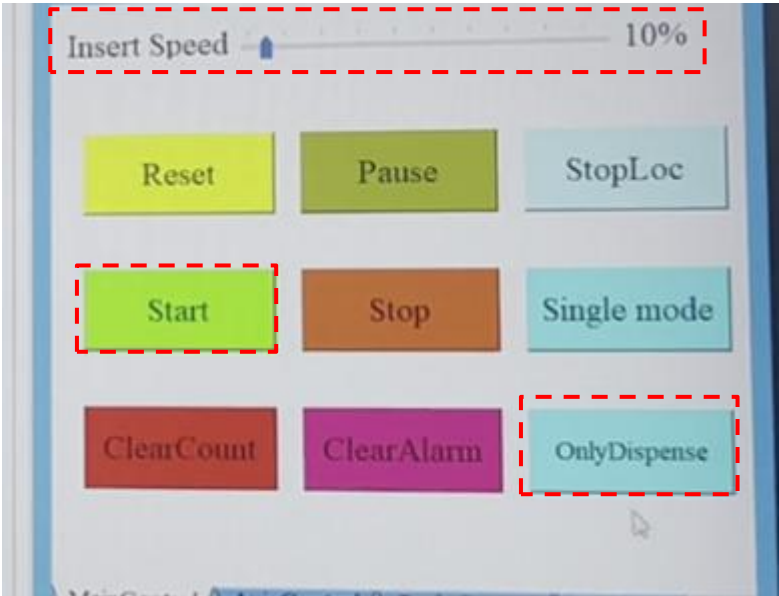
### Part 1 :Test Glue Amount

S/N	opeartion	image
1	Click 'Product Vision'	
	<p>click 'Draw area' , mouse curse changed to cross ' + ' 。</p> <p>Draw green lines to frame one of product . Double click to exit drawing function .</p>	



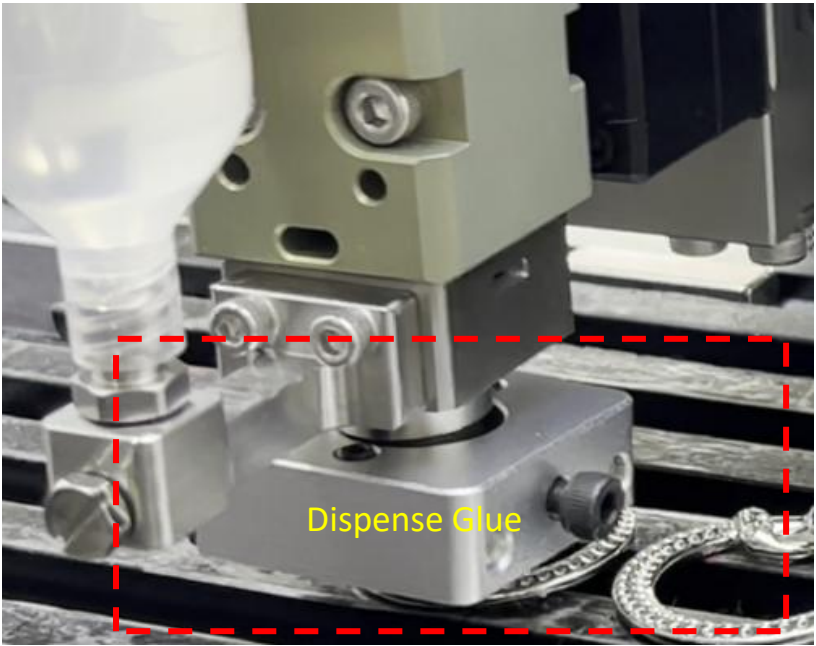
choose 'only  
dispense' mode .  
( this button has two  
modes:  
' only dispense' ,  
'only diammond' ,  
'dispense-diamond' )

Slide speed slow ,  
slide block 'Insert  
Speed'



2

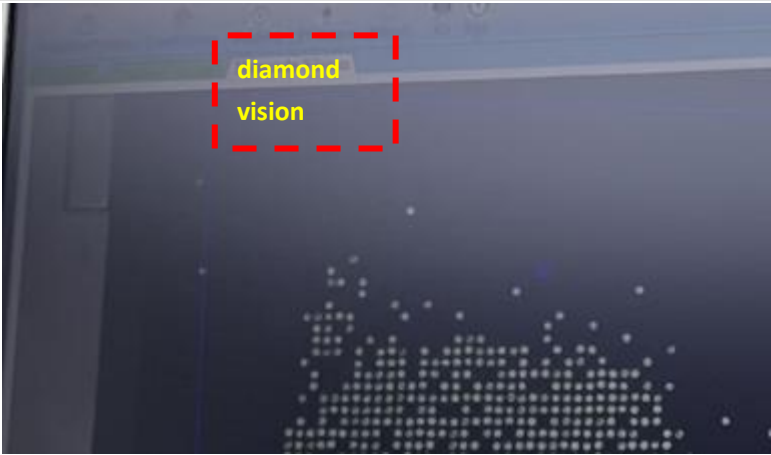
click start to check  
the glue amount

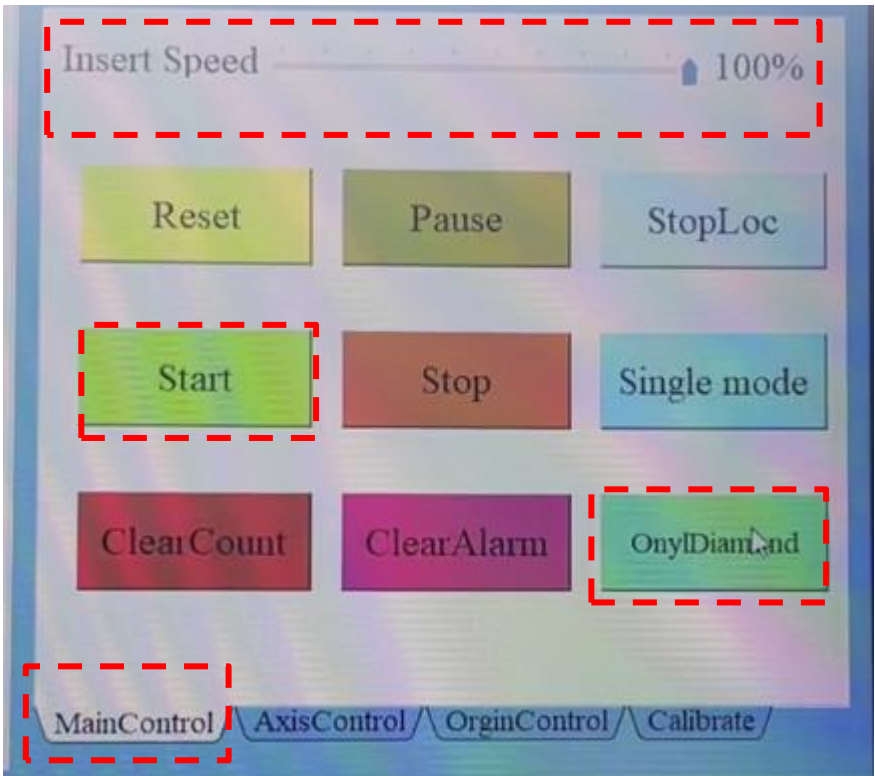
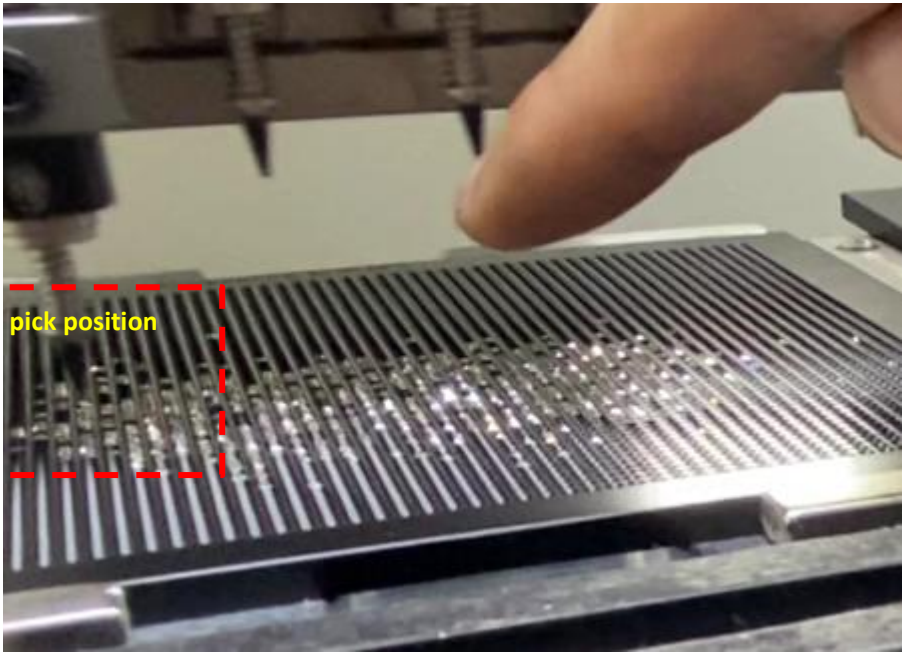




3	<p>check glue amount .</p> <p>use a pin to touch one of glue hole to check the amount .glue amount is full of hole that's good .</p>	
---	--	--

**part 2: test stone pick and place position .**

S/N	operation	image
1	Click ‘Diamond Vision’	

	<p>choose 'only Diamond' mode . ( this button has two modes: ' only dispense' , 'only diammond' , 'dispense-diamond' )</p> <p>Slide speed slow , slide block 'Insert Speed'</p> <p>click start to check the pick and place position.</p>	 
--	--	--

part 3: start

S/N	operation	image
1	choose 'dispense-diamond' mode .	

Slide speed fast ,  
slide block 'Insert  
Speed'

click start

