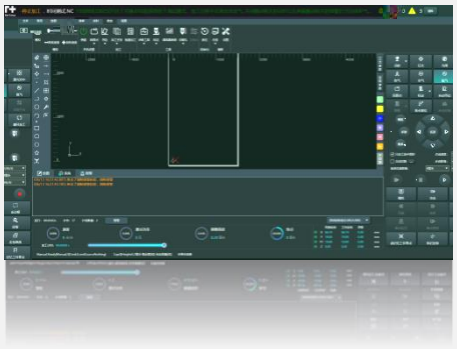
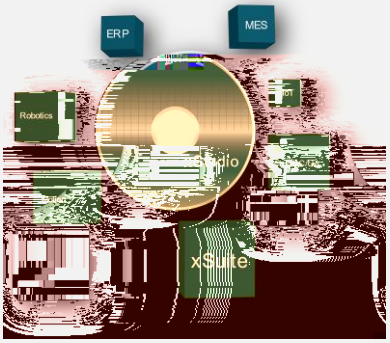
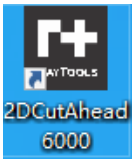
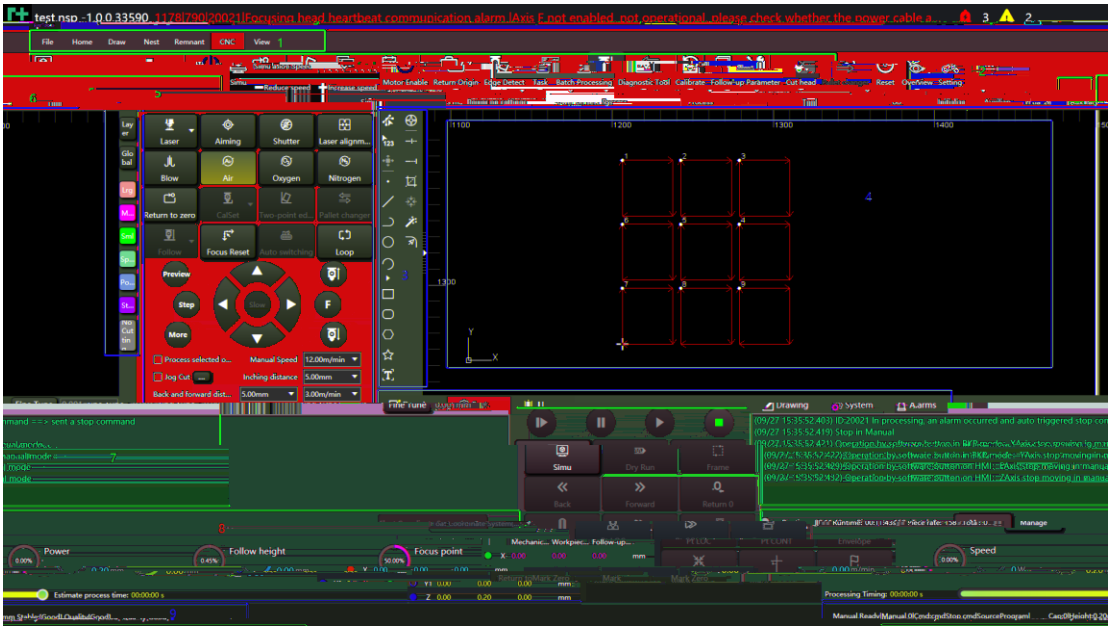
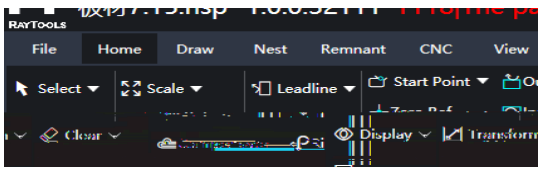
RAYTOOLS

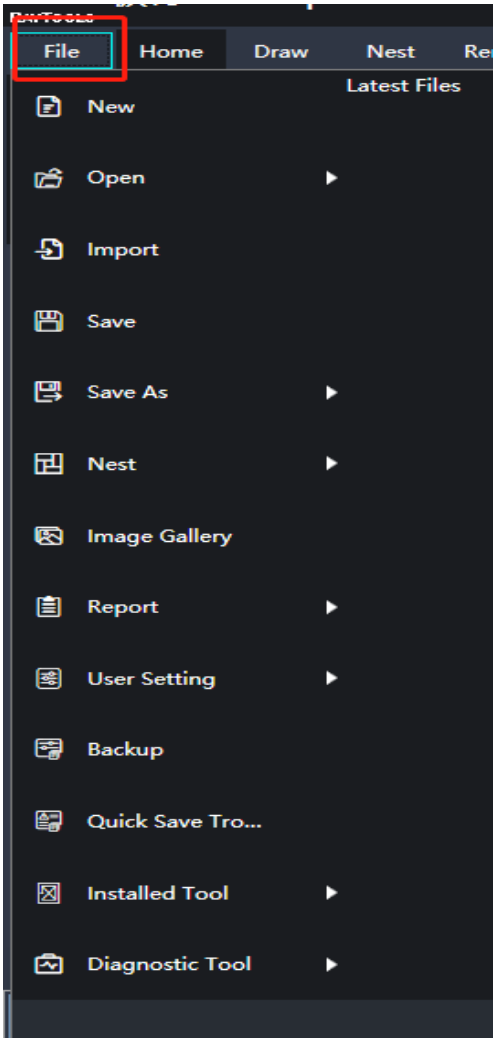


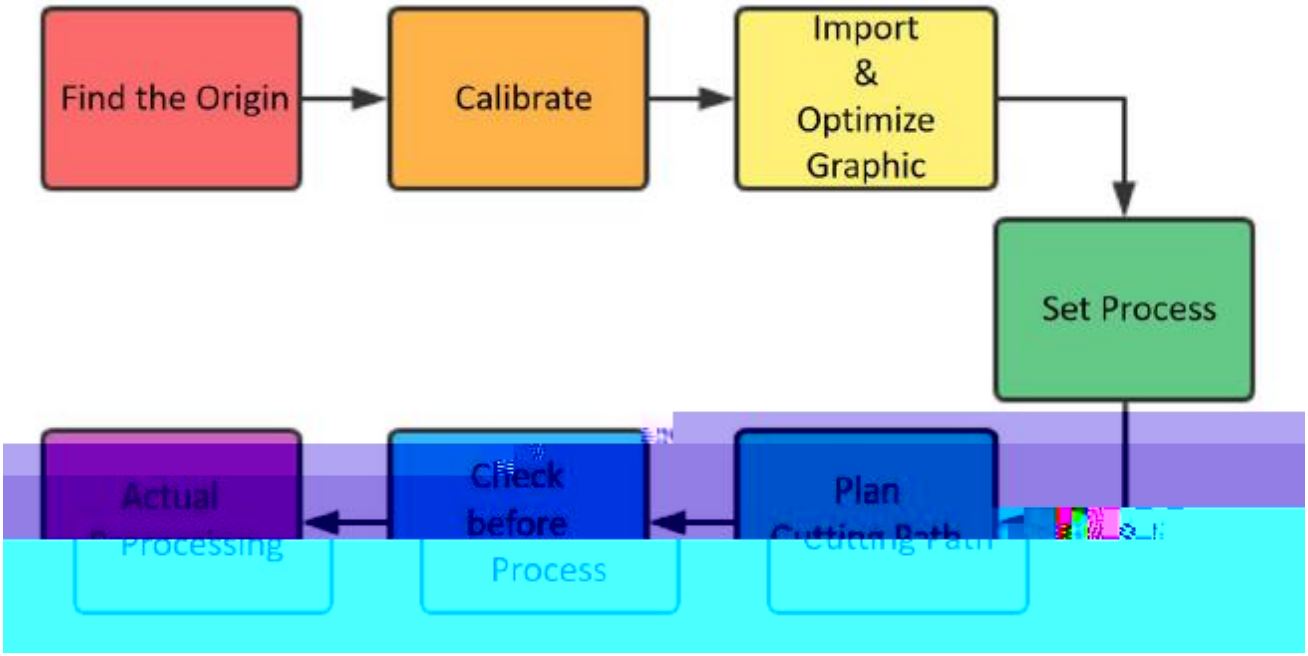


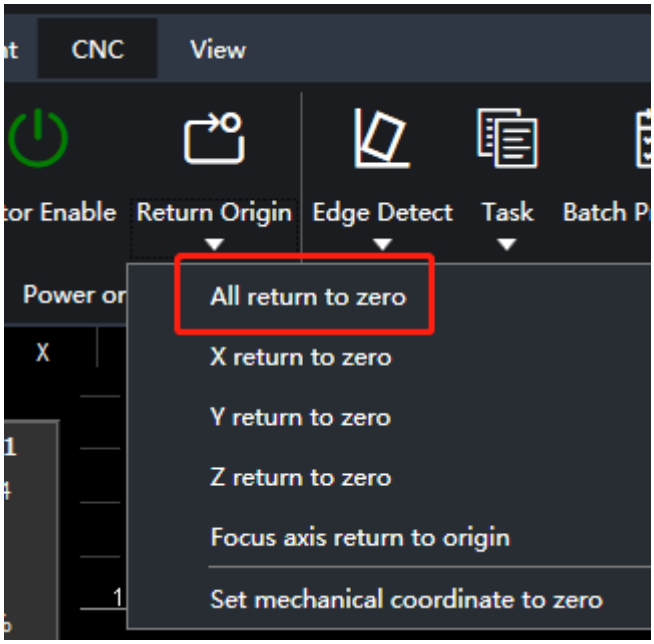

2DCutAhead
6000

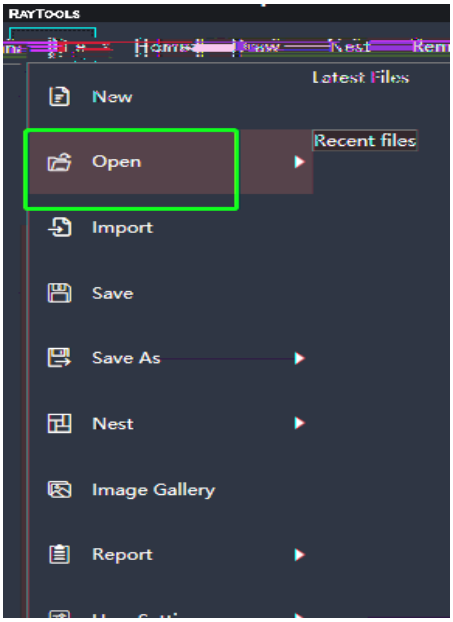

Laser
Aiming
Shutter
Blow
Air
Oxygen
Nitrogen
Return to zero
Focus Reset
Loop
Preview
Step
More
Simu
Power
Follow height
Focus point
Speed


RAYTOOLS
File
Home
Draw
Nest
Remnant
CNC
View
Select
Scale
Leadline
Start Point
Clear
Display


File
Home
Draw
Nest
Latest Files
New
Open
Import
Save
Save As
Nest
Image Gallery
Report
User Setting
Backup
Quick Save Tro...
Installed Tool
Diagnostic Tool

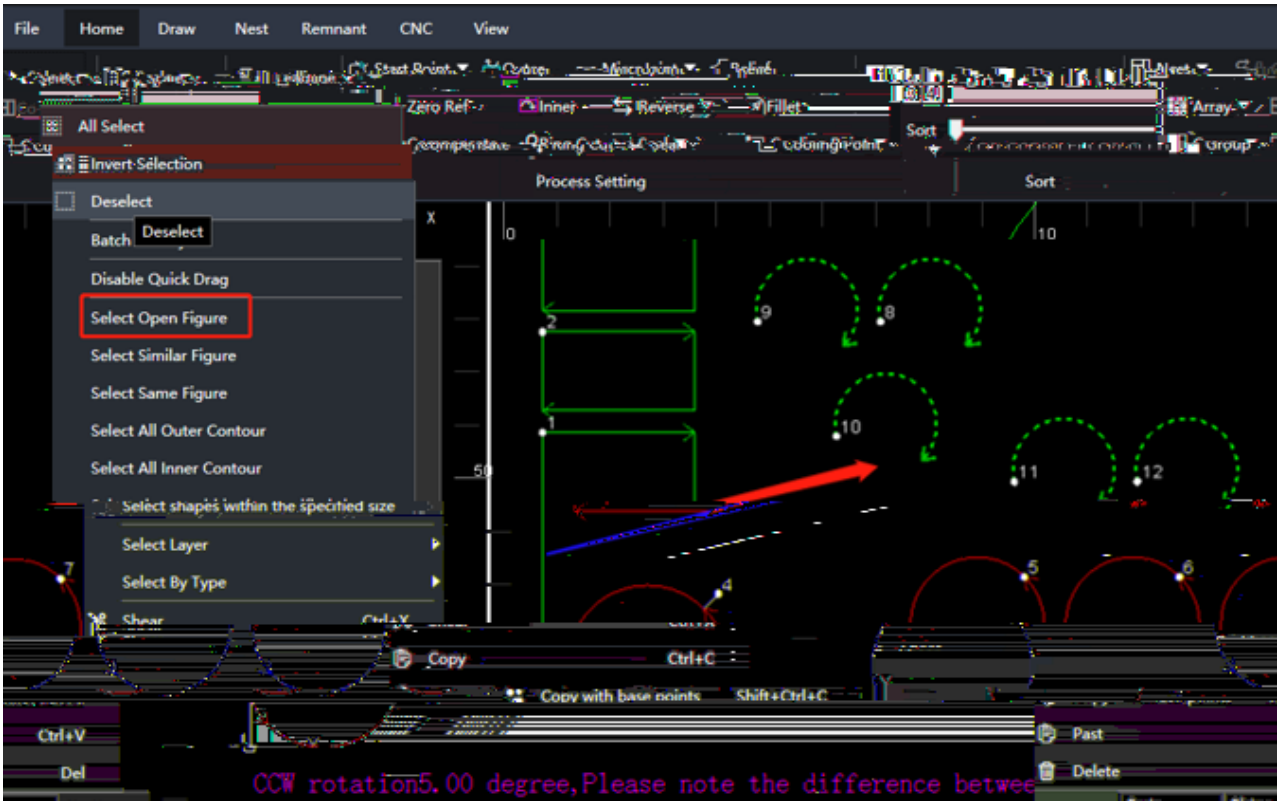

Find the Origin
Calibrate
Import & Optimize Graphic
Set Process
Plan
Check before Process
Actual


CNC
View
Return Origin
Edge Detect
Task
All return to zero
X return to zero
Y return to zero
Z return to zero
Focus axis return to origin
Set mechanical coordinate to zero

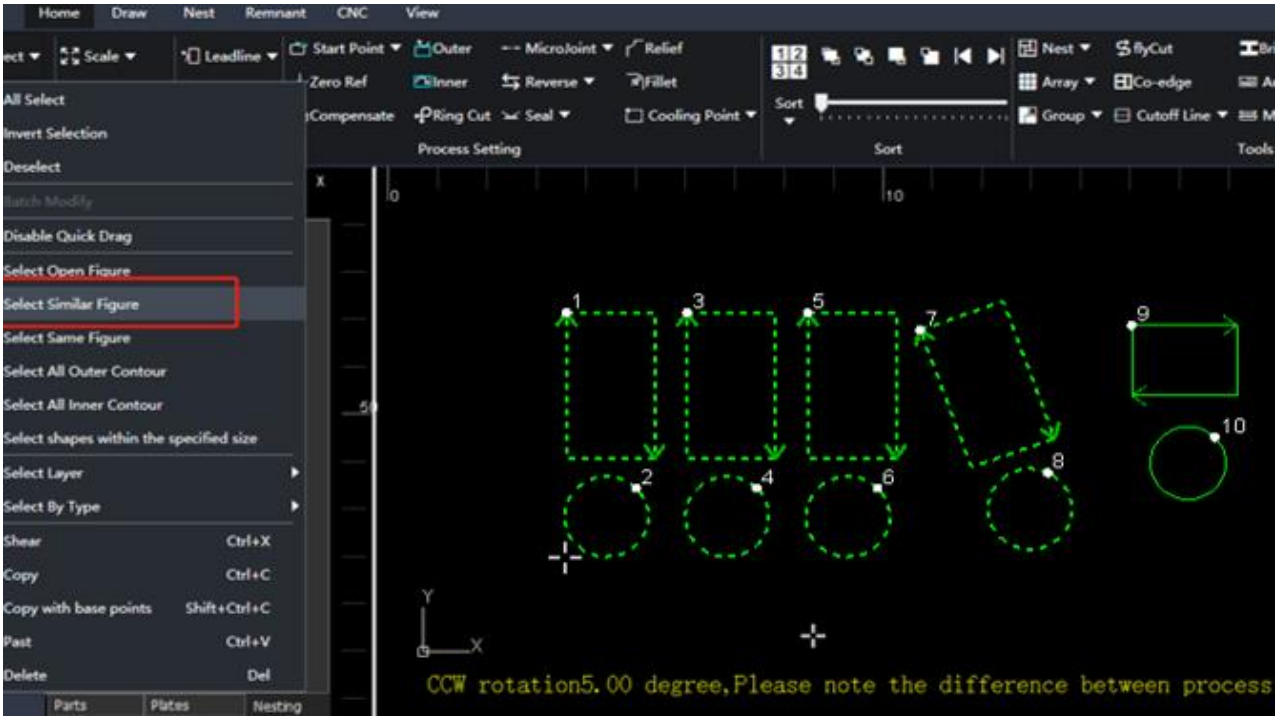

RAYTOOLS
Latest Files
New
Recent files
Open
Import
Save
Save As
Nest
Image Gallery
Report


Open
Search
Desktop
1
Num: 9, Size: 346
5
2
6

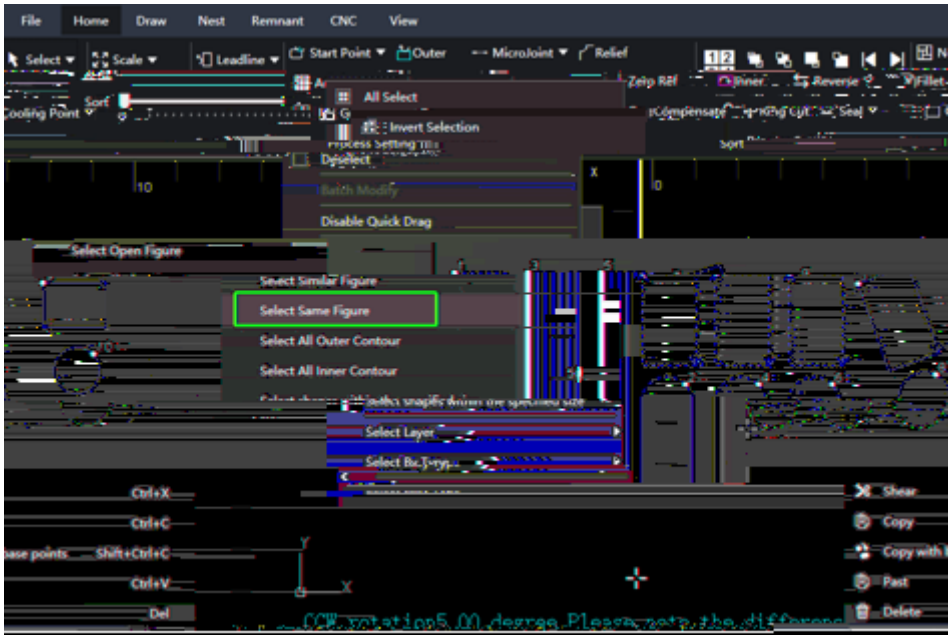
-
-
-
-
-
-



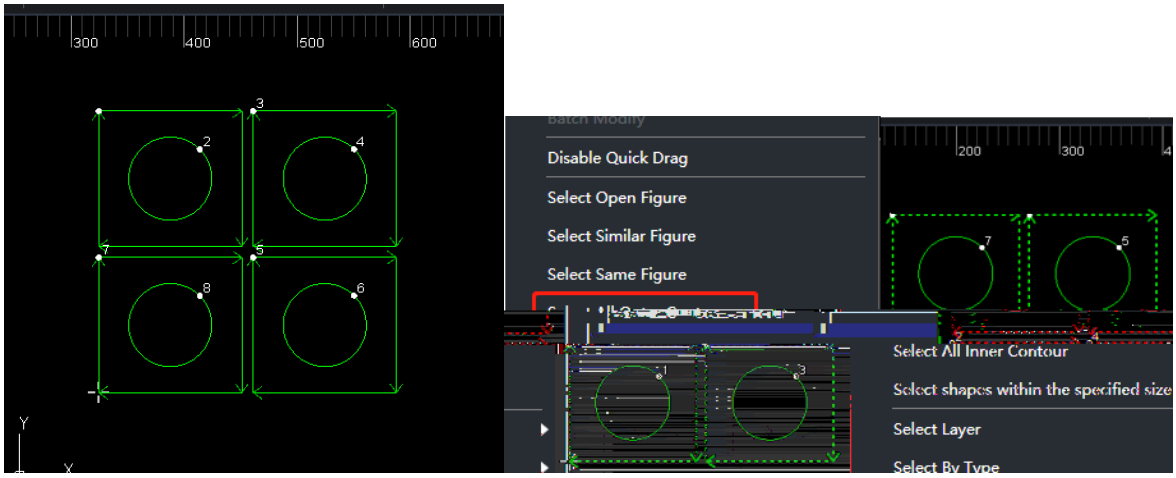
(7) Select Similar Figure:



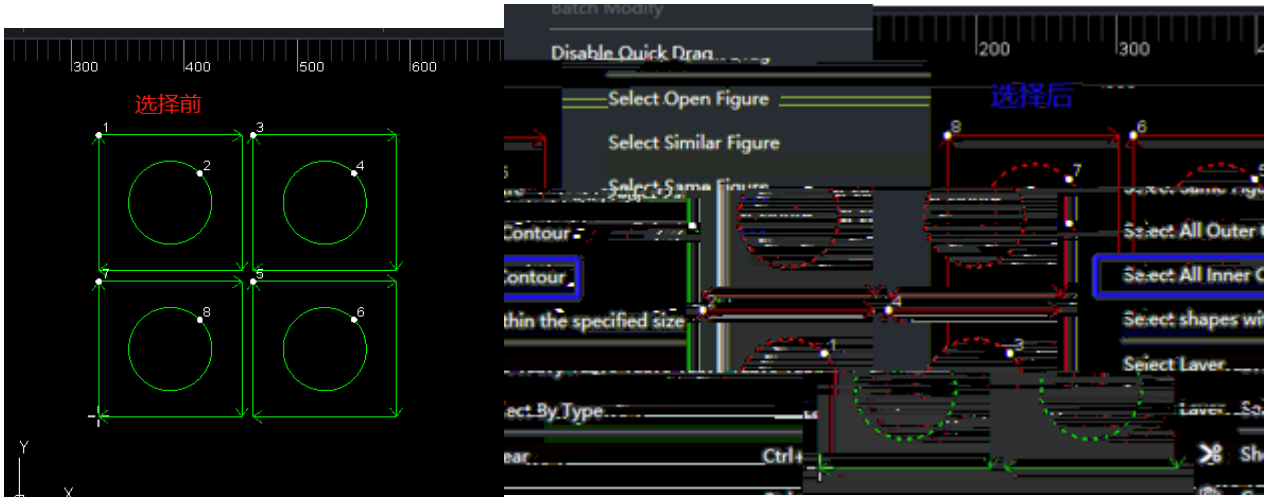
(8) Select Same Figure



(9) Select All Outer Contour



(10) Select All Inner Contour



(11) Select shapes within the specified size

(12) Select Layer

(13) Select By Type

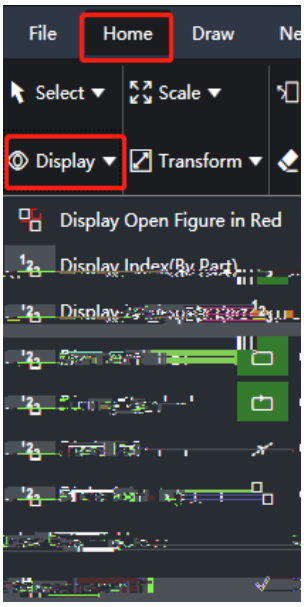
(14) Shear

(15) Copy

(16) Copy with base points

(17) Paste

(18) Delete



(1) Display Open Figure in Red

(2) Display Index (By Part/By Shape)

(3) Display Start Point

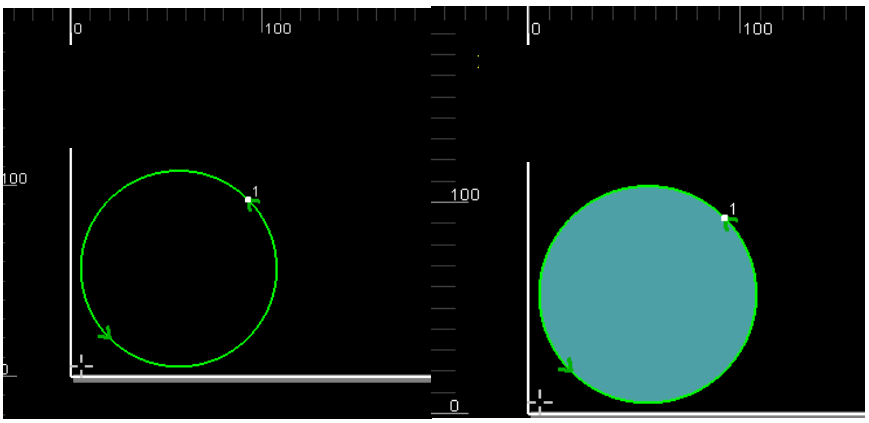
(4) Display Cutting Path

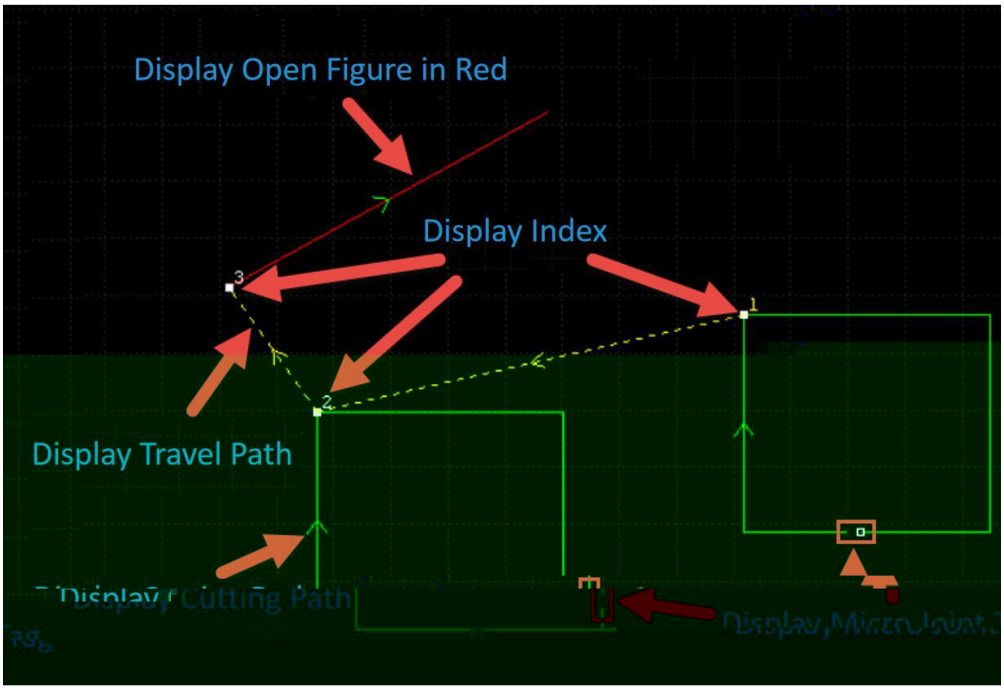
(5) Display Travel Path

(6) Display Micro Joint Tag

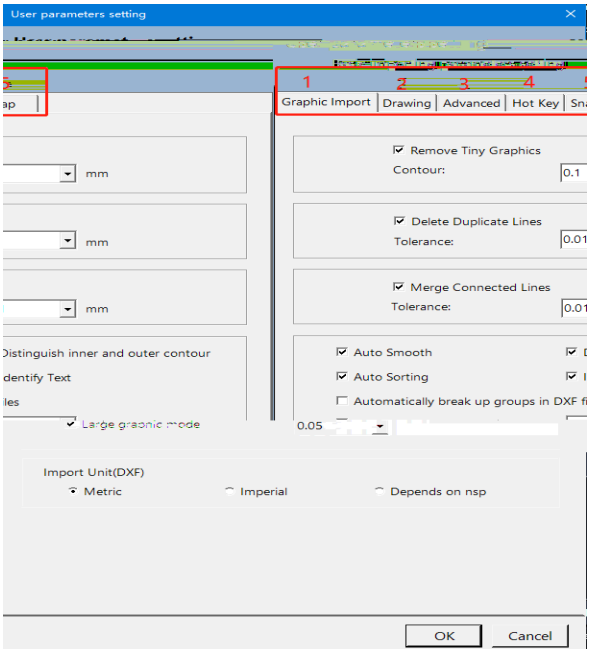
(7) Check Open Figure

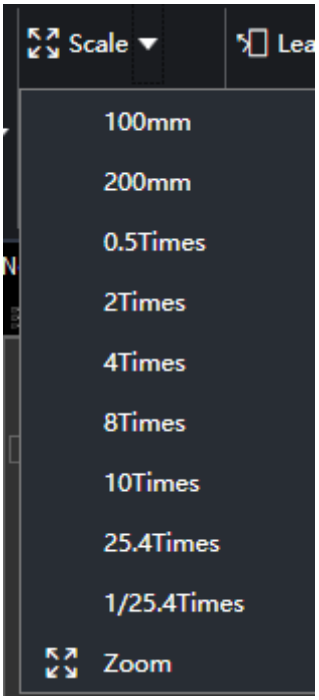
(8) Displays the part fill

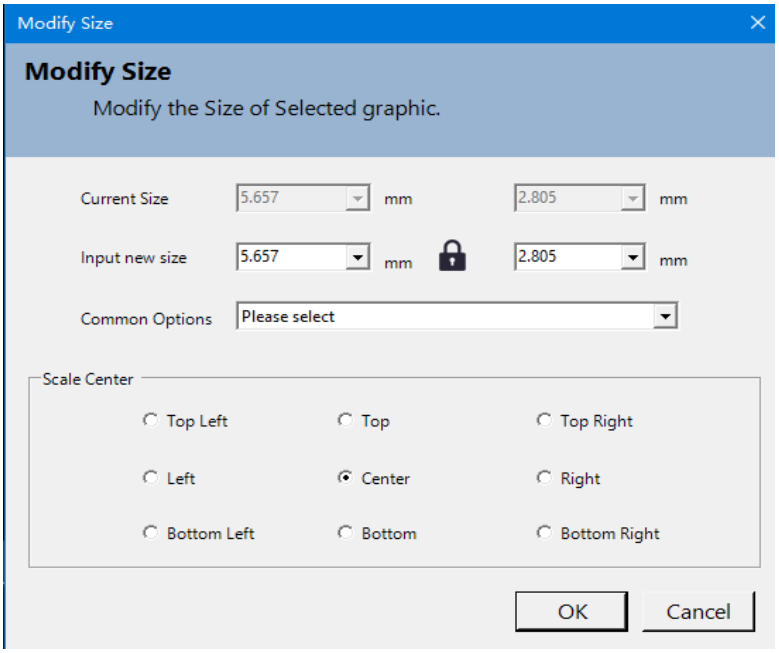




(1) Drawing Import
(2) Drawing
(3) Advanced
(4) Hot Key
(5) Snap



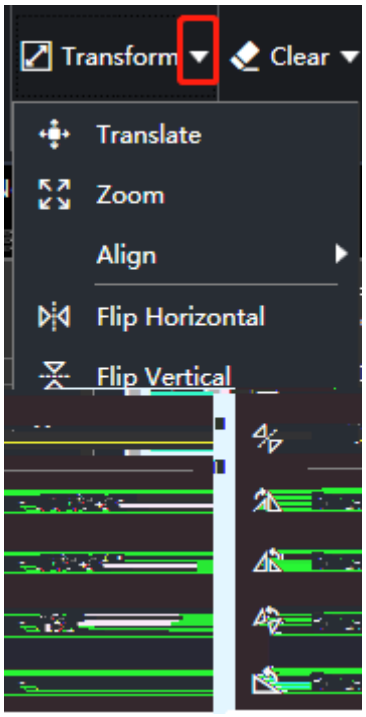

Scale
Lea
100mm
200mm
0.5Times
2Times
4Times
8Times
10Times
25.4Times
1/25.4Times
Zoom


Modify Size
Modify Size
Modify the Size of Selected graphic.
Current Size
5.657
mm
2.805
mm
Input new size
5.657
mm
2.805
mm
Common Options
Please select
Scale Center
Top Left
Top
Top Right
Left
Center
Right
Bottom Left
Bottom
Bottom Right
OK
Cancel

(1)

(2)

(3)



(1) Translate

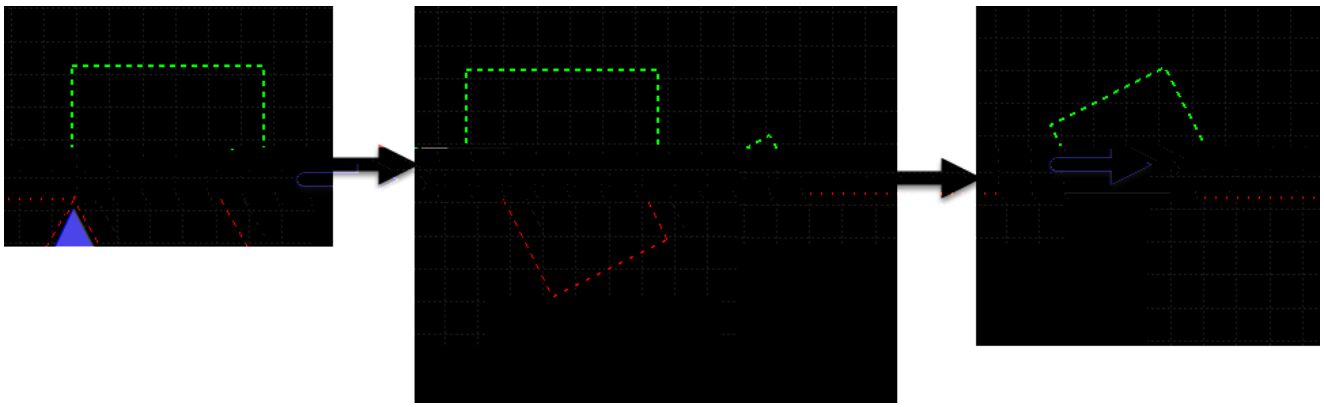
(2) Zoom

(3) Align

(4) Flip Horizontal

(5) Flip Vertical

(6) Flip

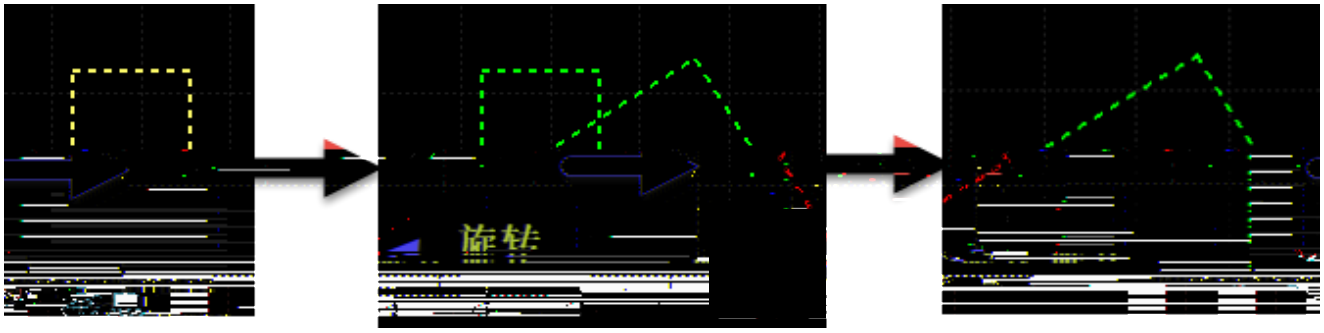


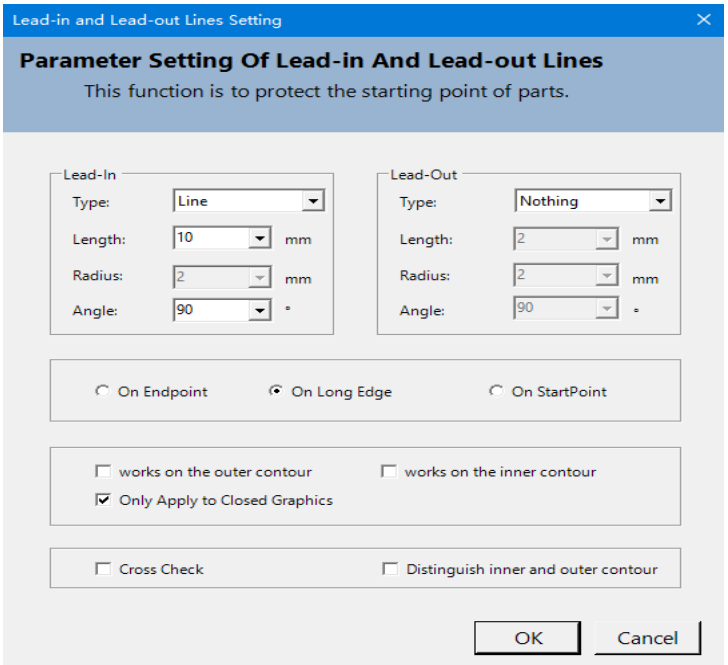
(7) Rotate CCW90°

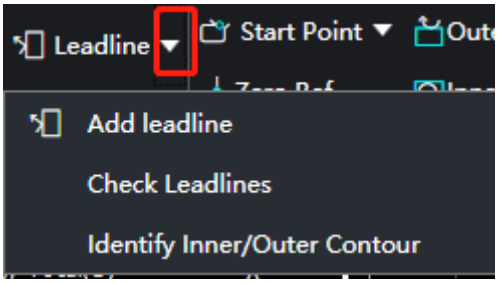
(8) Rotate CW90°

(9) Rotate 180°

(10) Rotate



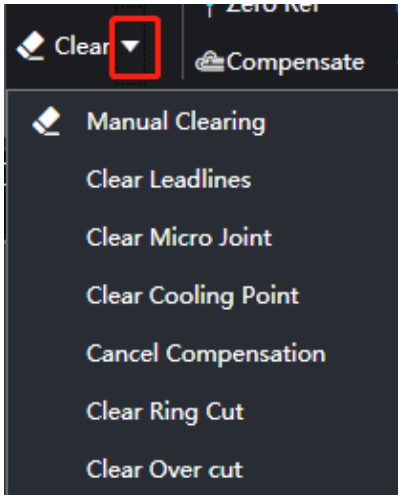




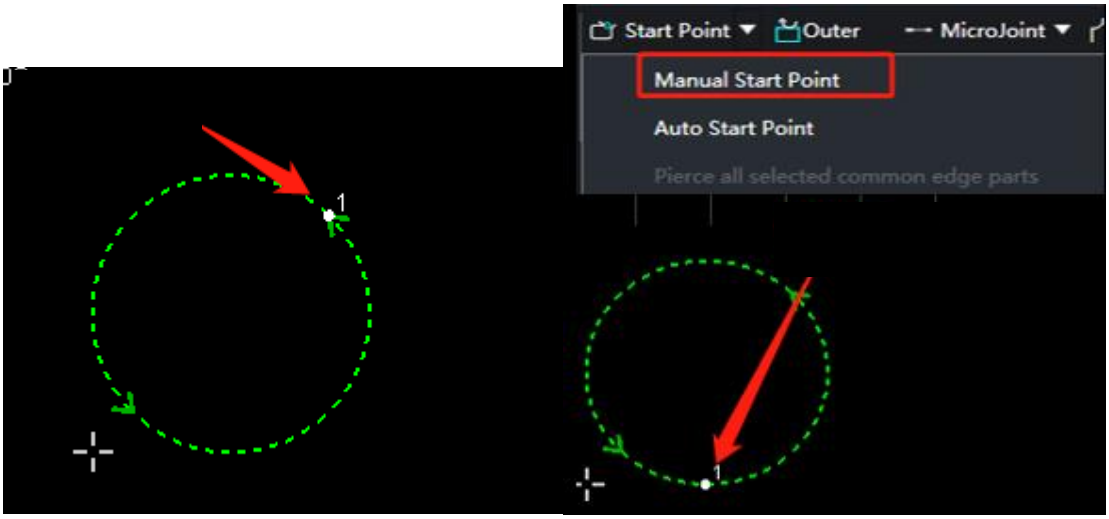
(1) Add leadline

(2) Check Leadlines

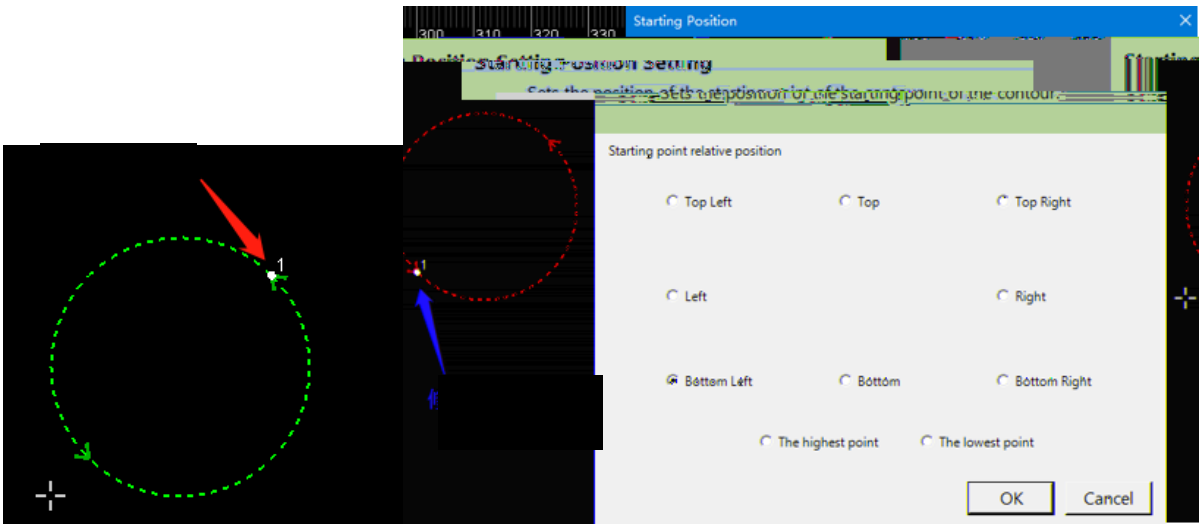
(3) Identify Inner/Outer Contour

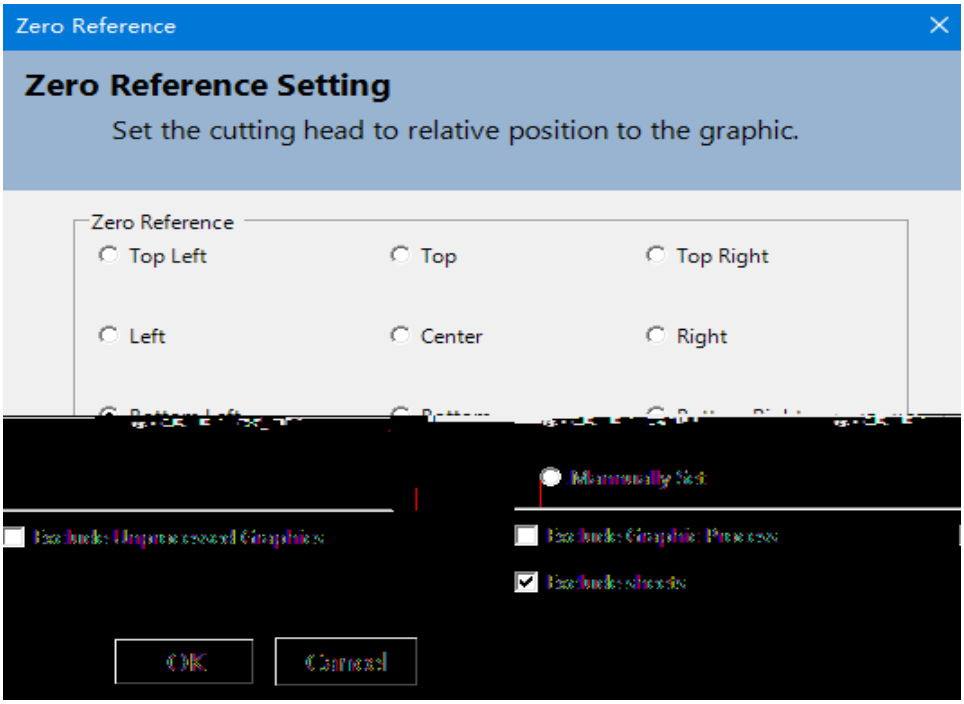


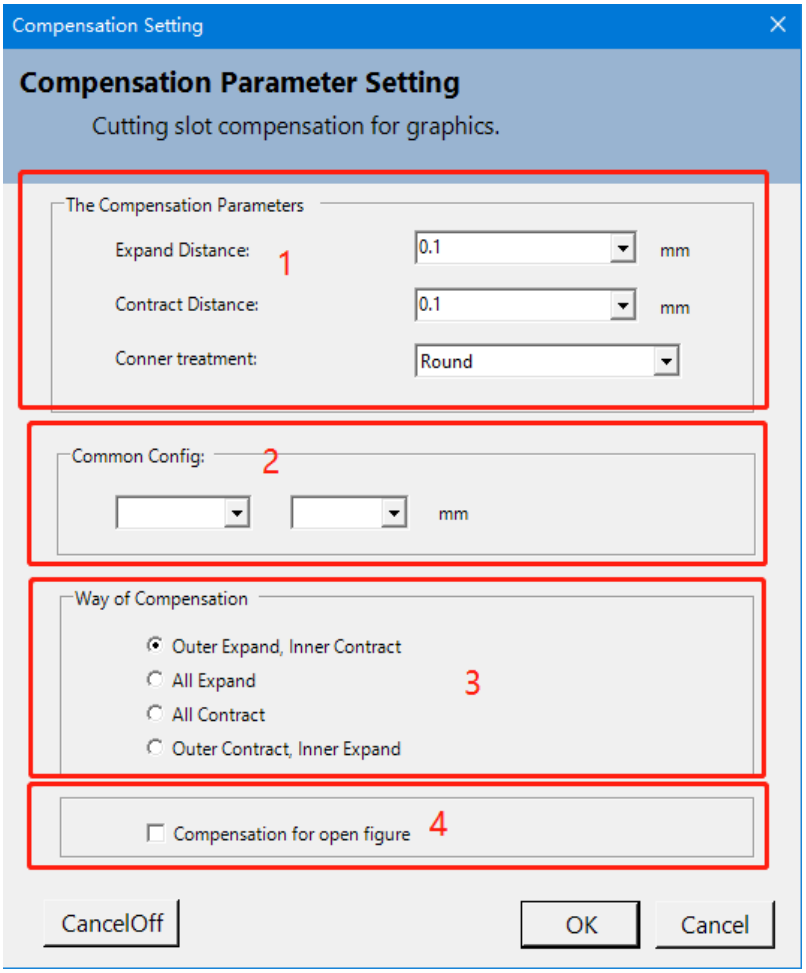
(1) Manual Start Point



(2) Auto Start Point





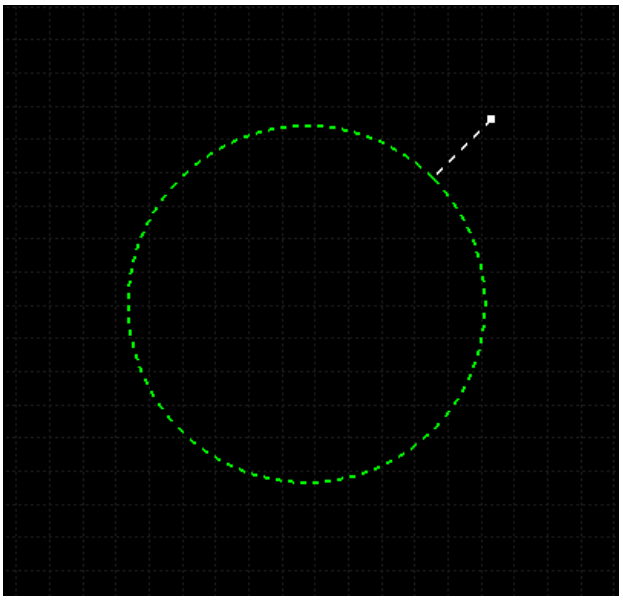


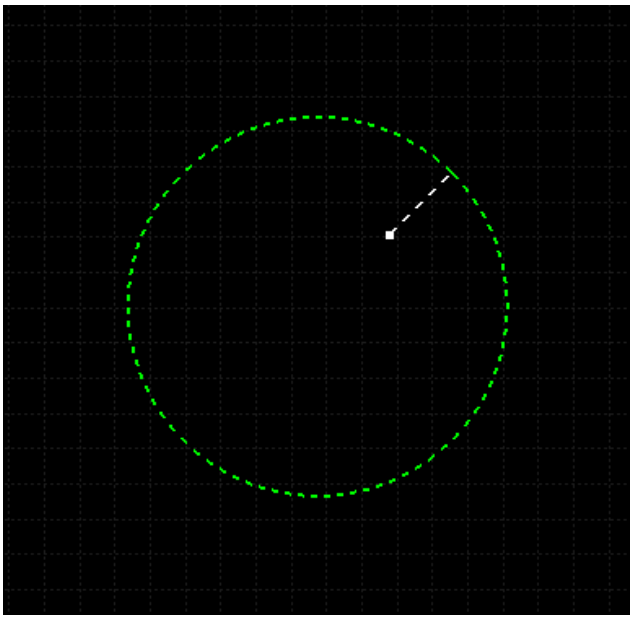
(1) The Compensation Parameters

(2) Common Config

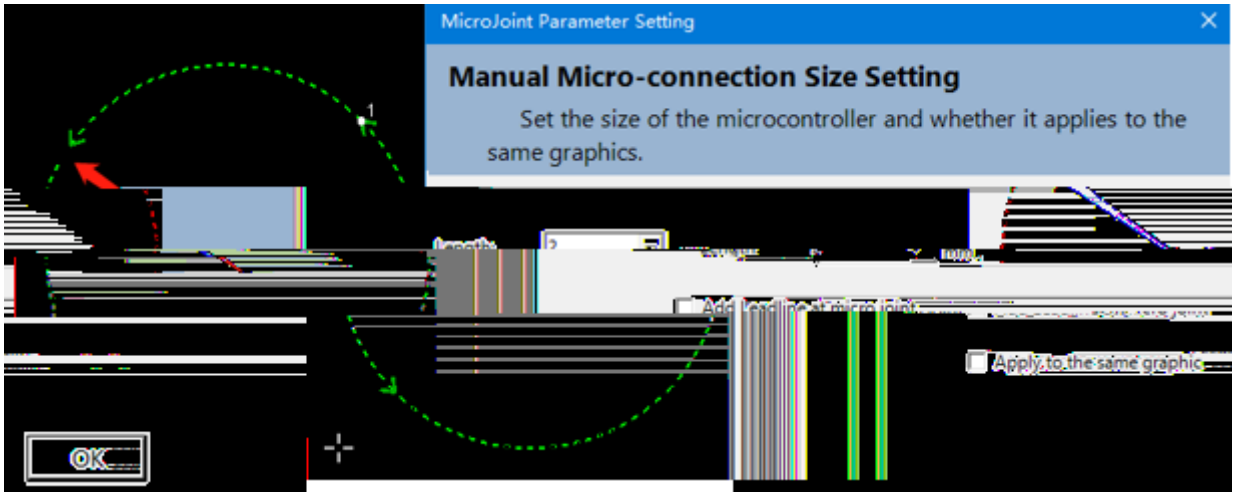
(3) Way of Compensation:

(4) Compensation for open figure:

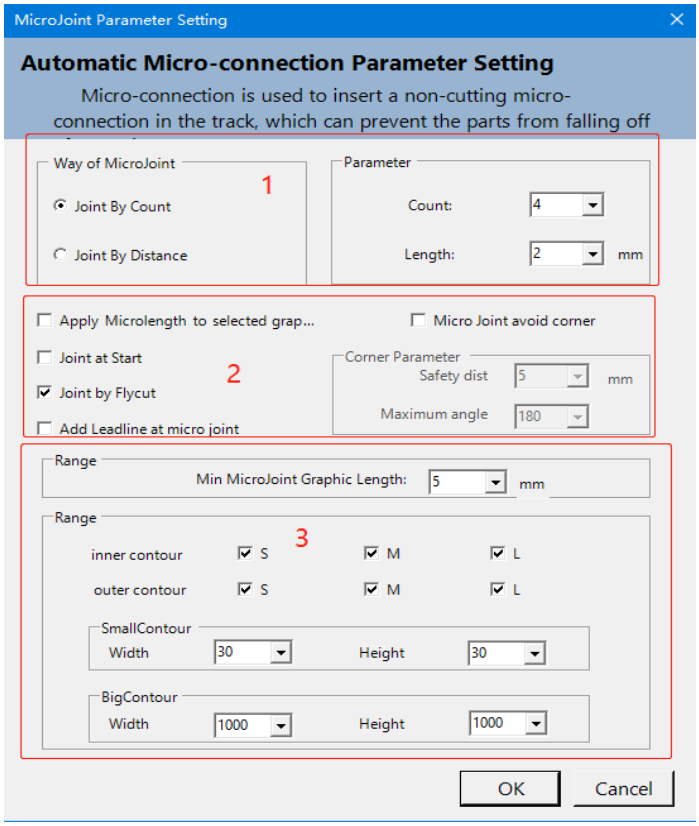




(1) Manual MicroJoint



(2) Auto MicroJoint



(1) Way of Microjoint

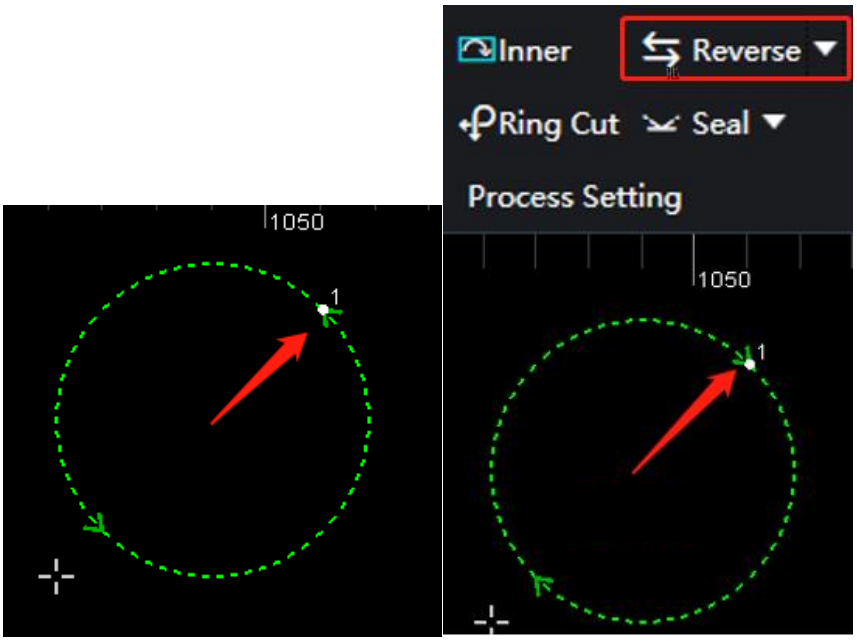
(2) Parameter

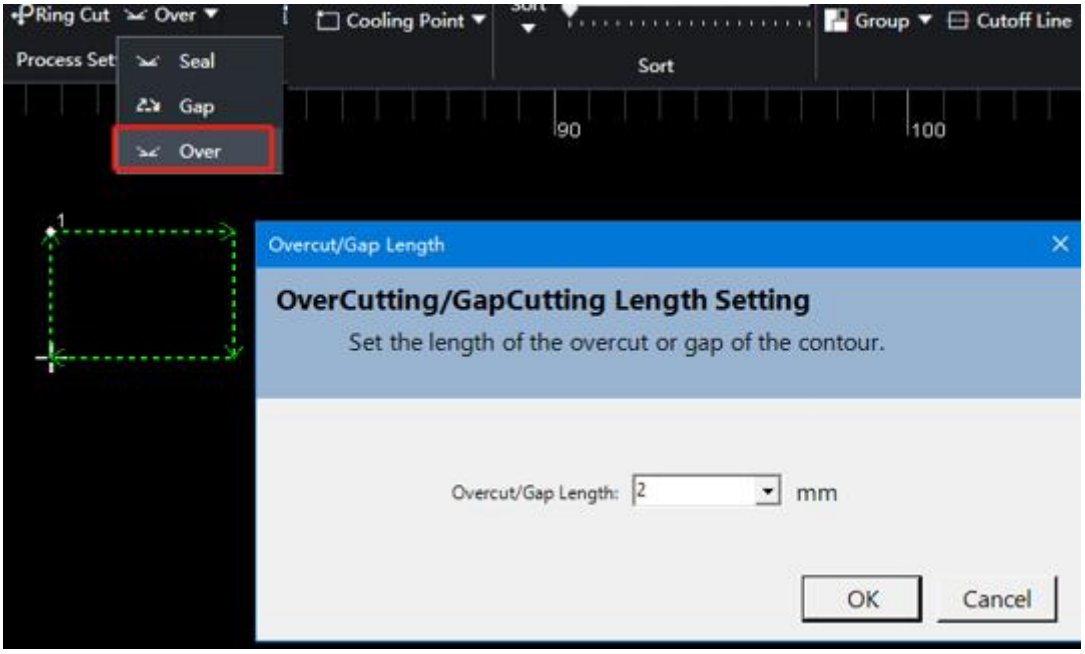
(3) Advanced Options

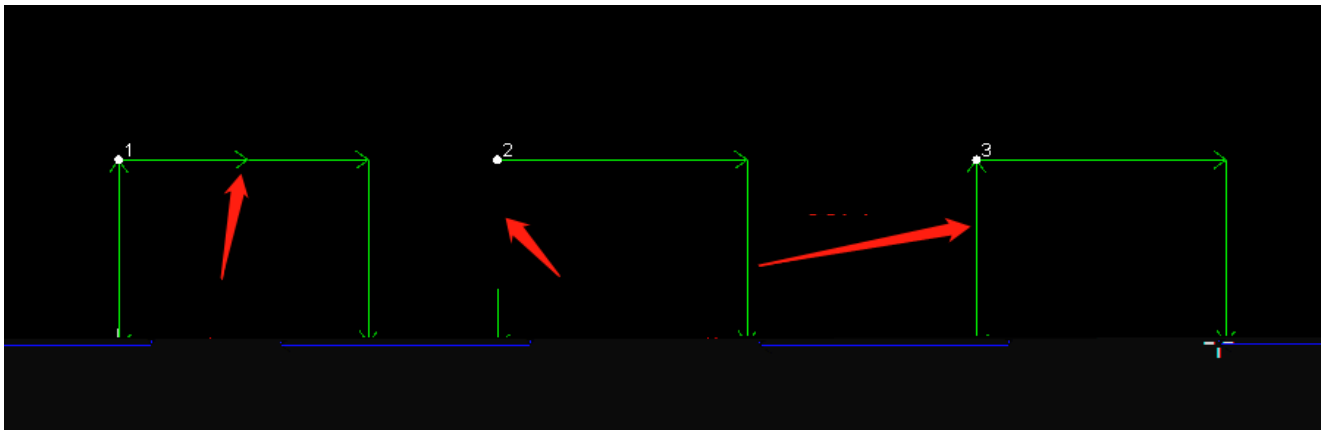
(4) Corner Parameter

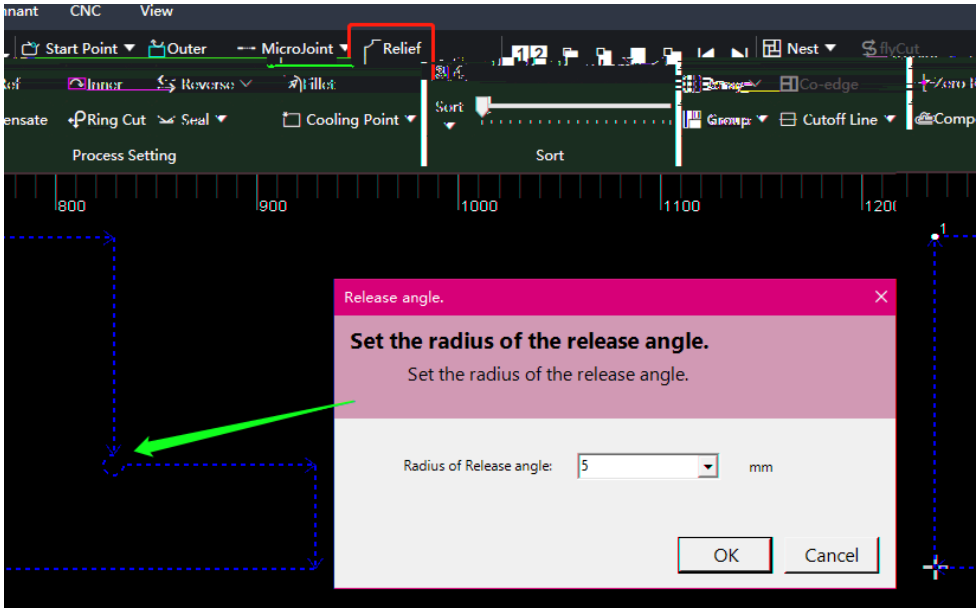
(5) Range

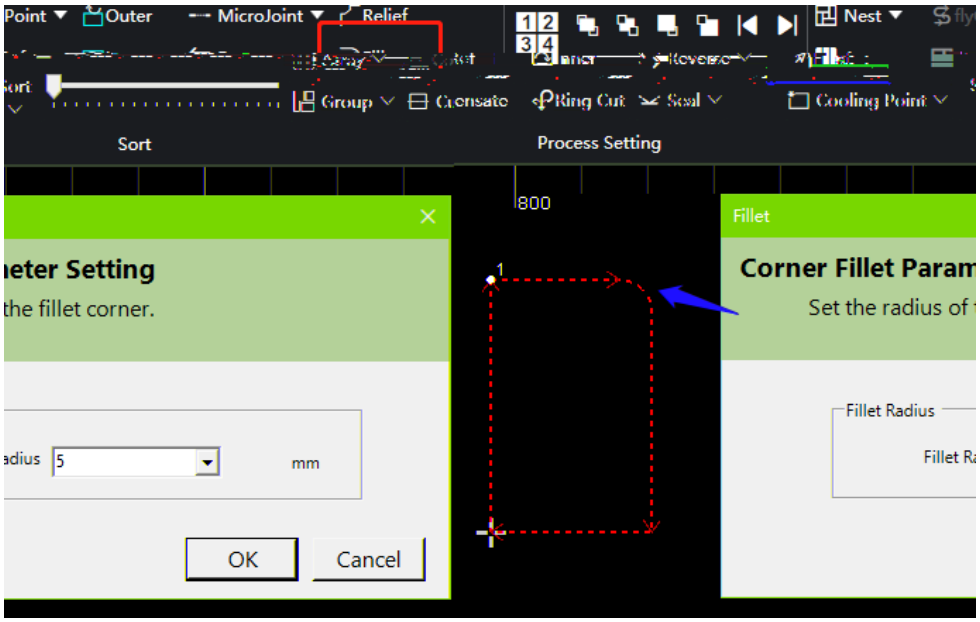
Reverse



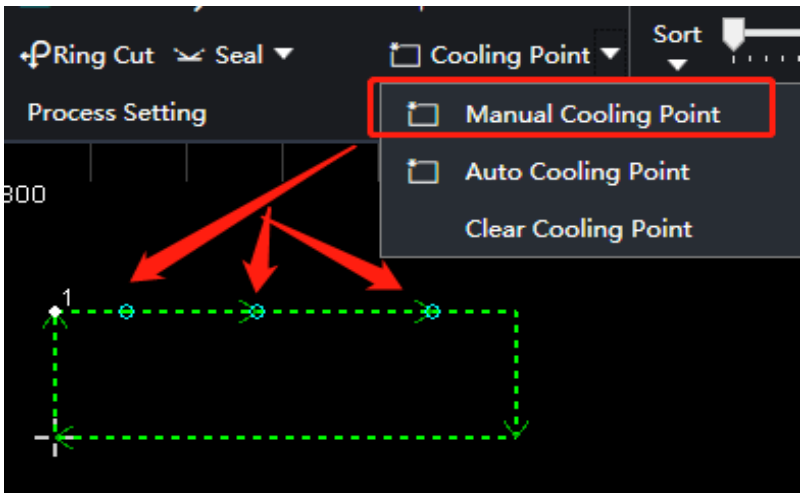

Ring Cut
Over
Cooling Point
Sort
Group
Cutoff Line
Process Set
Seal
Gap
Over
90
100
1
Overcut/Gap Length
OverCutting/GapCutting Length Setting
Set the length of the overcut or gap of the contour.
Overcut/Gap Length:
2
mm
OK
Cancel


1
2
3

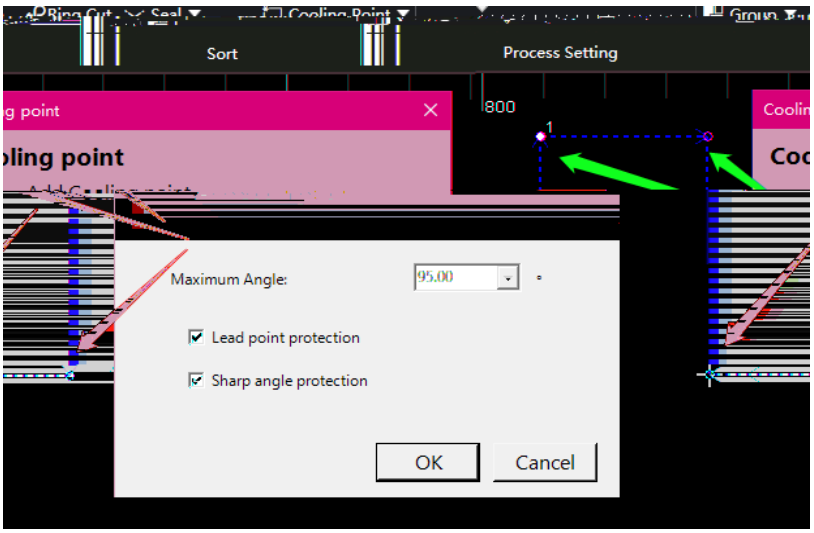

CNC
View
Start Point
Outer
MicroJoint
Relief
Nest
Inner
Reverse
Fillet
Co-edge
Ring Cut
Seal
Cooling Point
Group
Cutoff Line
Process Setting
Sort
800
900
1000
1100
Release angle.
Set the radius of the release angle.
Set the radius of the release angle.
Radius of Release angle:
5
mm
OK
Cancel

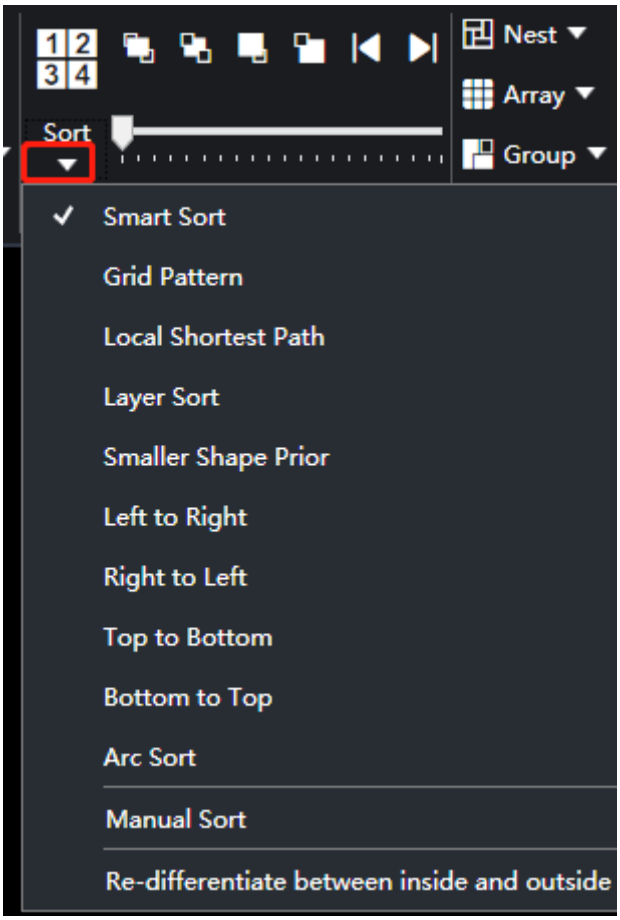

Outer
MicroJoint
Relief
Nest
Group
Ring Cut
Seal
Cooling Point
Sort
Process Setting
800
the fillet corner.
5
mm
OK
Cancel
Fillet
Corner Fillet Param
Set the radius of
Fillet Radius

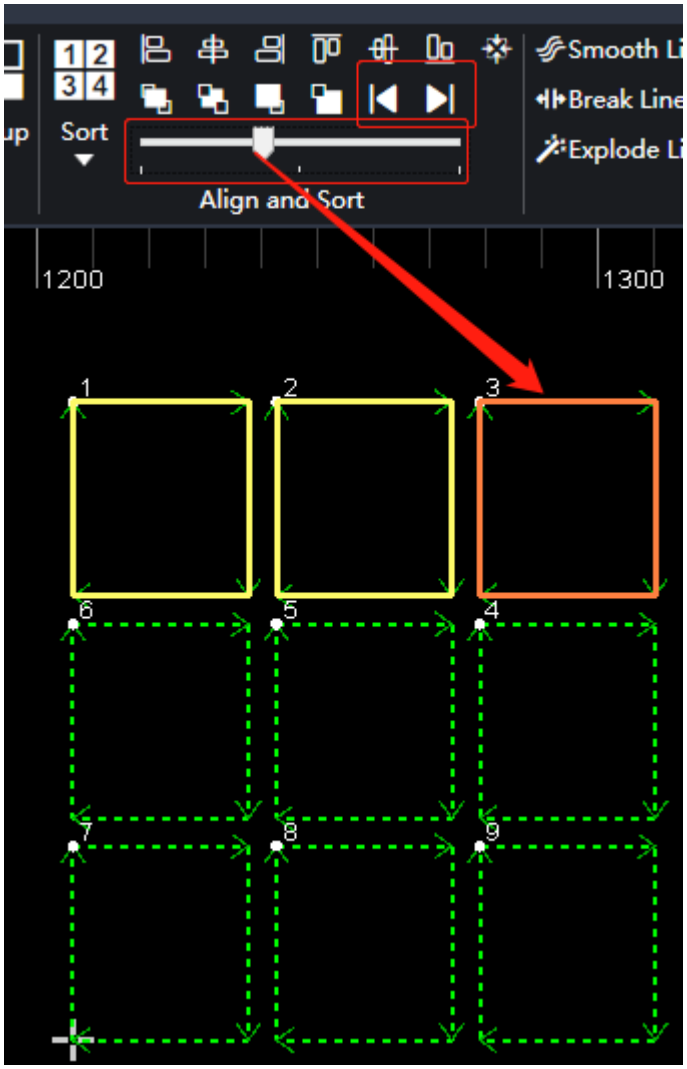
(1) Manual Cooling

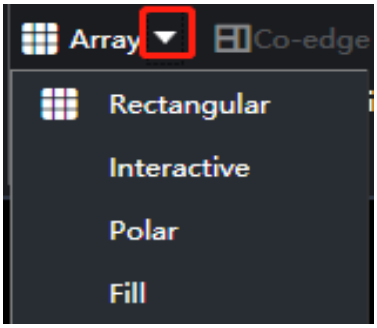


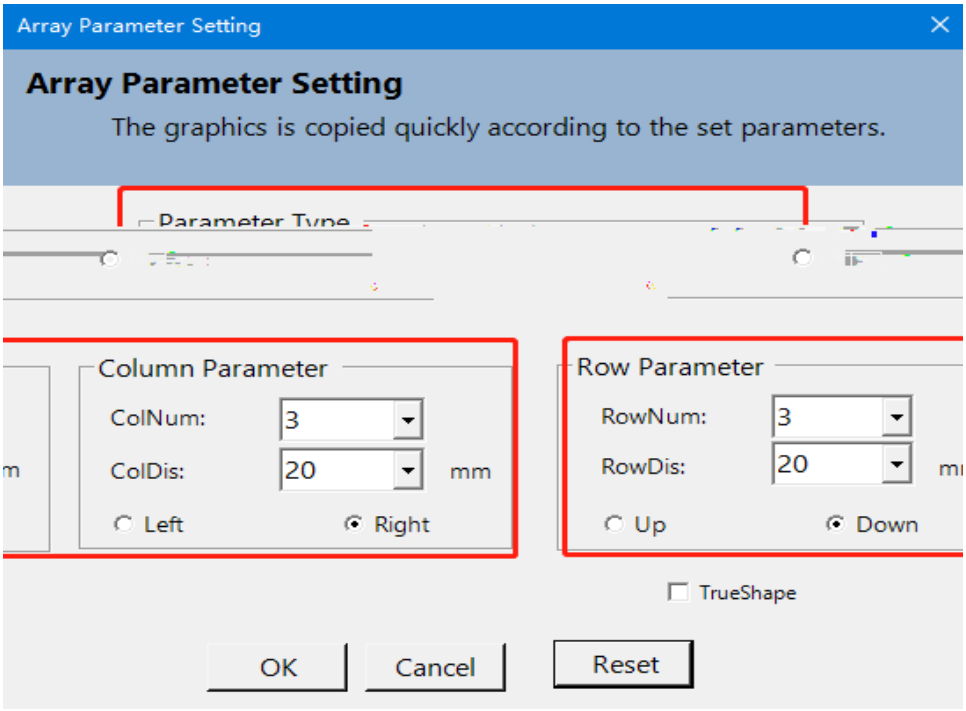
(2) Auto Cooling Point

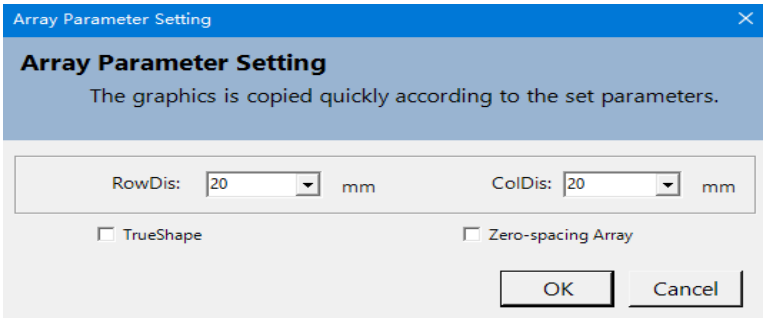


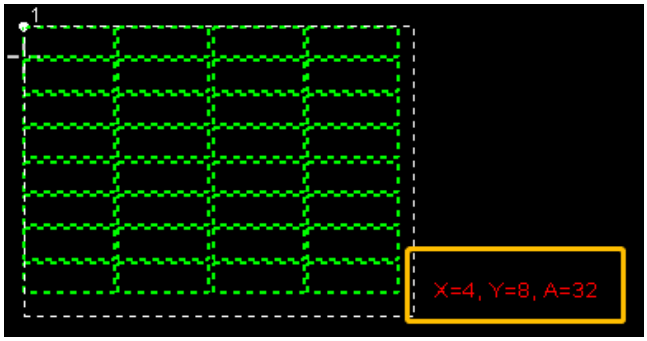

Nest
Array
Group
Sort
Smart Sort
Grid Pattern
Local Shortest Path
Layer Sort
Smaller Shape Prior
Left to Right
Right to Left
Top to Bottom
Bottom to Top
Arc Sort
Manual Sort
Re-differentiate between inside and outside

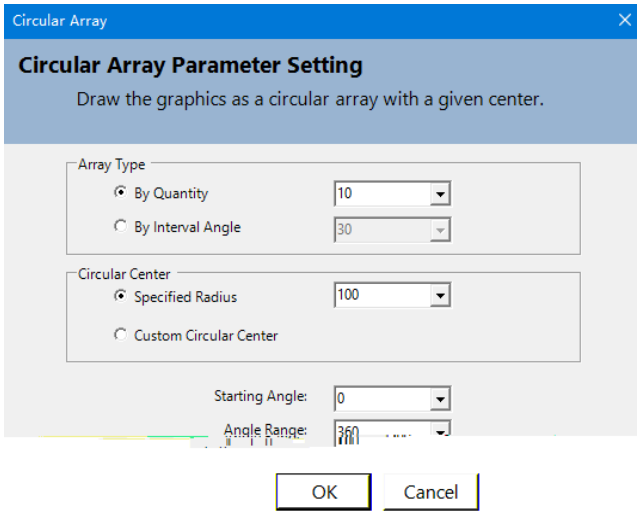

Smooth Li
Break Line
Explode Li
Sort
Align and Sort
1200
1300
1
2
3
4
5
6
7
8
9

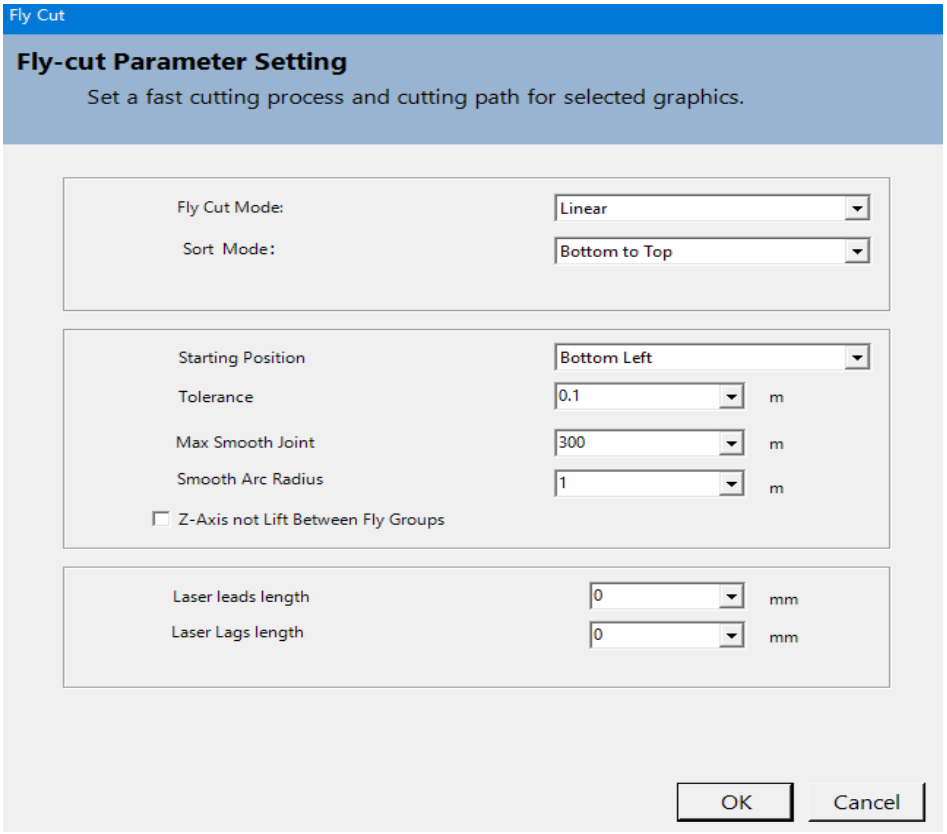

Array
Co-edge
Rectangular
Interactive
Polar
Fill

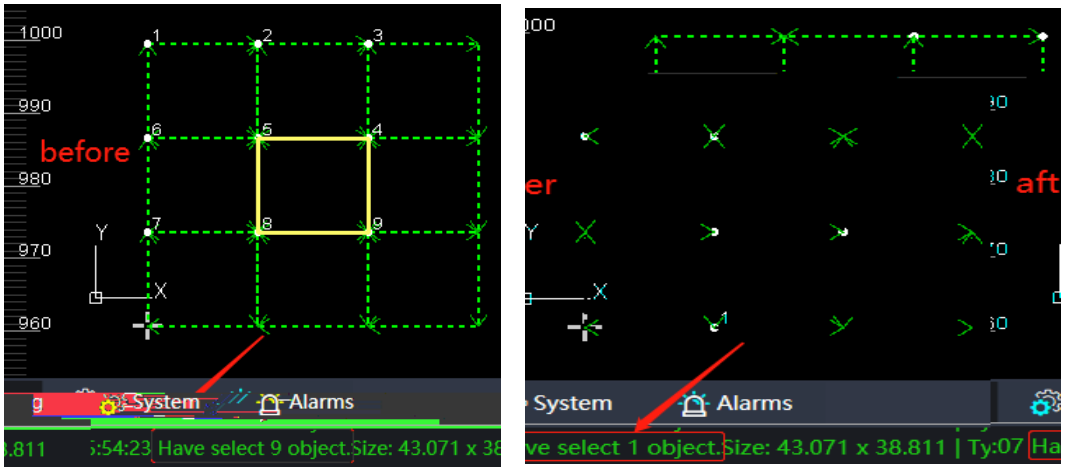

Array Parameter Setting
Array Parameter Setting
The graphics is copied quickly according to the set parameters.
Column Parameter
ColNum:
3
ColDis:
20
mm
Left
Right
Row Parameter
RowNum:
3
RowDis:
20
Up
Down
TrueShape
OK
Cancel
Reset

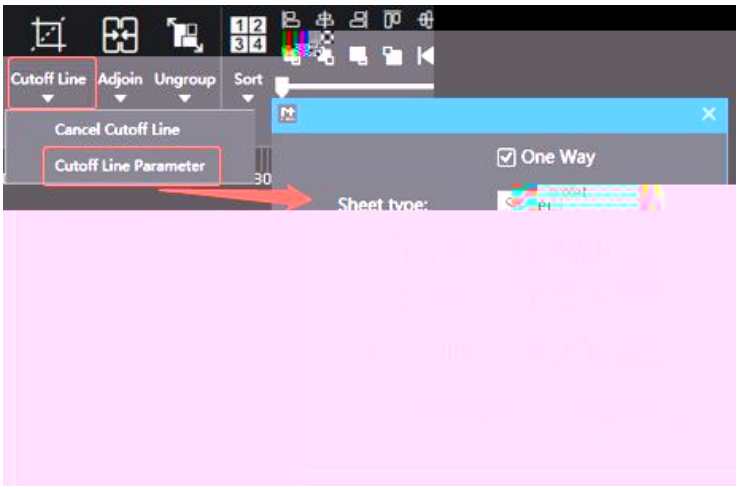

Array Parameter Setting
Array Parameter Setting
The graphics is copied quickly according to the set parameters.
RowDis:
20
mm
ColDis:
20
mm
TrueShape
Zero-spacing Array
OK
Cancel


1
X=4, Y=8, A=32

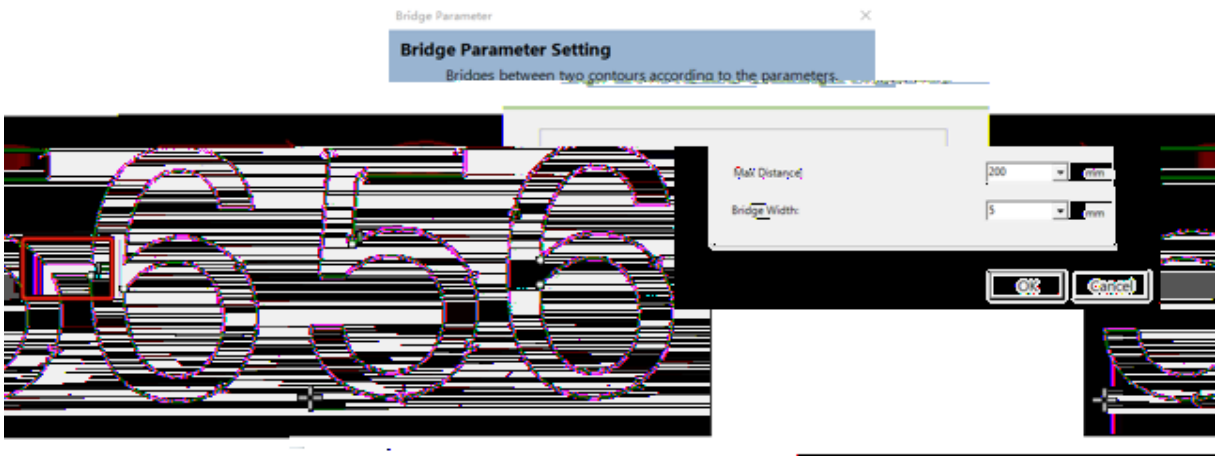

Circular Array
Circular Array Parameter Setting
Draw the graphics as a circular array with a given center.
Array Type
By Quantity
10
By Interval Angle
30
Circular Center
Specified Radius
100
Custom Circular Center
Starting Angle:
0
Angle Range:
360
OK
Cancel

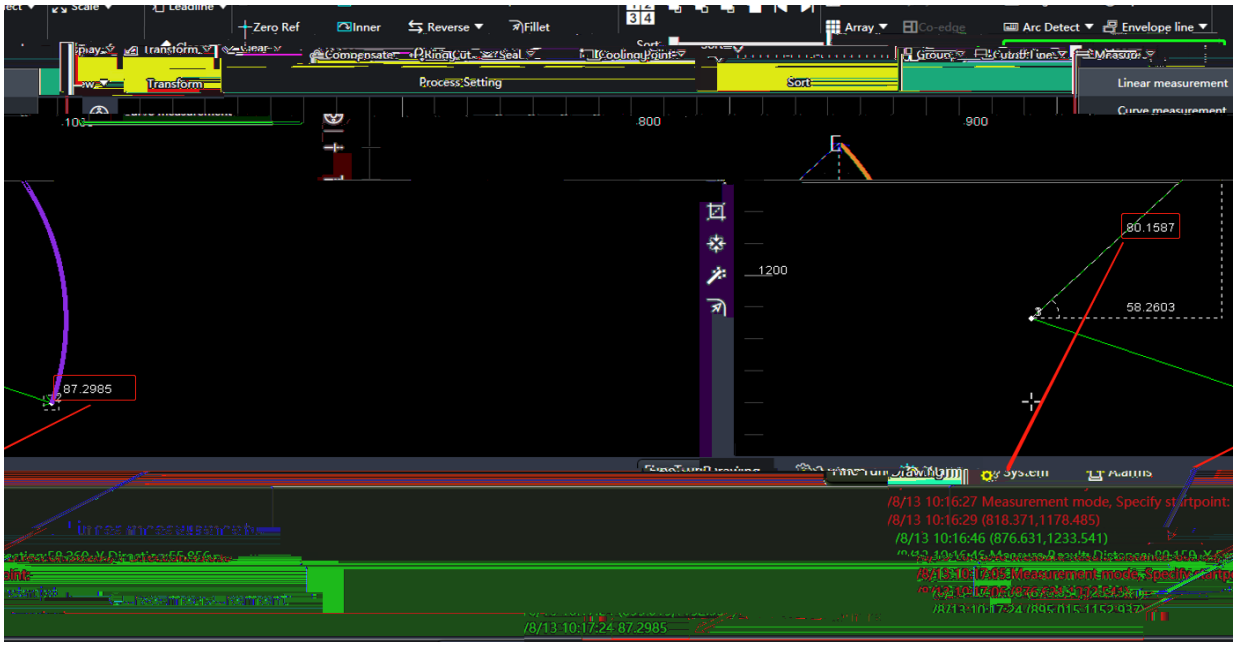

Fly Cut
Fly-cut Parameter Setting
Set a fast cutting process and cutting path for selected graphics.
Fly Cut Mode:
Linear
Sort Mode:
Bottom to Top
Starting Position
Bottom Left
Tolerance
0.1
m
Max Smooth Joint
300
m
Smooth Arc Radius
1
m
Z-Axis not Lift Between Fly Groups
Laser leads length
0
mm
Laser Lags length
0
mm
OK
Cancel

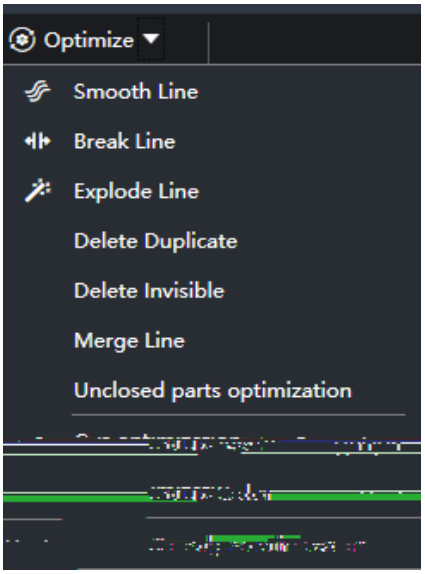

1000
990
980
970
960
before
1
2
3
4
5
6
7
8
9
Y
X
System
Alarms
:54:23 Have select 9 object.Size: 43.071 x 38
aft
System
Alarms
ve select 1 object.Size: 43.071 x 38.811 | Ty:07


Cutoff Line
Adjoin
Ungroup
Sort
Cancel Cutoff Line
Cutoff Line Parameter
One Way
Sheet type:

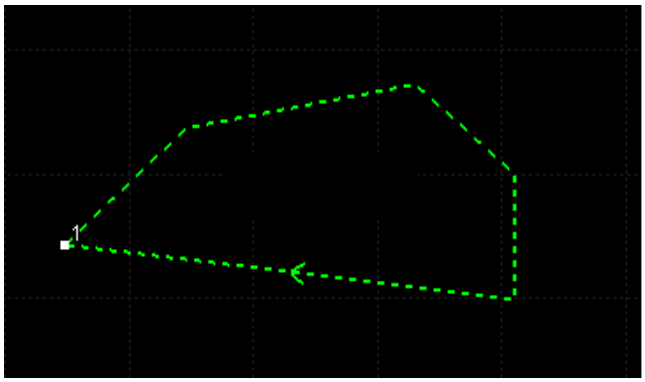
Bridge

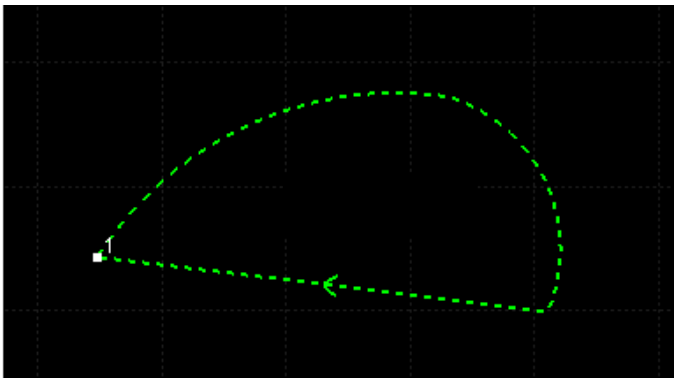

Bridge Parameter
Bridge Parameter Setting
Bridges between two contours according to the parameters.
Gap Distance:
200
mm
Bridge Width:
5
mm
OK
Cancel


Zero Ref
Inner
Reverse
Fillet
Array
Arc Detect
Envelope line
Transform
Process Setting
Sort
Linear measurement
Curve measurement
800
900
1200
80.1587
58.2603
87.2985
/8/13 10:16:27 Measurement mode, Specify startpoint:
/8/13 10:16:29 (818.371,1178.485)
/8/13 10:16:46 (876.631,1233.541)
/8/13 10:17:24 87.2985

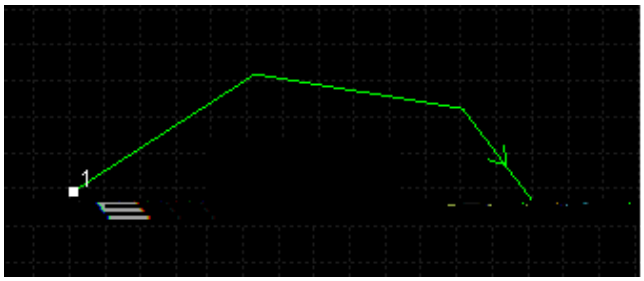

Optimize
Smooth Line
Break Line
Explode Line
Delete Duplicate
Delete Invisible
Merge Line
Unclosed parts optimization

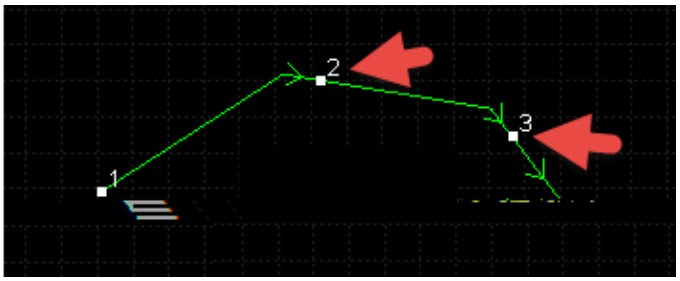
(1) Smooth Line:



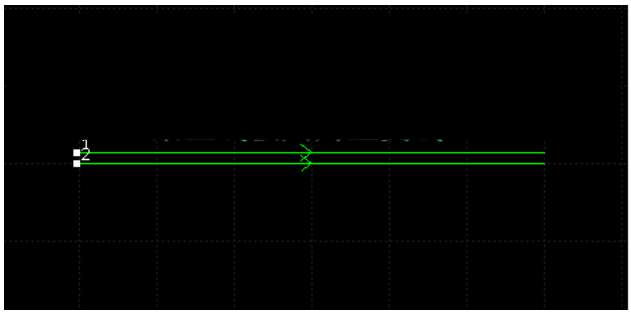


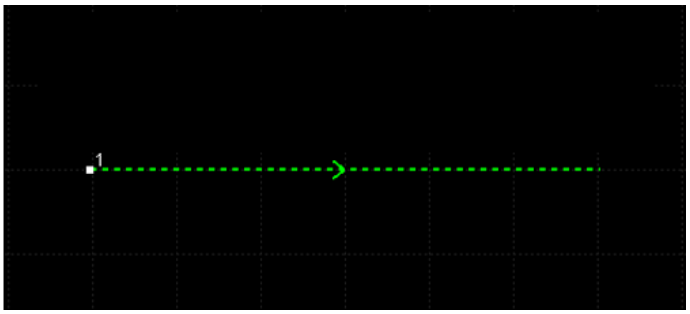
(2) Break Line





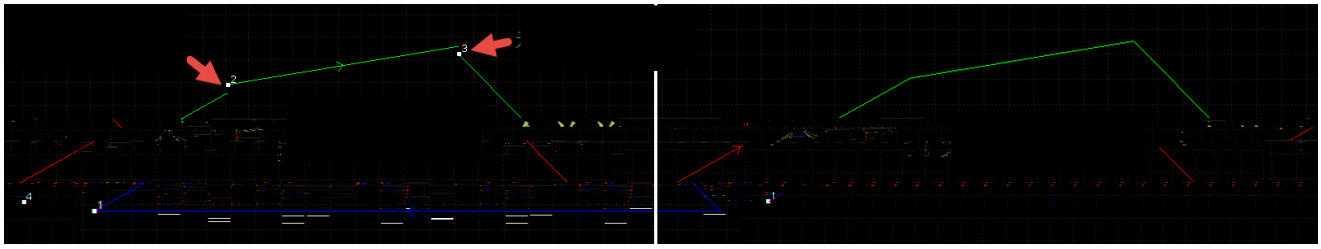
(3) Delete Duplicate

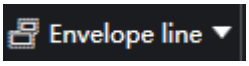




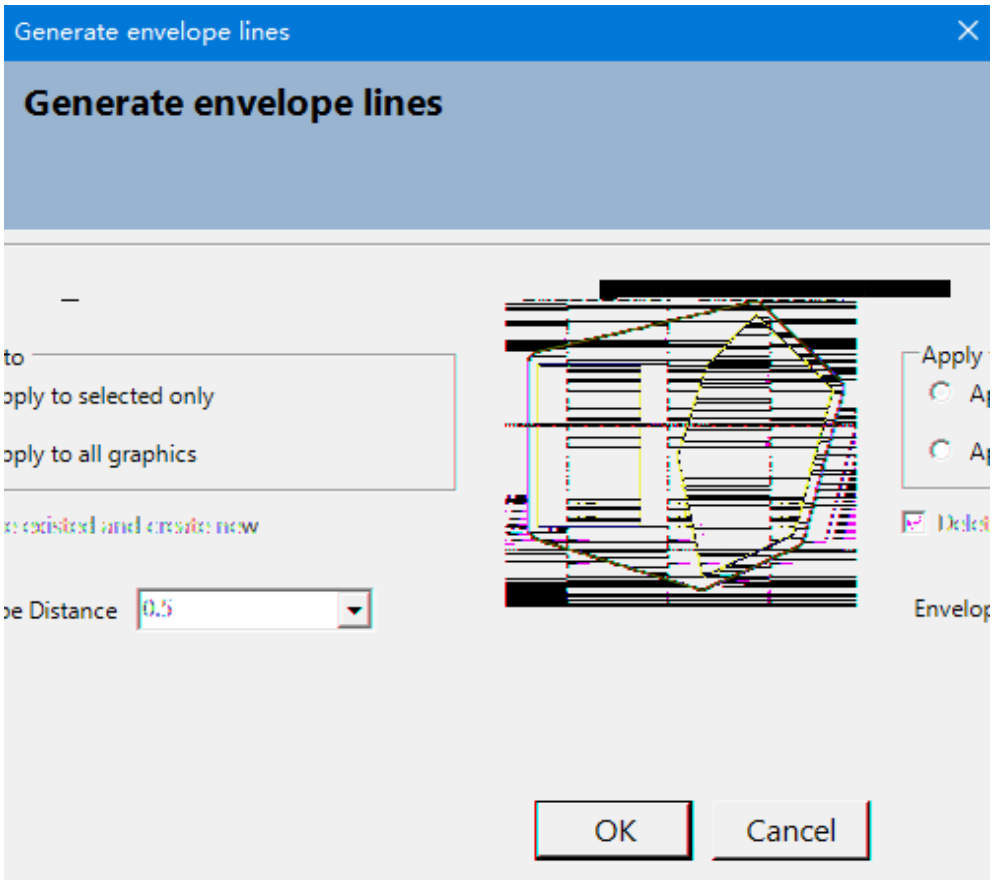
(4) Delete Invisible

(5) Merge Line




Envelope line

)
)
)


Generate envelope lines
Generate envelope lines
to
pply to selected only
pply to all graphics
e Distance
0.5
Apply
OK
Cancel

Circle

3-Point Arc

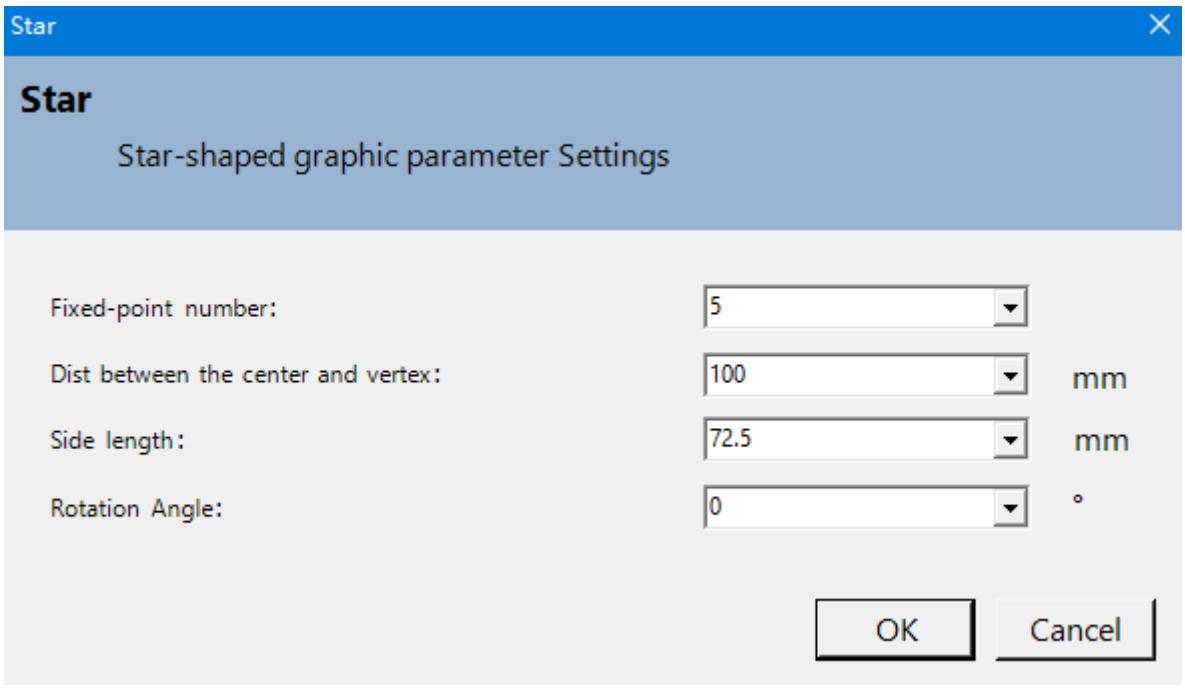
Scan Arc

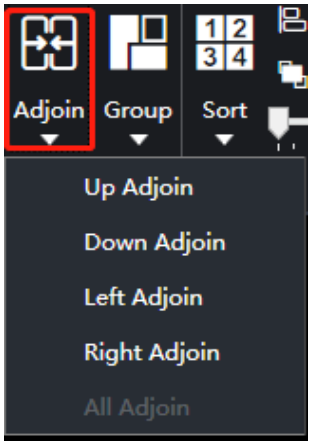
Ellipse

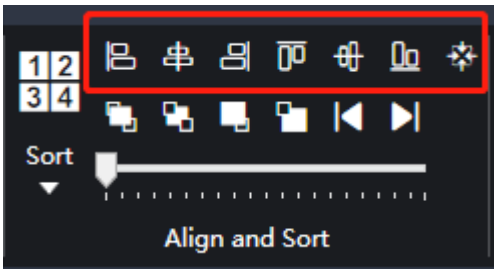
Polyline

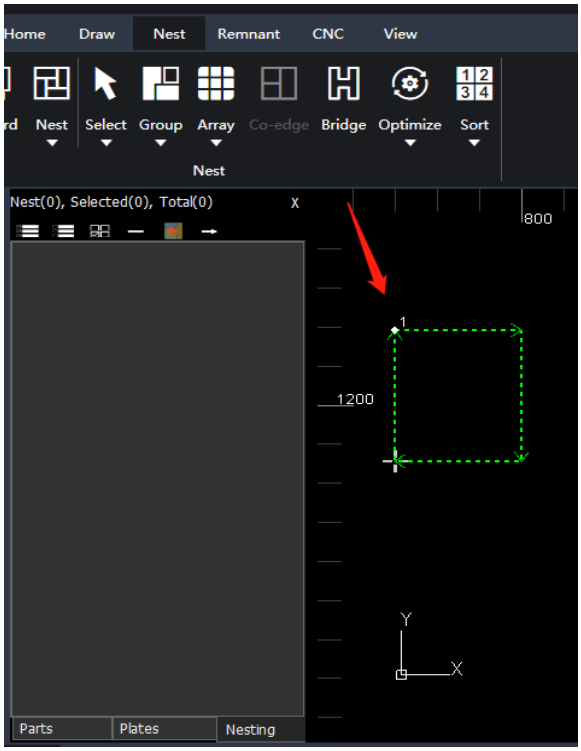
Polygon

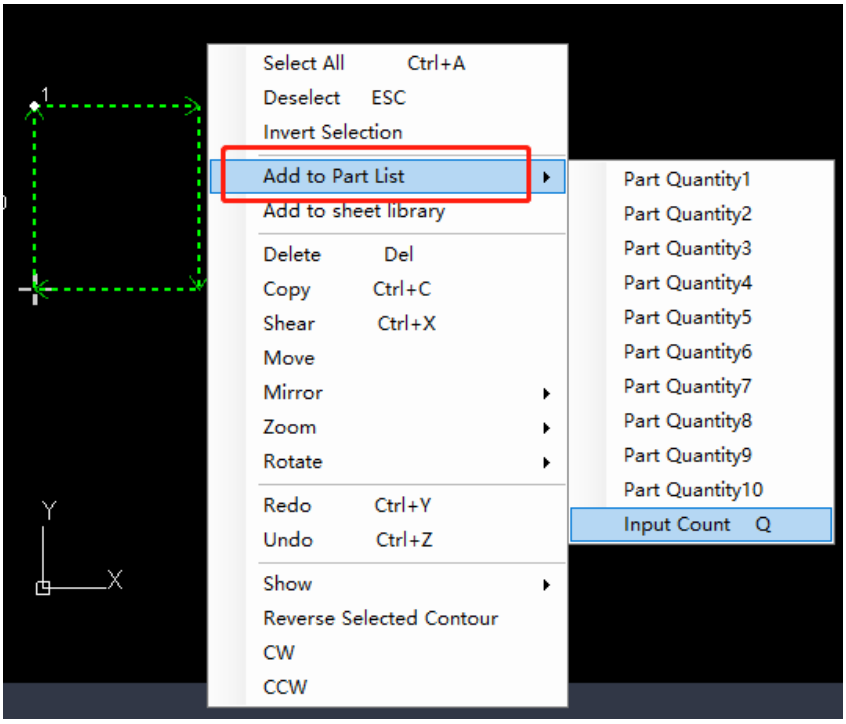
Star

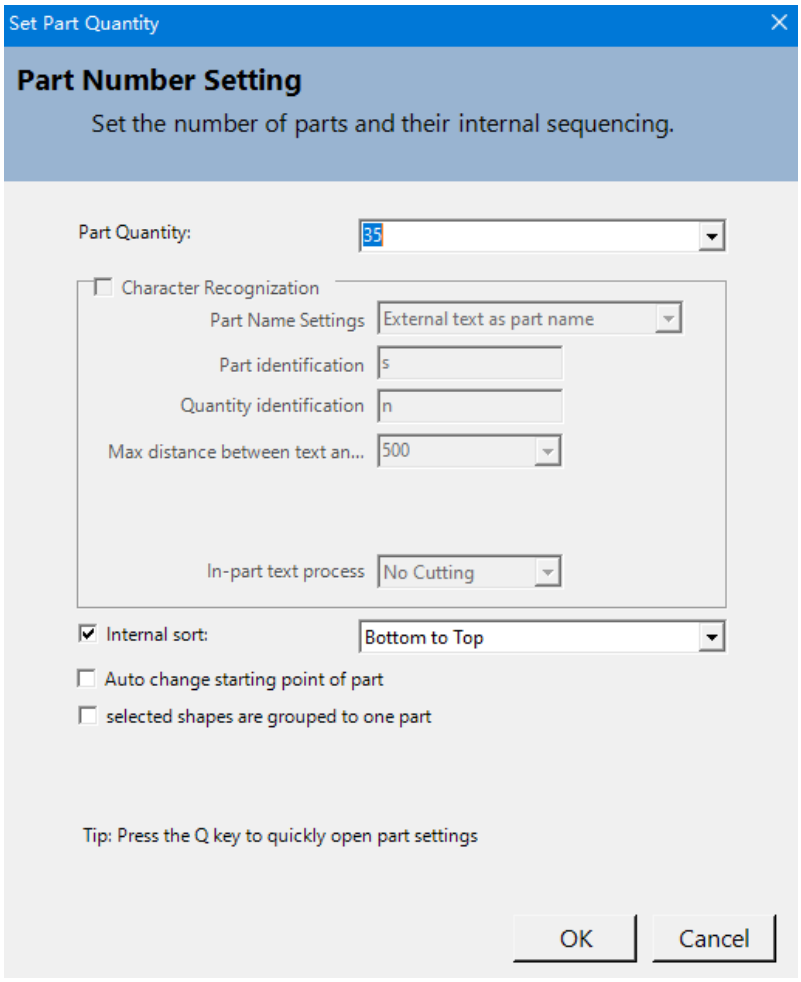


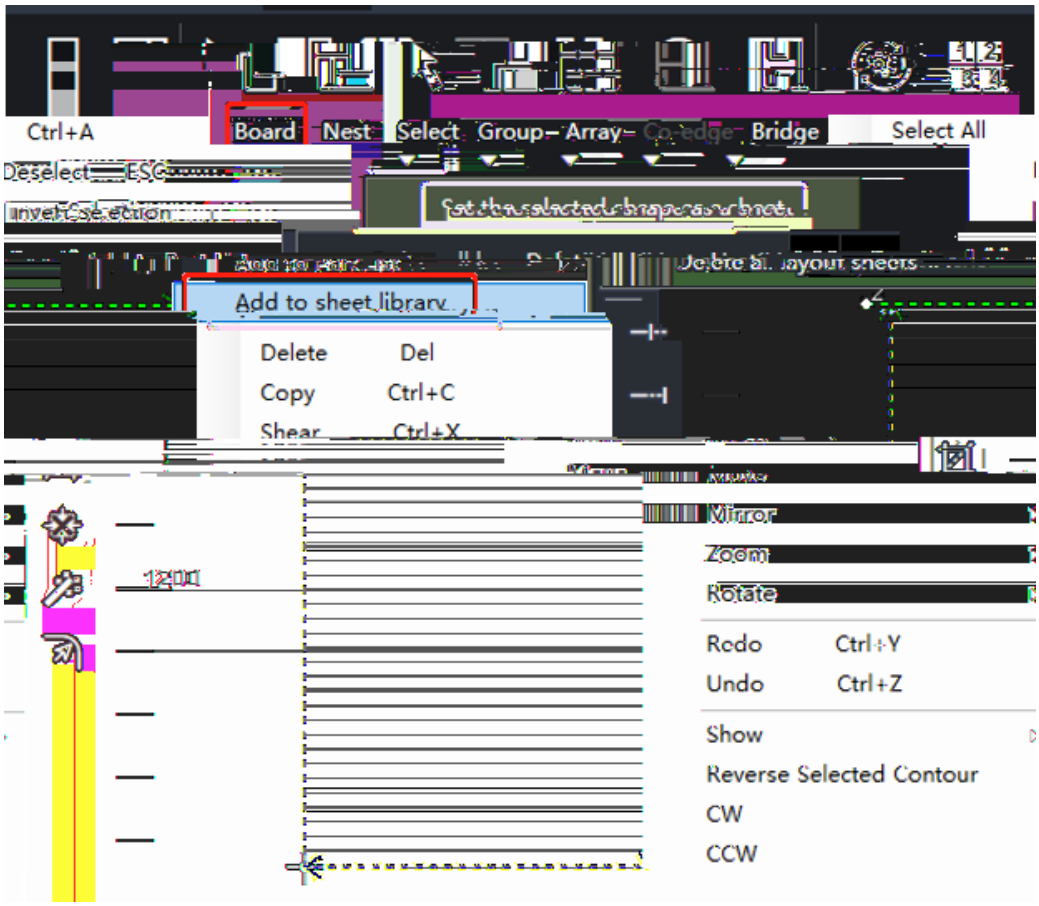

Adjoin
Group
Sort
Up Adjoin
Down Adjoin
Left Adjoin
Right Adjoin
All Adjoin


Sort
Align and Sort


Home
Draw
Nest
Remnant
CNC
View
Nest
Select
Group
Array
Co-edge
Bridge
Optimize
Sort
Nest
Nest(0), Selected(0), Total(0)
800
1200
1
Y
X
Parts
Plates
Nesting


Select All Ctrl+A
Deselect ESC
Invert Selection
Add to Part List
Add to sheet library
Delete Del
Copy Ctrl+C
Shear Ctrl+X
Move
Mirror
Zoom
Rotate
Redo Ctrl+Y
Undo Ctrl+Z
Show
Reverse Selected Contour
CW
CCW
Part Quantity1
Part Quantity2
Part Quantity3
Part Quantity4
Part Quantity5
Part Quantity6
Part Quantity7
Part Quantity8
Part Quantity9
Part Quantity10
Input Count Q
Y
X

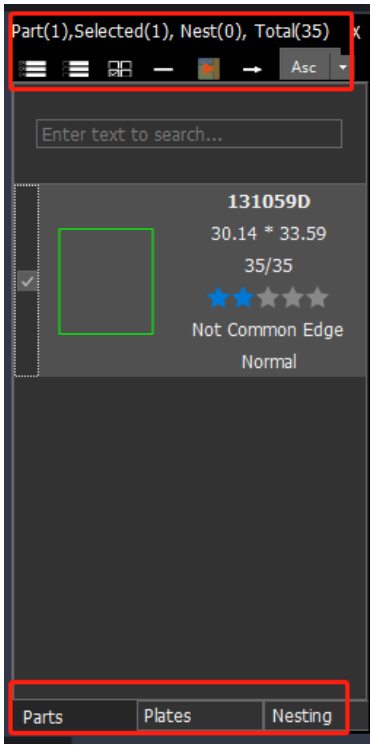

Set Part Quantity
Part Number Setting
Set the number of parts and their internal sequencing.
Part Quantity:
35
Character Recognization
Part Name Settings
External text as part name
Part identification
s
Quantity identification
n
Max distance between text an...
500
In-part text process
No Cutting
Internal sort:
Bottom to Top
Auto change starting point of part
selected shapes are grouped to one part
Tip: Press the Q key to quickly open part settings
OK
Cancel



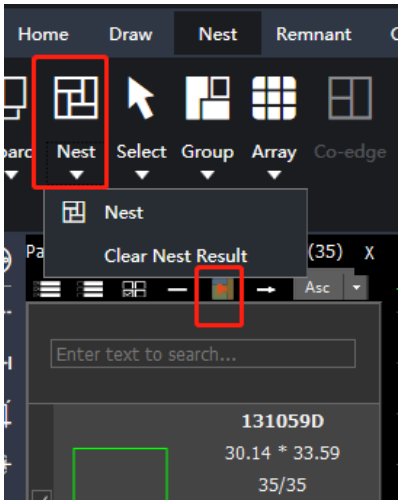
(1) Quick Access Toolbar

(2) Part Ba

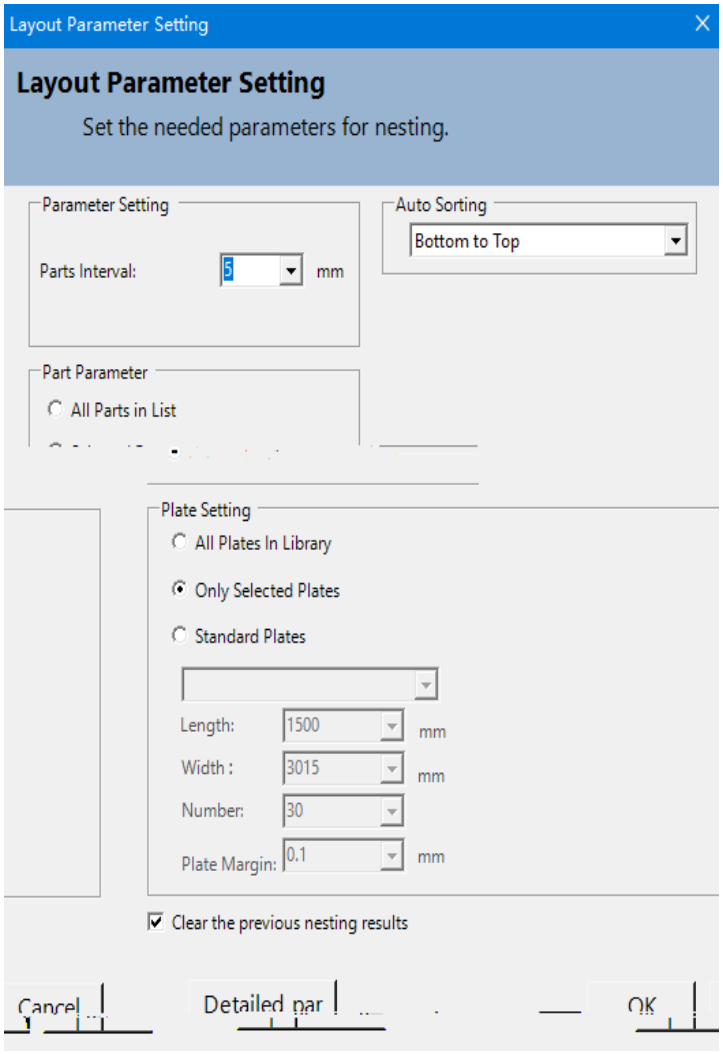
(3)



- Delete
- Delete Selected Results
- Delete All Results



(1) Parameter Setting
(2) Auto Sorting
(3) Part Parameter
(4) Plate Setting:
(5) Clear the previous nesting results
(6) Detailed par

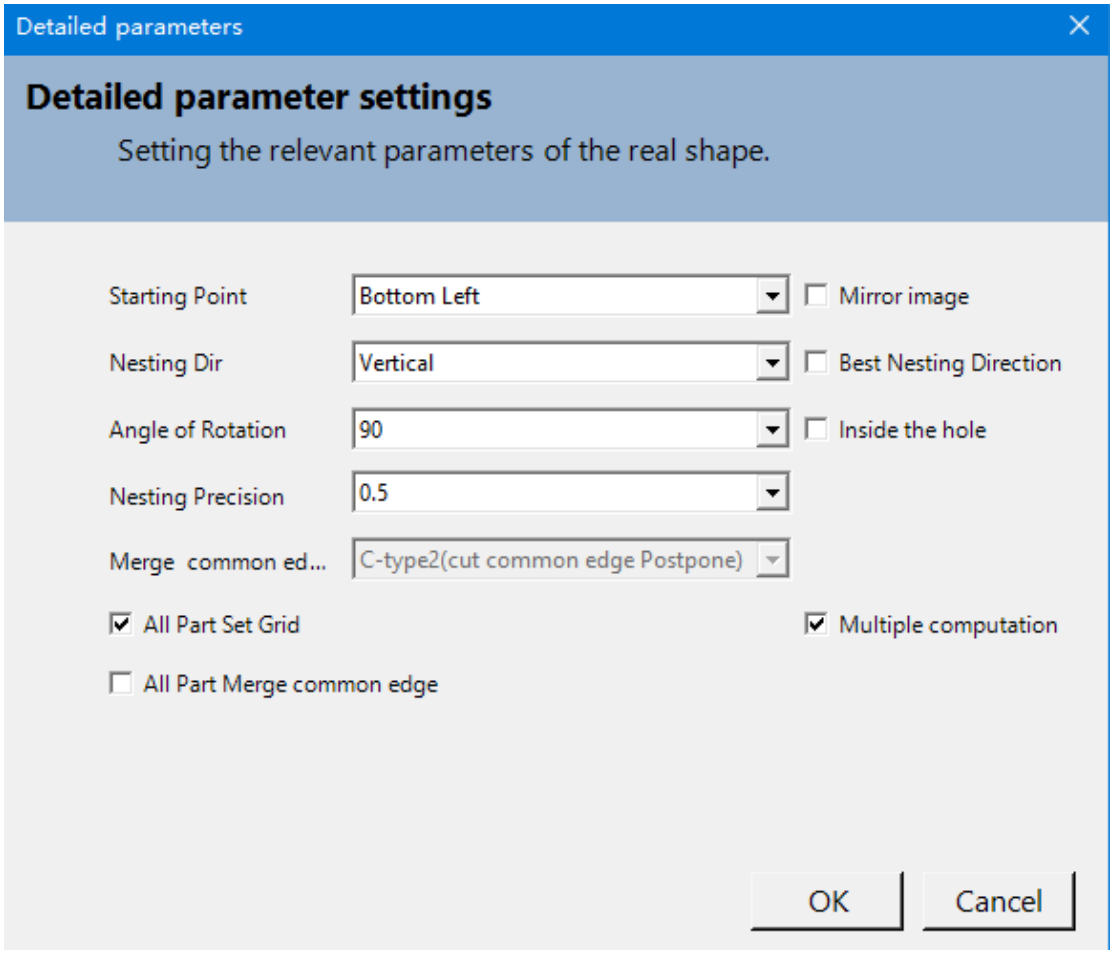


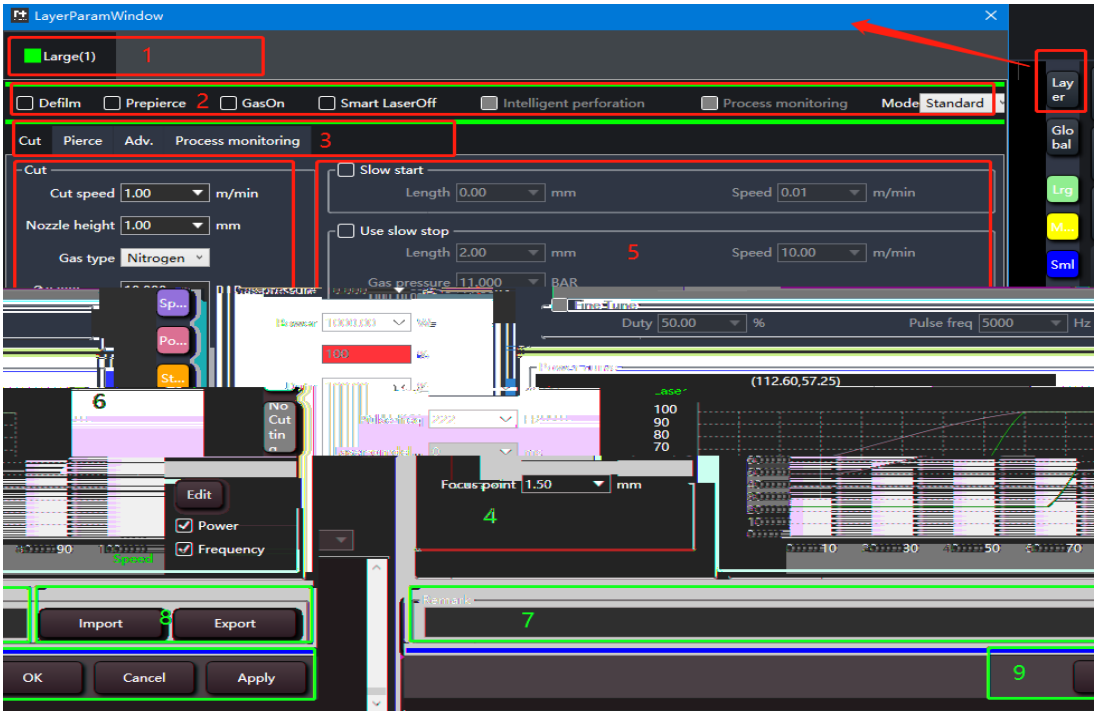
(1) Starting Point
(2) Mirror image
(3) Nesting Dir
(4) Best Nesting Direction
(5) Angle of Rotation

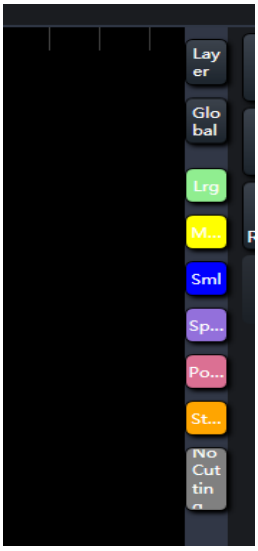
(6) Inside the hole

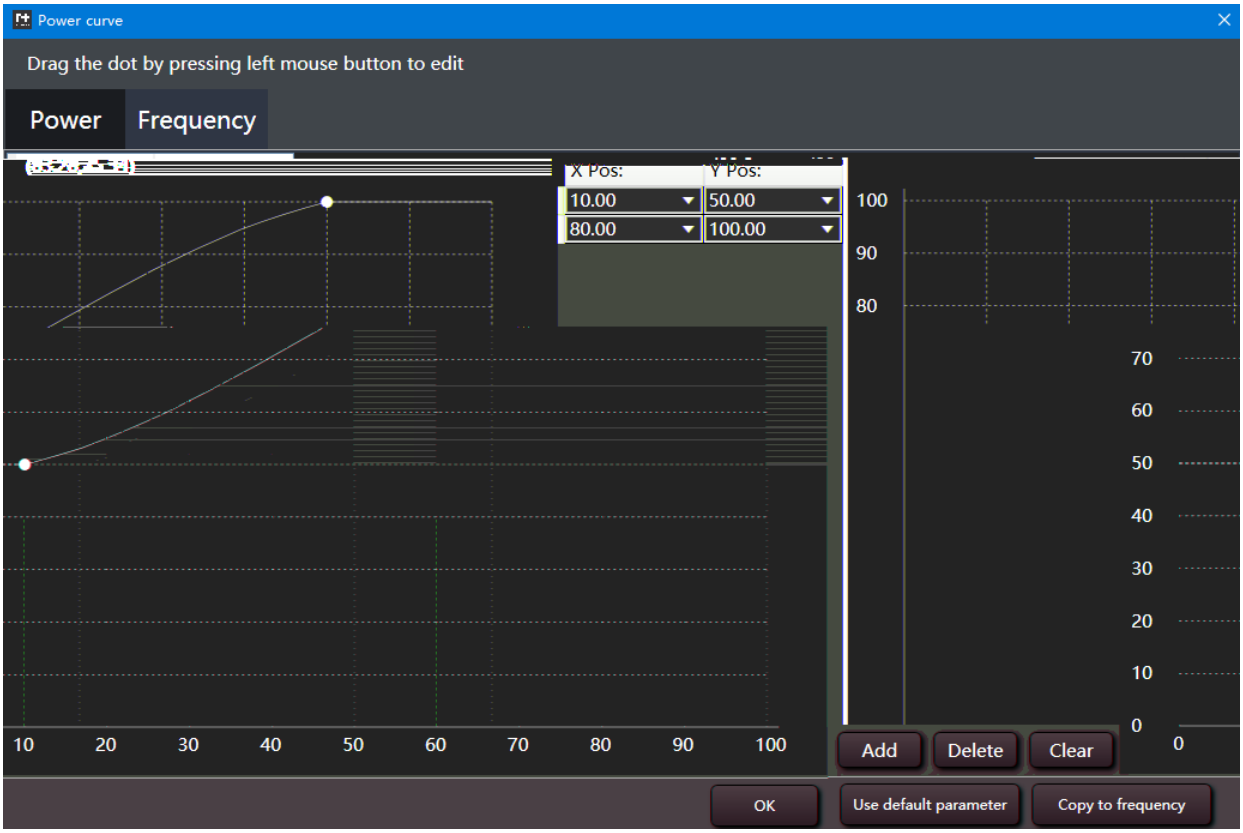
(7) Nesting Precision

(8) Merge common edge
(9) All Part Set Grid
(10) All Part Merge common edge
(11) Multiple computation




LayerParamWindow
Large(1)
1
Defilm
Prepierce
2
GasOn
Smart LaserOff
Intelligent perforation
Process monitoring
Mode
Standard
Cut
Pierce
Adv.
Process monitoring
3
Cut speed
1.00
m/min
Nozzle height
1.00
mm
Gas type
Nitrogen
Slow start
Length
0.00
mm
Speed
0.01
m/min
Use slow stop
Length
2.00
mm
5
Speed
10.00
m/min
Gas pressure
11.000
BAR
Duty
50.00
%
Pulse freq
5000
Hz
Lay er
Glo bal
Lrg
M...
Sml
Sp...
Po...
St...
6
No Cut tin g
(112.60,57.25)
100
90
80
70
Edit
Power
Frequency
Focus point
1.50
mm
4
Import
Export
7
OK
Cancel
Apply
9

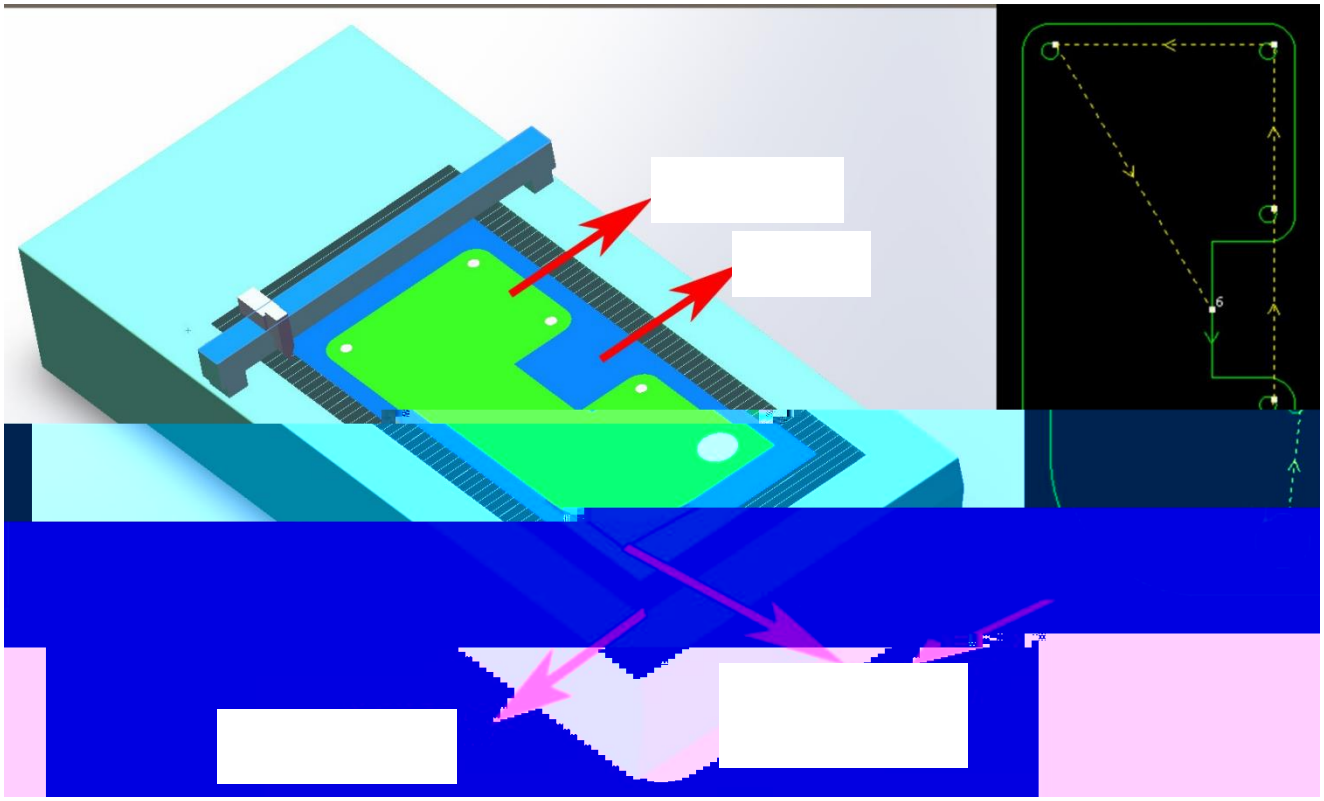

Lay er
Glo bal
Lrg
M...
Sml
Sp...
Po...
St...
No Cut tin g

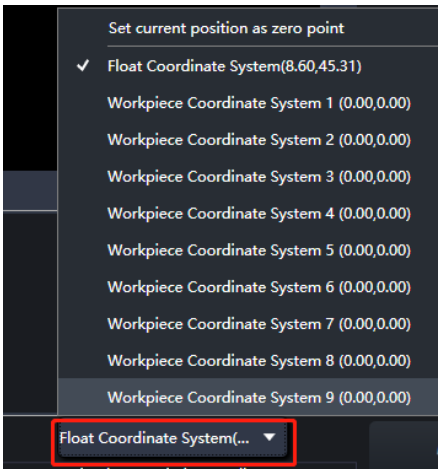

Power curve
Drag the dot by pressing left mouse button to edit
Power
Frequency
X Pos:
Y Pos:
10.00
50.00
80.00
100.00
100
90
80
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
90
100
0
Add
Delete
Clear
OK
Use default parameter
Copy to frequency

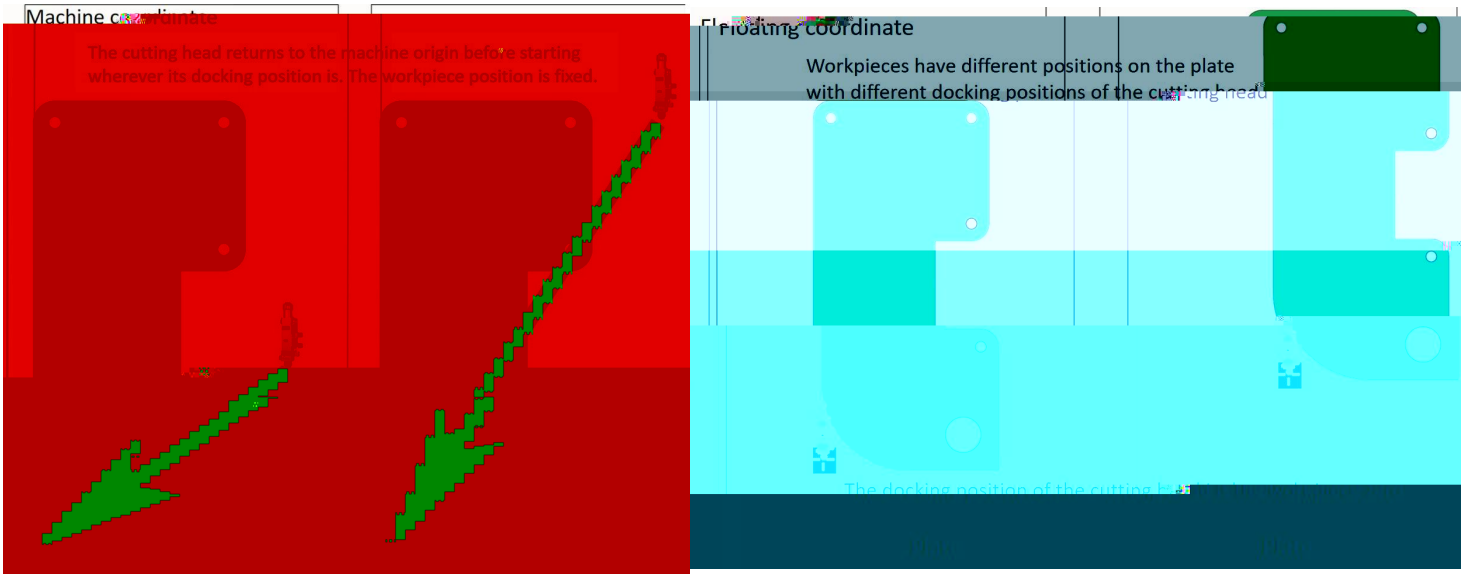
OK

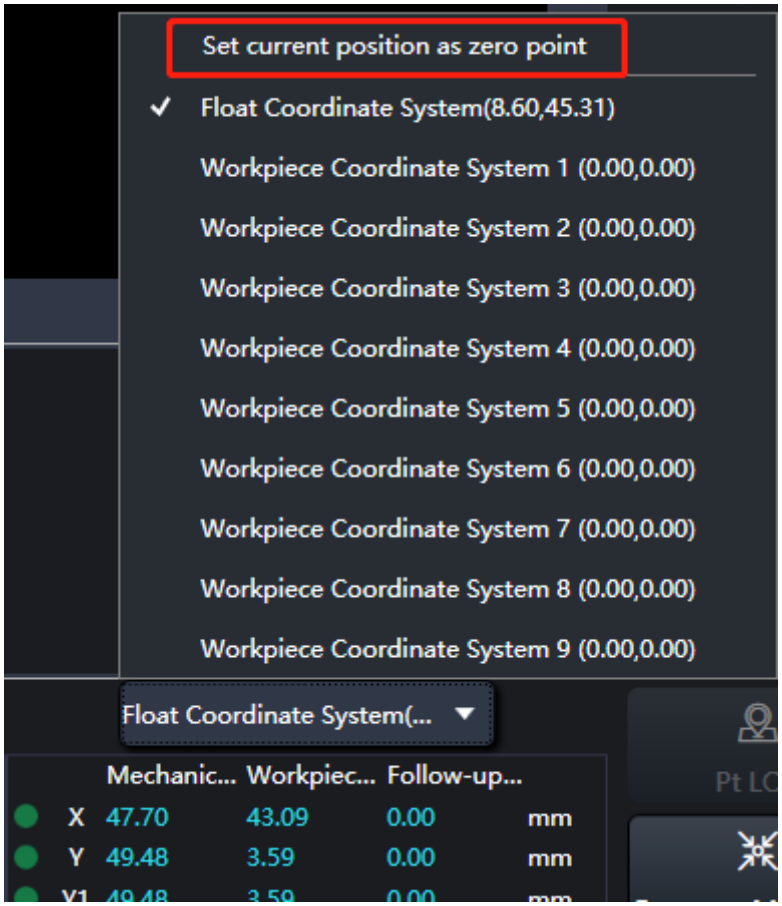
Cancel

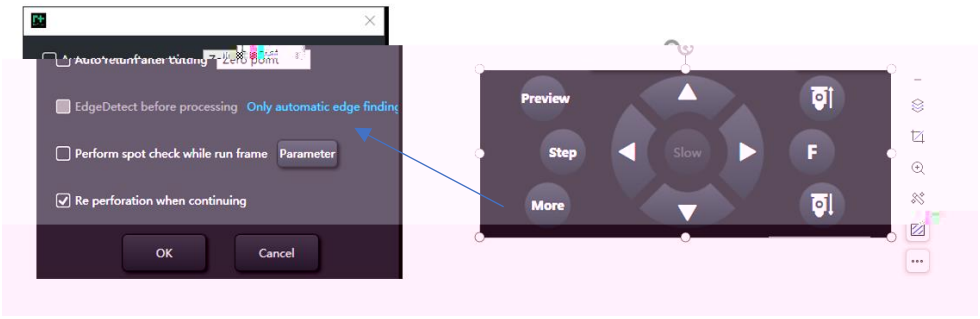
Apply

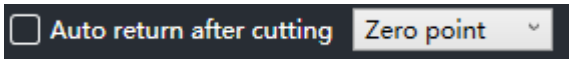


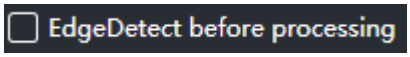

Set current position as zero point
Float Coordinate System(8.60,45.31)
Workpiece Coordinate System 1 (0.00,0.00)
Workpiece Coordinate System 2 (0.00,0.00)
Workpiece Coordinate System 3 (0.00,0.00)
Workpiece Coordinate System 4 (0.00,0.00)
Workpiece Coordinate System 5 (0.00,0.00)
Workpiece Coordinate System 6 (0.00,0.00)
Workpiece Coordinate System 7 (0.00,0.00)
Workpiece Coordinate System 8 (0.00,0.00)
Workpiece Coordinate System 9 (0.00,0.00)
Float Coordinate System(...

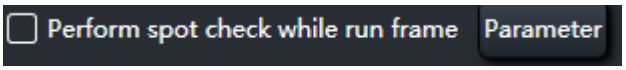

Machine coordinate
The cutting head returns to the machine origin before starting
wherever its docking position is. The workpiece position is fixed.
Floating coordinate
Workpieces have different positions on the plate
with different docking positions of the cutting head


Set current position as zero point
Float Coordinate System(8.60,45.31)
Workpiece Coordinate System 1 (0.00,0.00)
Workpiece Coordinate System 2 (0.00,0.00)
Workpiece Coordinate System 3 (0.00,0.00)
Workpiece Coordinate System 4 (0.00,0.00)
Workpiece Coordinate System 5 (0.00,0.00)
Workpiece Coordinate System 6 (0.00,0.00)
Workpiece Coordinate System 7 (0.00,0.00)
Workpiece Coordinate System 8 (0.00,0.00)
Workpiece Coordinate System 9 (0.00,0.00)
Float Coordinate System(...
Mechanic... Workpiec... Follow-up...
X 47.70 43.09 0.00 mm
Y 49.48 3.59 0.00 mm

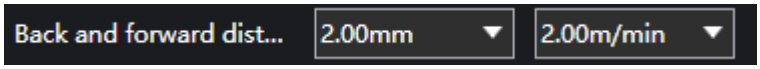

EdgeDetect before processing
Only automatic edge findin
Perform spot check while run frame
Parameter
Re perforation when continuing
OK
Cancel
Preview
Step
Slow
F
More

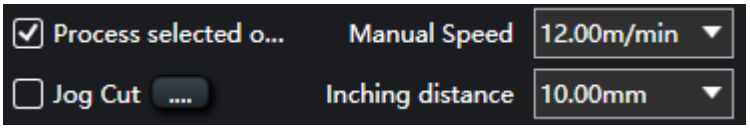

Auto return after cutting
Zero point


EdgeDetect before processing

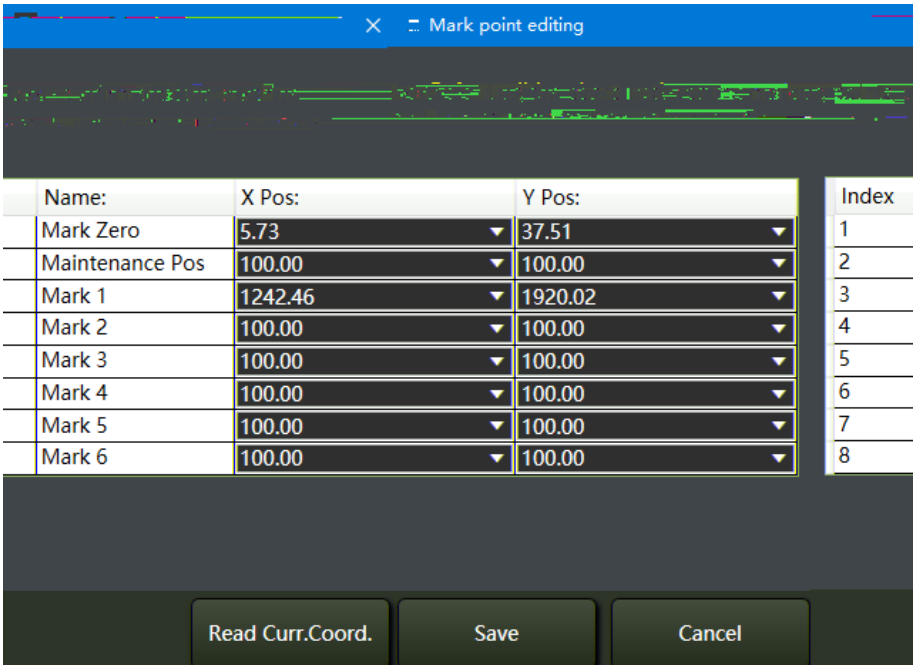

Perform spot check while run frame
Parameter


Re perforation when continuing

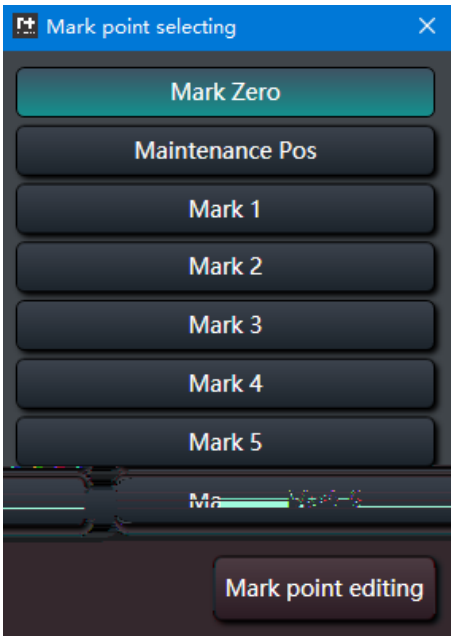

Back and forward dist...
2.00mm
2.00m/min


Process selected o...
Manual Speed
12.00m/min
Jog Cut
....
Inching distance
10.00mm

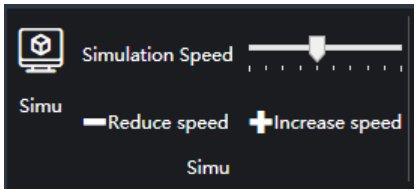

Mark

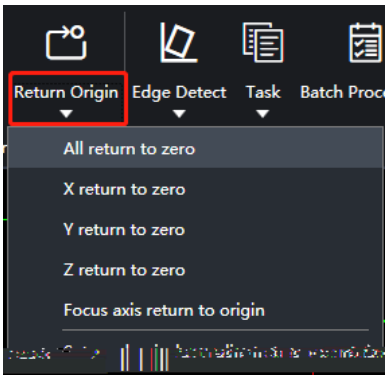

Mark point editing
Name:
X Pos:
Y Pos:
Index
Mark Zero
5.73
37.51
1
Maintenance Pos
100.00
100.00
2
Mark 1
1242.46
1920.02
3
Mark 2
100.00
100.00
4
Mark 3
100.00
100.00
5
Mark 4
100.00
100.00
6
Mark 5
100.00
100.00
7
Mark 6
100.00
100.00
8
Read Curr.Coord.
Save
Cancel

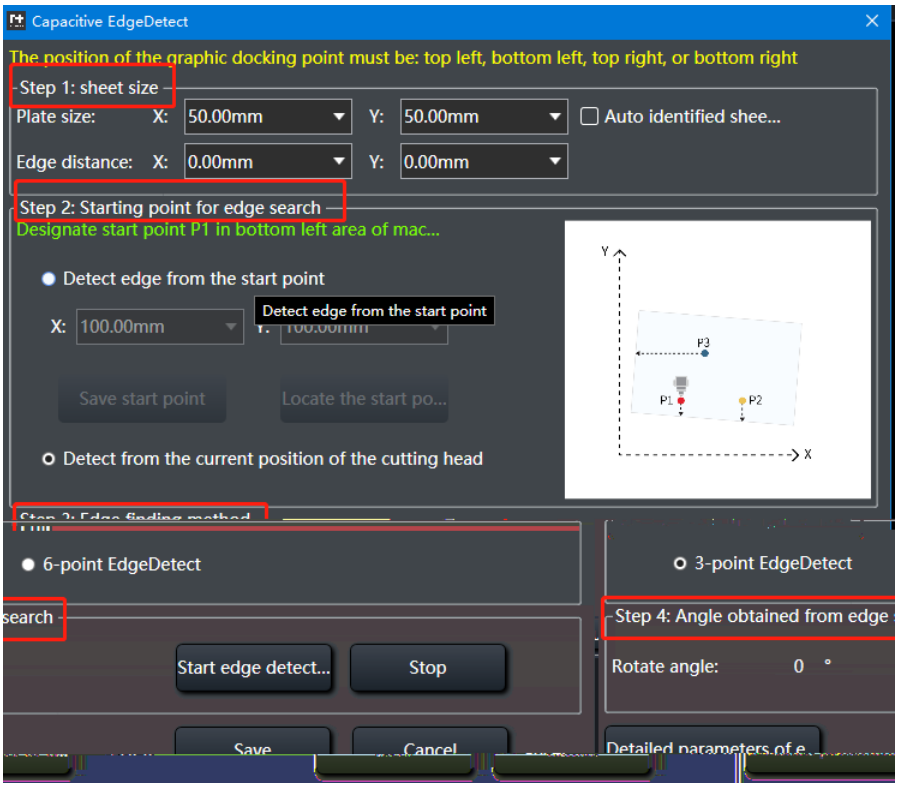

Mark Zero


Mark point selecting
Mark Zero
Maintenance Pos
Mark 1
Mark 2
Mark 3
Mark 4
Mark 5
Mark point editing

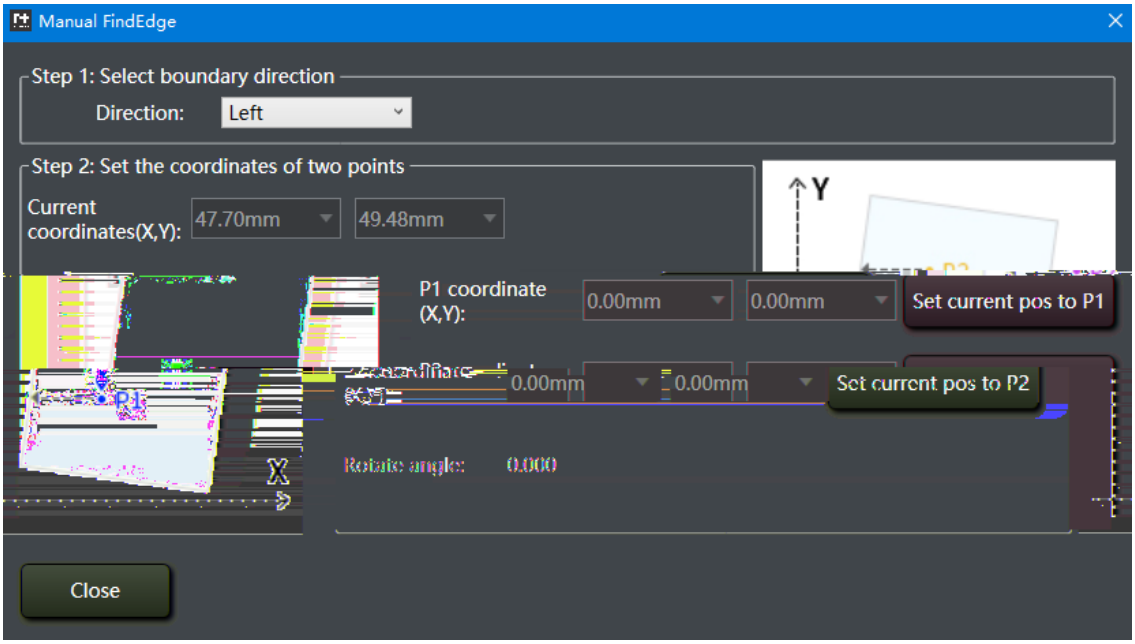
[redacted]


Simulation Speed
Simu
Reduce speed
Increase speed
Simu


Return Origin
Edge Detect
Task
Batch Proc
All return to zero
X return to zero
Y return to zero
Z return to zero
Focus axis return to origin

- 
Capacitive EdgeDetect
The position of the graphic docking point must be: top left, bottom left, top right, or bottom right
Step 1: sheet size
Plate size: X: 50.00mm Y: 50.00mm Auto identified shee...
Edge distance: X: 0.00mm Y: 0.00mm
Step 2: Starting point for edge search
Designate start point P1 in bottom left area of mac...
Detect edge from the start point
Detect edge from the start point
X: 100.00mm
Save start point
Locate the start po...
Detect from the current position of the cutting head
Y
X
P1
P2
P3
6-point EdgeDetect
3-point EdgeDetect
search
Start edge detect...
Stop
Step 4: Angle obtained from edge
Rotate angle: 0 °
Save
Cancel
Detailed parameters of e...

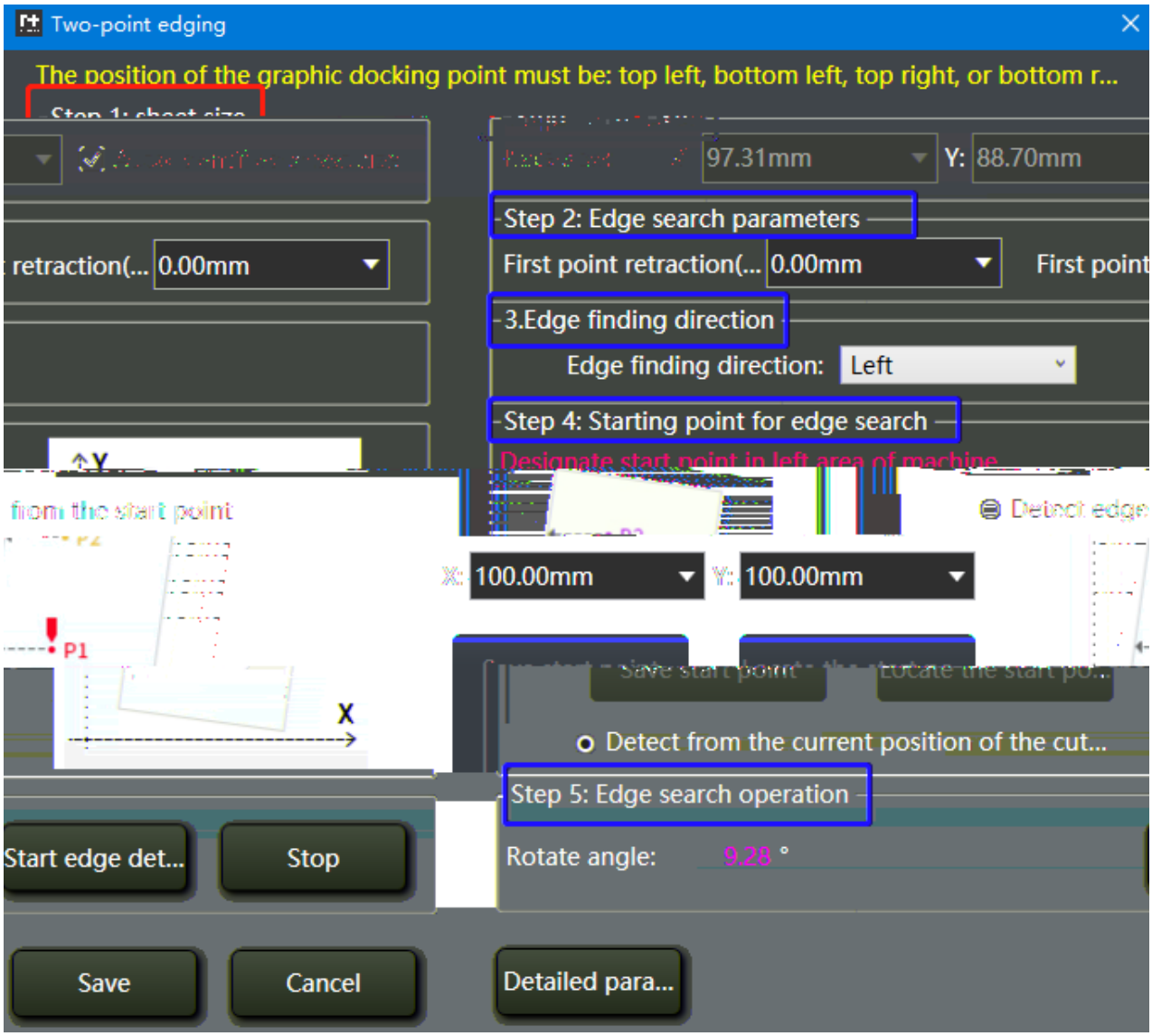
Manual Edge Detection



CCW rotation9.28 degree,Please note the difference between processing and display

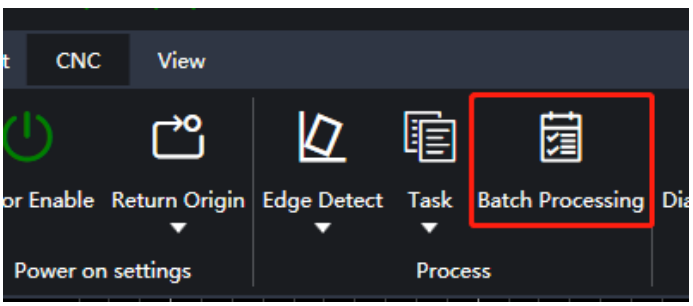
•

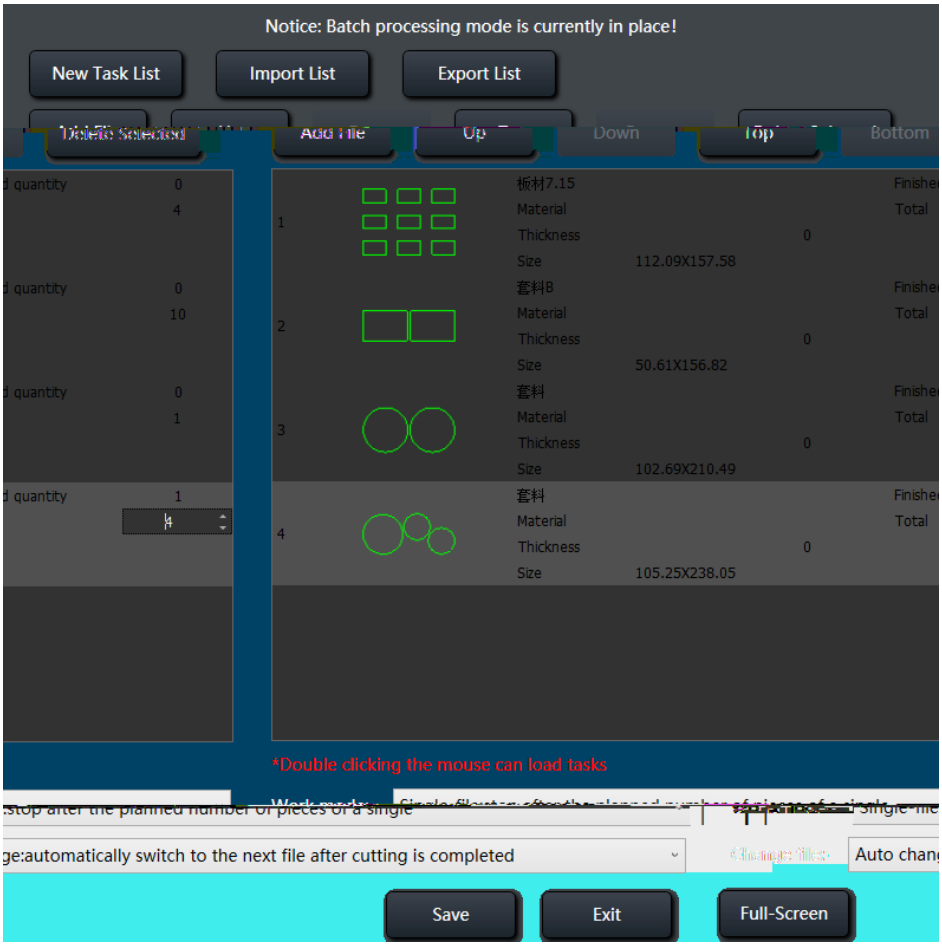
- **2-point Edge Detection**

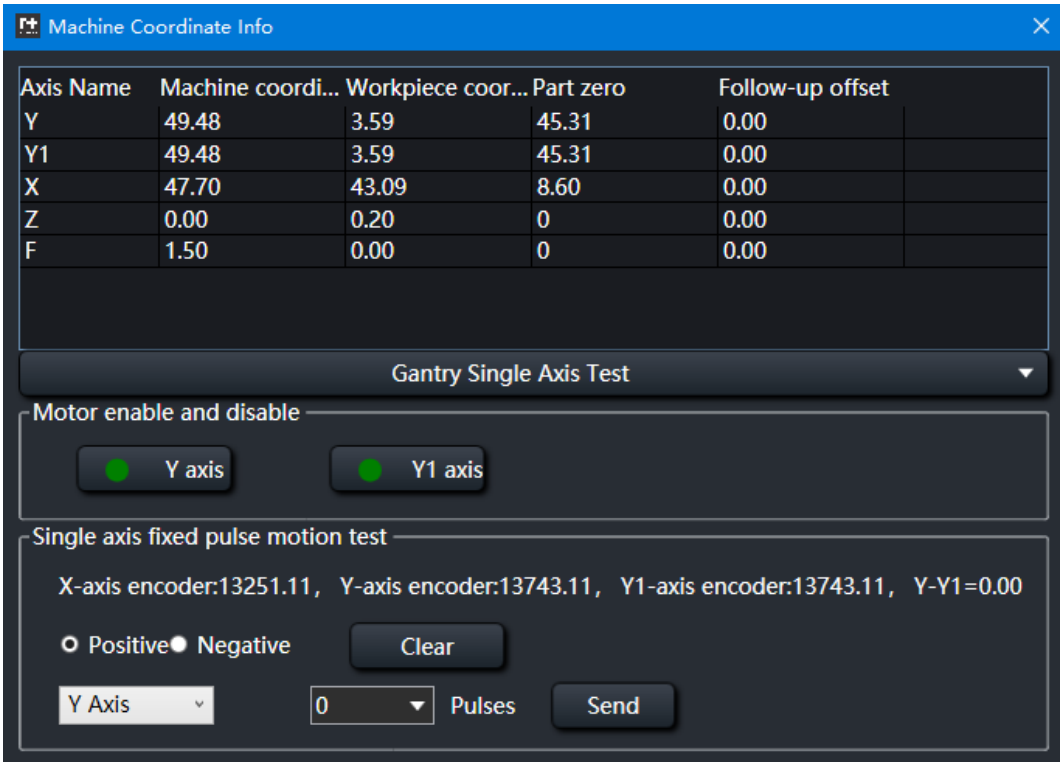


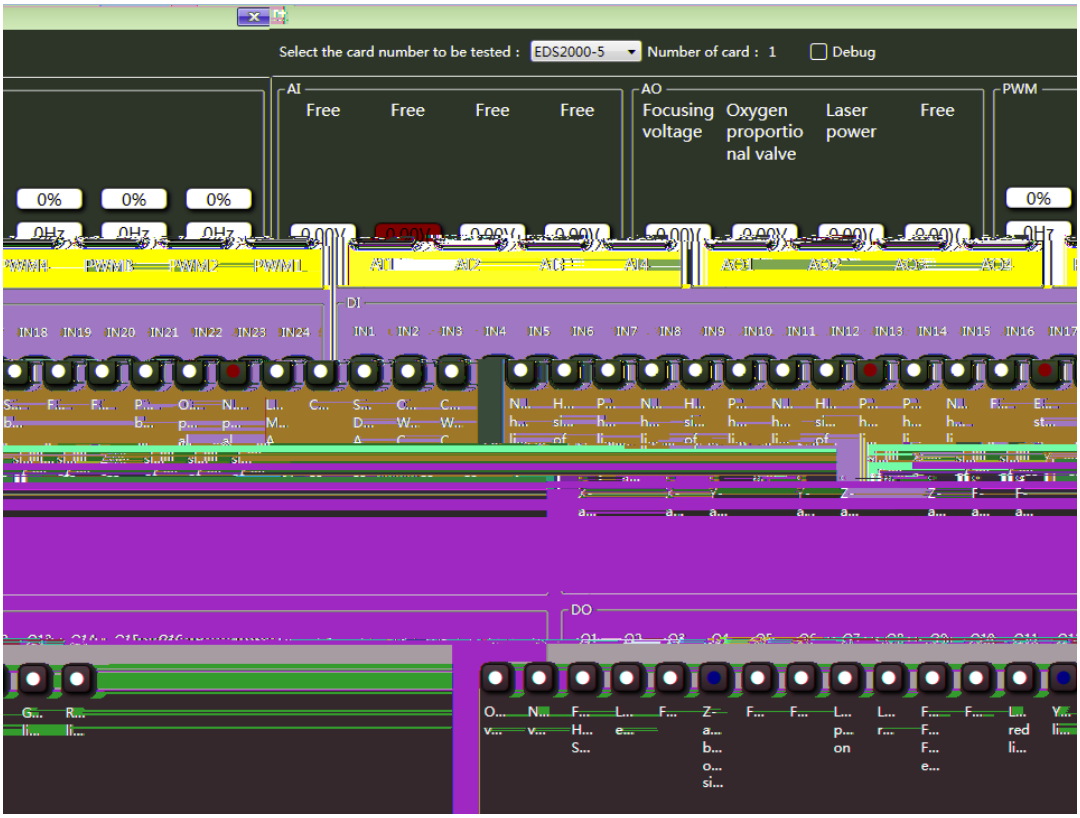
- **Memory edge detection angle**

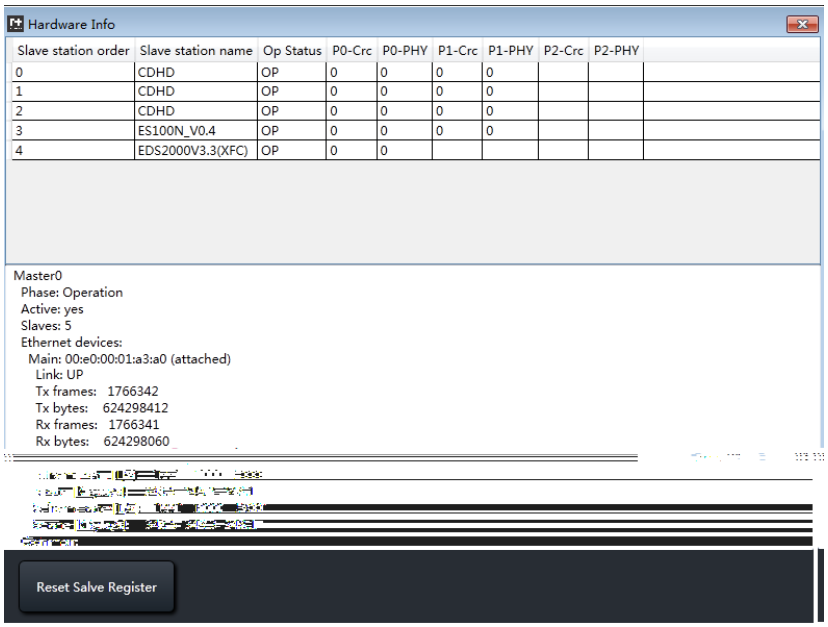
- Cut off



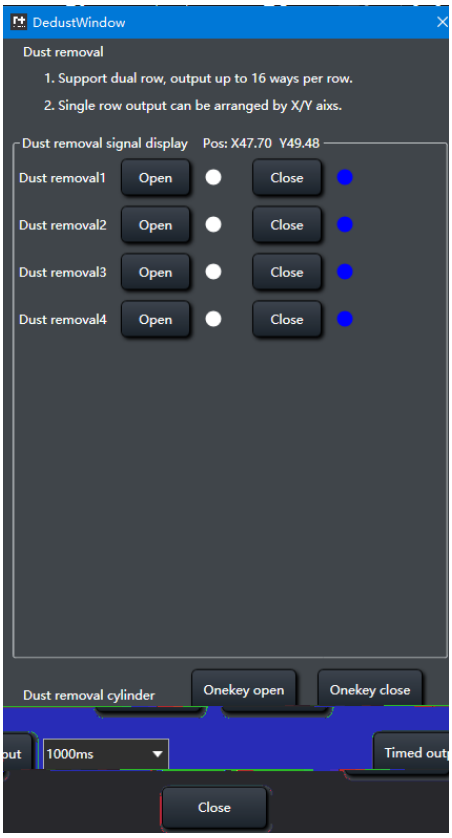

Notice: Batch processing mode is currently in place!
New Task List
Import List
Export List
Add File
Down
Bottom
quantity
板材7.15
Material
Thickness
Size
112.09X157.58
套料B
50.61X156.82
套料
102.69X210.49
105.25X238.05
Finished
Total
*Double clicking the mouse can load tasks
ge:automatically switch to the next file after cutting is completed
Auto chang
Save
Exit
Full-Screen

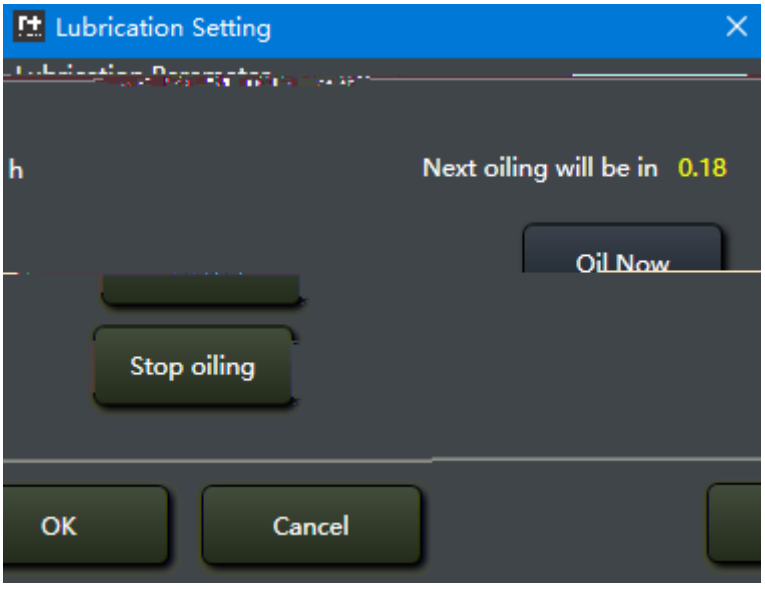

Machine Coordinate Info
Axis Name
Machine coordi...
Workpiece coor...
Part zero
Follow-up offset
Y
49.48
3.59
45.31
0.00
Y1
49.48
3.59
45.31
0.00
X
47.70
43.09
8.60
0.00
Z
0.00
0.20
0
0.00
F
1.50
0.00
0
0.00
Gantry Single Axis Test
Motor enable and disable
Y axis
Y1 axis
Single axis fixed pulse motion test
X-axis encoder:13251.11, Y-axis encoder:13743.11, Y1-axis encoder:13743.11, Y-Y1=0.00
Positive
Negative
Clear
Y Axis
0
Pulses
Send

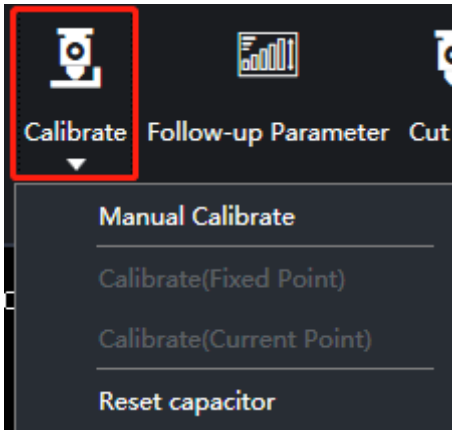

Select the card number to be tested :
EDS2000-5
Number of card : 1
Debug
AI
Free
Free
Free
Free
AO
Focusing voltage
Oxygen proportio nal valve
Laser power
Free
PWM
0%
0%
0%
0%
DI
DO

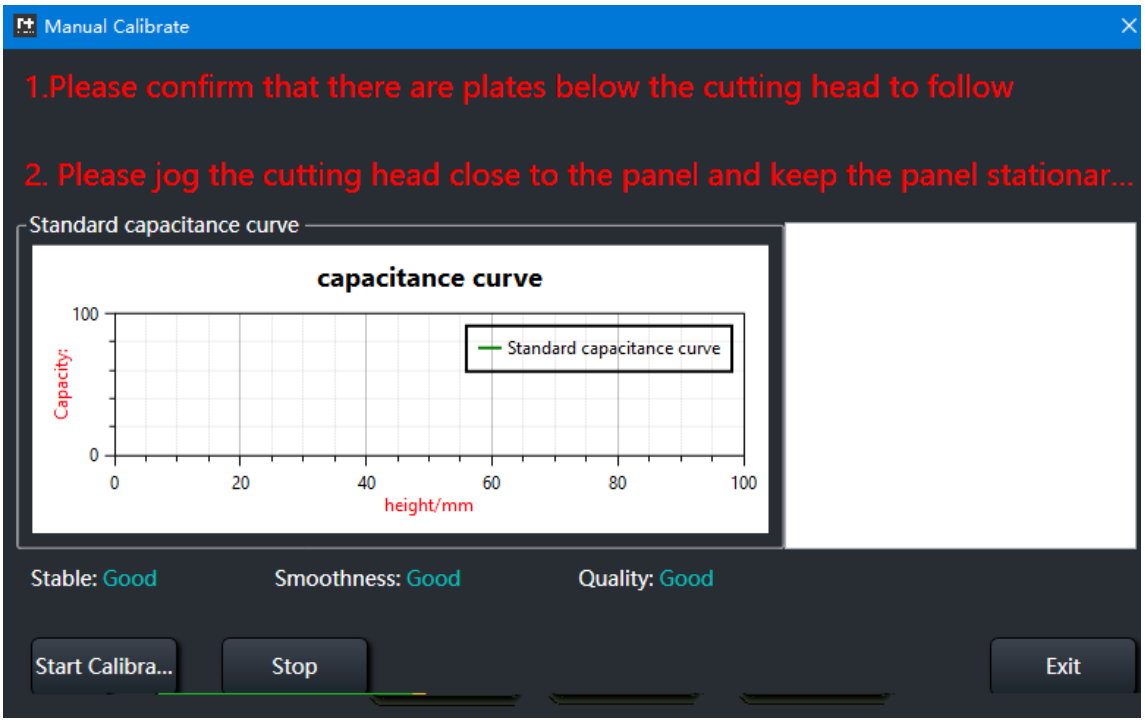

Hardware Info
Slave station order
Slave station name
Op Status
P0-Crc
P0-PHY
P1-Crc
P1-PHY
P2-Crc
P2-PHY
0 CDHD OP 0 0 0 0
1 CDHD OP 0 0 0 0
2 CDHD OP 0 0 0 0
3 ES100N_V0.4 OP 0 0 0 0
4 EDS2000V3.3(XFC) OP 0 0
Master0
Phase: Operation
Active: yes
Slaves: 5
Ethernet devices:
Main: 00:e0:00:01:a3:a0 (attached)
Link: UP
Tx frames: 1766342
Tx bytes: 624298412
Rx frames: 1766341
Rx bytes: 624298060
Reset Salve Register

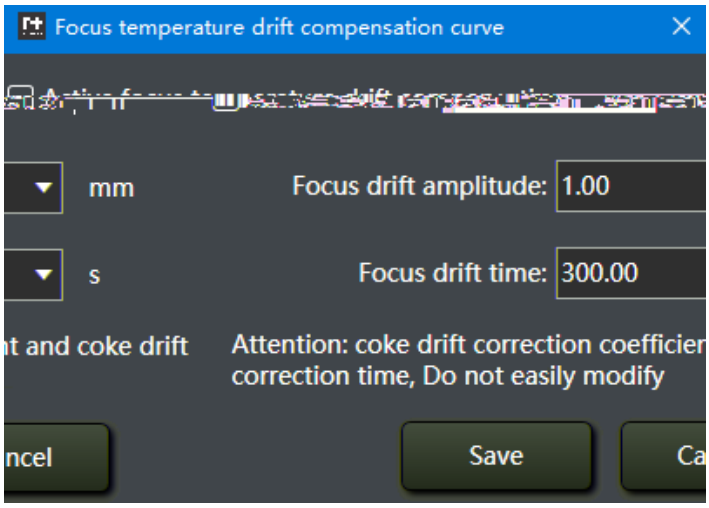

difference of capacitance at current height and at the end of calibration:0
C: 2279981
H: 39.99 mm
Z: 0.00 mm
V: 0.00m/min
LV: 10
Follow
Standard cap...
Real-time Ca...
Real-time Capacitance
Diff: 26
Capacitance
Time
Pause

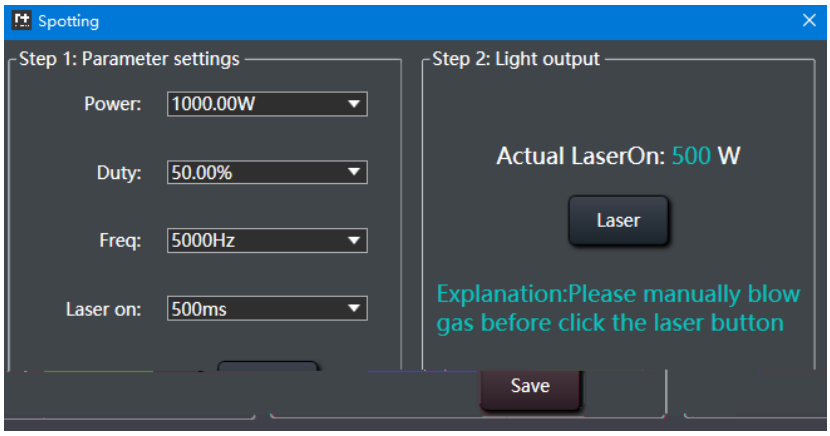

DedustWindow
Dust removal
1. Support dual row, output up to 16 ways per row.
2. Single row output can be arranged by X/Y aixs.
Dust removal signal display
Pos: X47.70 Y49.48
Dust removal1
Open
Close
Dust removal2
Open
Close
Dust removal3
Open
Close
Dust removal4
Open
Close
Dust removal cylinder
Onekey open
Onekey close
1000ms
Timed out
Close


Lubrication Setting
Next oiling will be in 0.18
Oil Now
Stop oiling
OK
Cancel

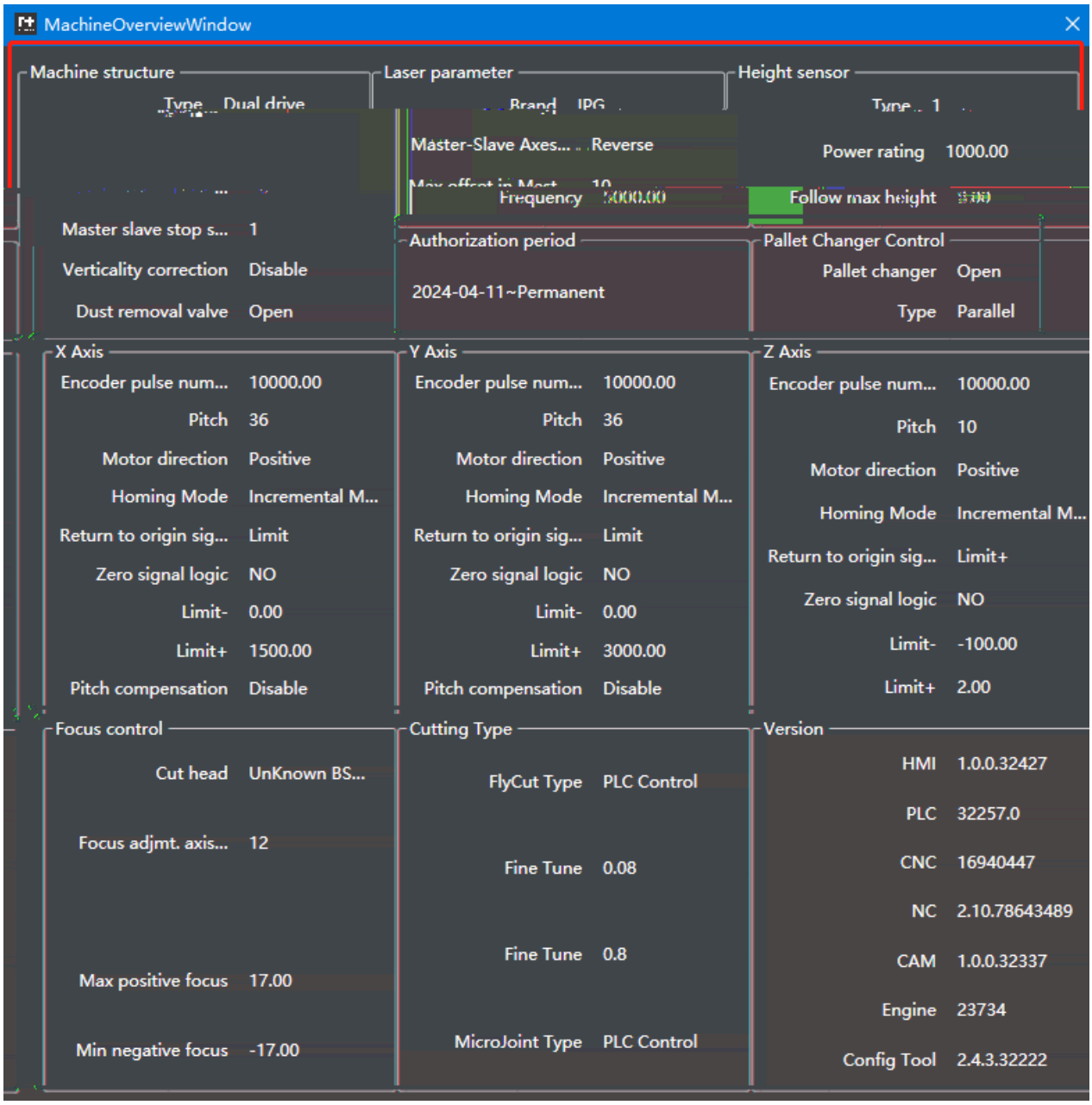

Calibrate
Follow-up Parameter
Cut
Manual Calibrate
Calibrate(Fixed Point)
Calibrate(Current Point)
Reset capacitor

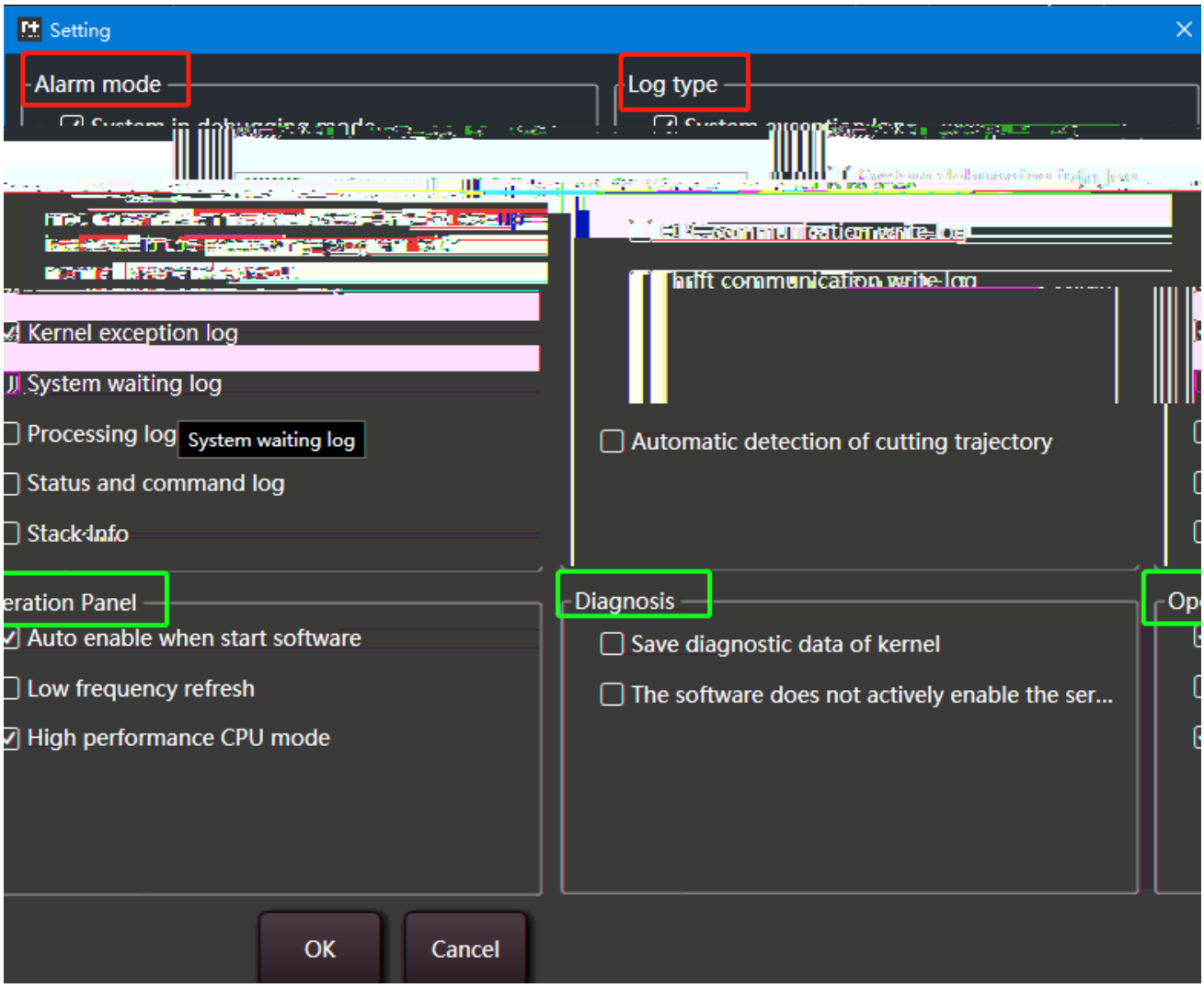

Manual Calibrate
1.Please confirm that there are plates below the cutting head to follow
2. Please jog the cutting head close to the panel and keep the panel stationar...
Standard capacitance curve
capacitance curve
Standard capacitance curve
Capacity:
100
0
0
20
40
60
80
100
height/mm
Stable: Good
Smoothness: Good
Quality: Good
Start Calibra...
Stop
Exit


Focus temperature drift compensation curve
mm
Focus drift amplitude: 1.00
s
Focus drift time: 300.00
t and coke drift
Attention: coke drift correction coefficier
correction time, Do not easily modify
ncel
Save
Ca

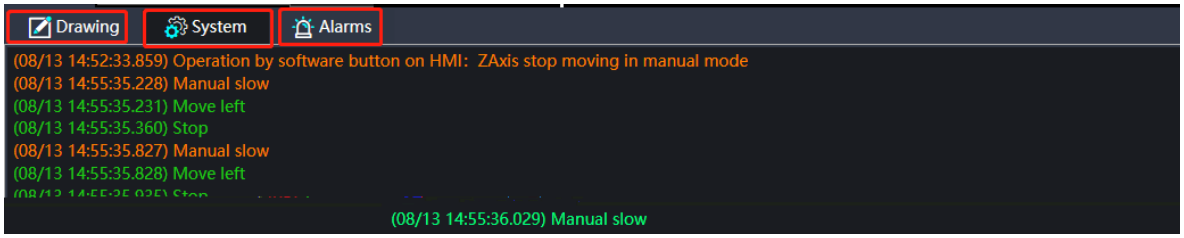

Spotting
Step 1: Parameter settings
Power: 1000.00W
Duty: 50.00%
Freq: 5000Hz
Laser on: 500ms
Step 2: Light output
Actual LaserOn: 500 W
Laser
Explanation:Please manually blow
gas before click the laser button
Save

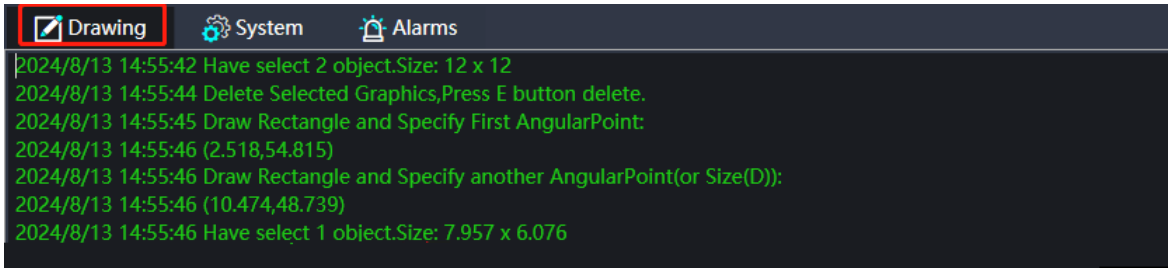
-
-
-
-

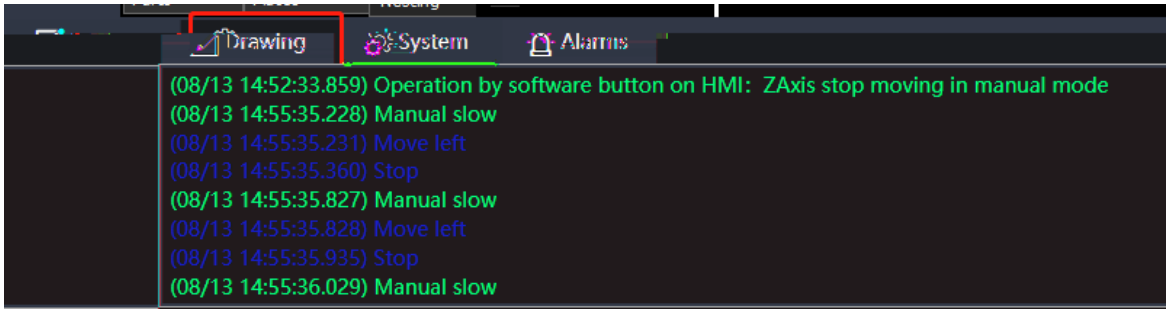

MachineOverviewWindow
Machine structure
Type Dual drive
Master slave stop s... 1
Verticality correction Disable
Dust removal valve Open
Laser parameter
Brand IPG
Master-Slave Axes... Reverse
Frequency
Authorization period
2024-04-11~Permanent
Height sensor
Type 1
Power rating 1000.00
Follow max height
Pallet Changer Control
Pallet changer Open
Type Parallel
X Axis
Encoder pulse num... 10000.00
Pitch 36
Motor direction Positive
Homing Mode Incremental M...
Return to origin sig... Limit
Zero signal logic NO
Limit- 0.00
Limit+ 1500.00
Pitch compensation Disable
Y Axis
Encoder pulse num... 10000.00
Pitch 36
Motor direction Positive
Homing Mode Incremental M...
Return to origin sig... Limit
Zero signal logic NO
Limit- 0.00
Limit+ 3000.00
Pitch compensation Disable
Z Axis
Encoder pulse num... 10000.00
Pitch 10
Motor direction Positive
Homing Mode Incremental M...
Return to origin sig... Limit+
Zero signal logic NO
Limit- -100.00
Limit+ 2.00
Focus control
Cut head UnKnown BS...
Focus adjmt. axis... 12
Max positive focus 17.00
Min negative focus -17.00
Cutting Type
FlyCut Type PLC Control
Fine Tune 0.08
Fine Tune 0.8
MicroJoint Type PLC Control
Version
HMI 1.0.0.32427
PLC 32257.0
CNC 16940447
NC 2.10.78643489
CAM 1.0.0.32337
Engine 23734
Config Tool 2.4.3.32222

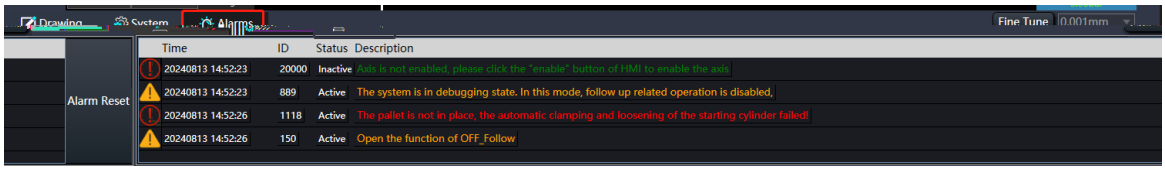

Setting
Alarm mode
Log type
Kernel exception log
System waiting log
Processing log
System waiting log
Status and command log
StackInfo
Automatic detection of cutting trajectory
eration Panel
Auto enable when start software
Low frequency refresh
High performance CPU mode
Diagnosis
Save diagnostic data of kernel
The software does not actively enable the ser...
OK
Cancel

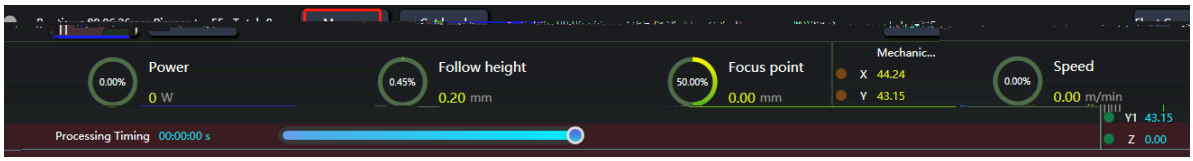
-
-
-
-


Drawing
System
Alarms
(08/13 14:52:33.859) Operation by software button on HMI: ZAxis stop moving in manual mode
(08/13 14:55:35.228) Manual slow
(08/13 14:55:35.231) Move left
(08/13 14:55:35.360) Stop
(08/13 14:55:35.827) Manual slow
(08/13 14:55:35.828) Move left
(08/13 14:55:36.029) Manual slow

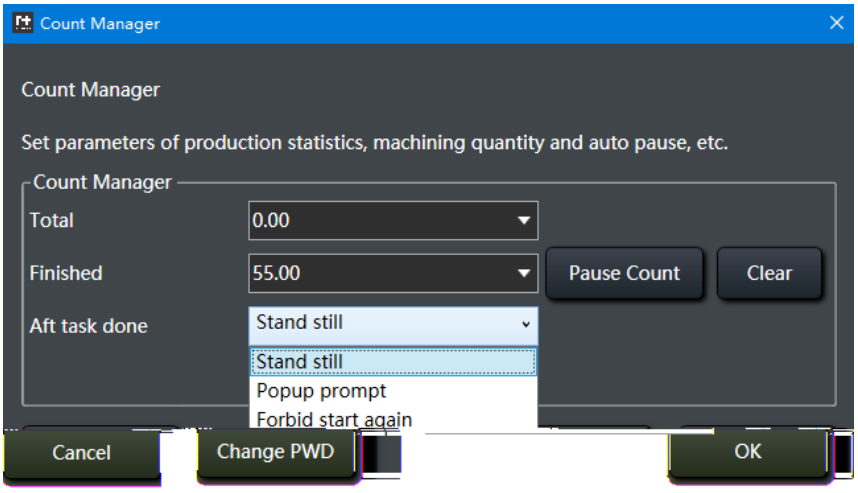

Drawing
System
Alarms
2024/8/13 14:55:42 Have select 2 object.Size: 12 x 12
2024/8/13 14:55:44 Delete Selected Graphics,Press E button delete.
2024/8/13 14:55:45 Draw Rectangle and Specify First AngularPoint:
2024/8/13 14:55:46 (2.518,54.815)
2024/8/13 14:55:46 Draw Rectangle and Specify another AngularPoint(or Size(D)):
2024/8/13 14:55:46 (10.474,48.739)
2024/8/13 14:55:46 Have select 1 object.Size: 7.957 x 6.076


Drawing
System
Alarms
(08/13 14:52:33.859) Operation by software button on HMI: ZAxis stop moving in manual mode
(08/13 14:55:35.228) Manual slow
(08/13 14:55:35.231) Move left
(08/13 14:55:35.360) Stop
(08/13 14:55:35.827) Manual slow
(08/13 14:55:35.828) Move left
(08/13 14:55:35.935) Stop
(08/13 14:55:36.029) Manual slow


Drawing
System
Alarms
Fine Tune
0.001mm
Alarm Reset
Time
ID
Status
Description
20240813 14:52:23
20000
Inactive
Axis is not enabled, please click the "enable" button of HMI to enable the axis
20240813 14:52:23
889
Active
The system is in debugging state. In this mode, follow up related operation is disabled.
20240813 14:52:26
1118
Active
The pallet is not in place, the automatic clamping and loosening of the starting cylinder failed!
20240813 14:52:26
150
Active
Open the function of OFF_Follow


Power
0.00%
0 W
Follow height
0.45%
0.20 mm
Focus point
50.00%
0.00 mm
Mechanic...
X 44.24
Y 43.15
Speed
0.00%
0.00 m/min
Y1 43.15
Z 0.00
Processing Timing 00:00:00 s

-
-
-


Count Manager
Count Manager
Set parameters of production statistics, machining quantity and auto pause, etc.
Count Manager
Total
0.00
Finished
55.00
Pause Count
Clear
Aft task done
Stand still
Stand still
Popup prompt
Forbid start again
Cancel
Change PWD
OK

-
-
-
-
-