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TROY CNC Cutting Controller

User Guide



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Keys

Function key



Every key has different function in different menu.

Esc: exit

F8: confirm

Cursor movement key



Move cursor

Move shape when preview

Letter key



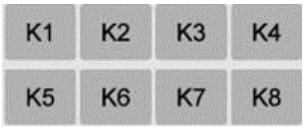
Edit programs, set parameters

When revise values, press , then press  to delete the latter number.

 : confirm and feed line

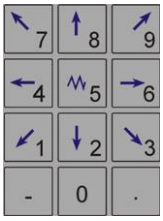
When preview, X: zoom in, Y: zoom out, G: restore

Switch key



Manually open and close external switches

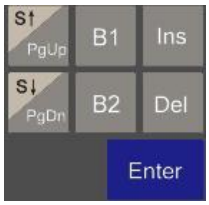
Number and arrow key



Input numbers

Move torch

Press 0 to set speed



PgUp/PgDn: torch moves up/down, or pageup/pagedown when edit

Del: delete

Ins: insert

Enter: confirm, or in working menu to input file name and load file



Start and pause cutting

Shortcut key



Auto: auto menu

Prog: edit menu

Set: diagnoses menu

Manu: manual menu

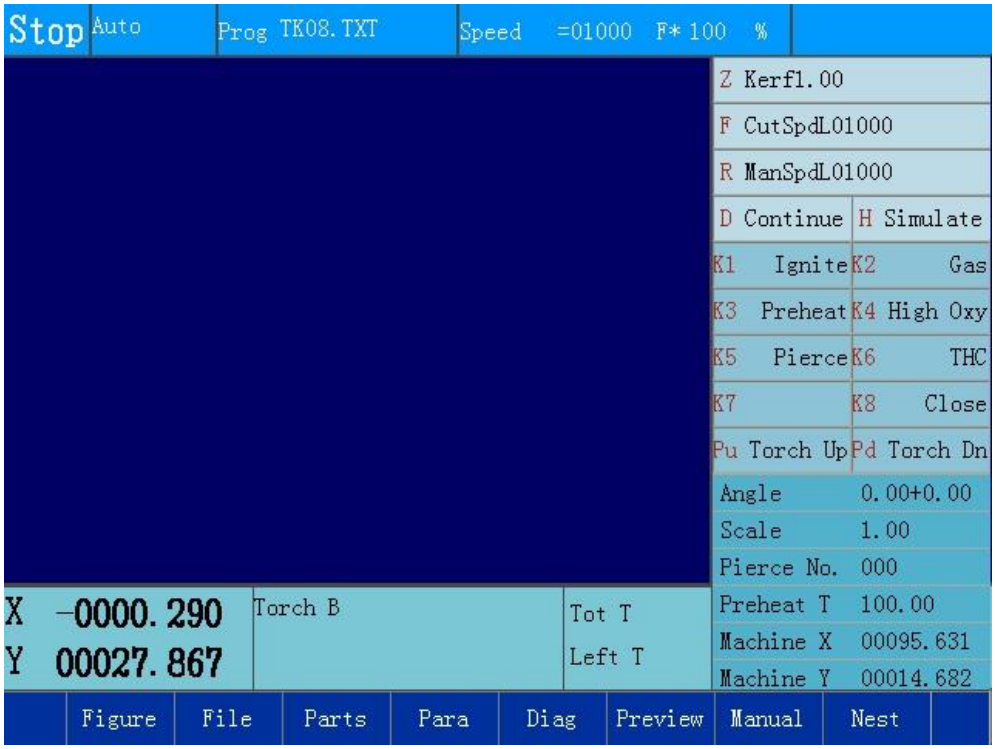
Par: parameter menu

Res: return (back to reference point)

F+/-: speed up/down

Check equipment

Power on the machine, press any key of the controller to enter the working interface.



A: press switch keys to test gas valves and plasma power source

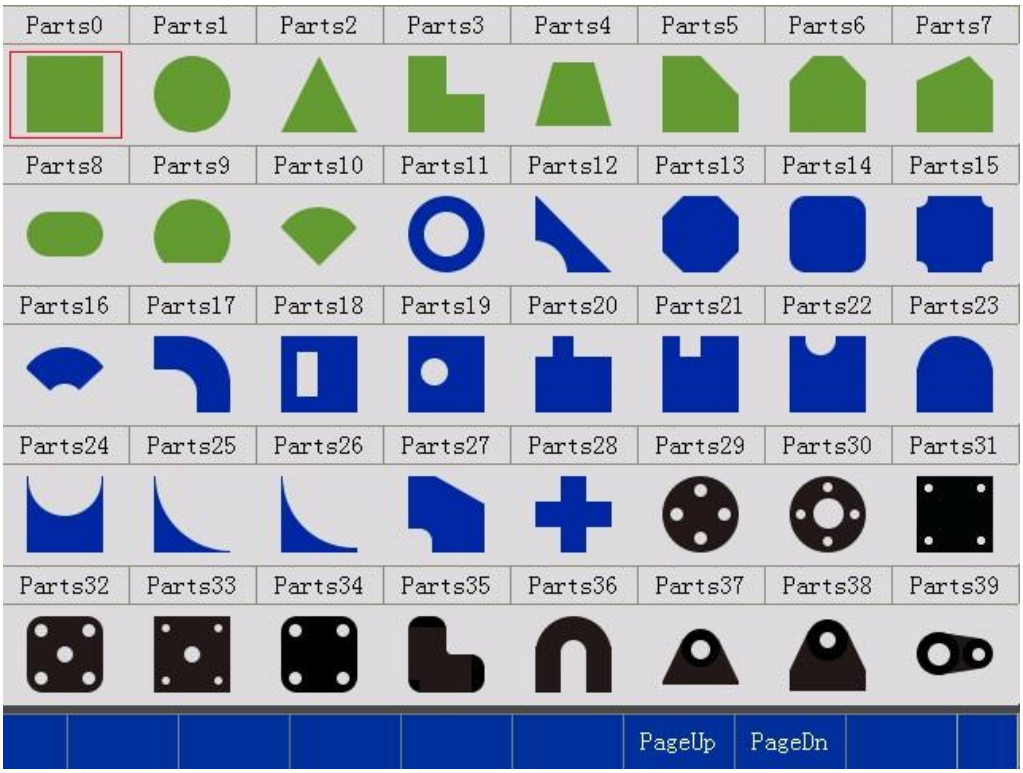
B: press PgUp and PgDn to test torch up/down

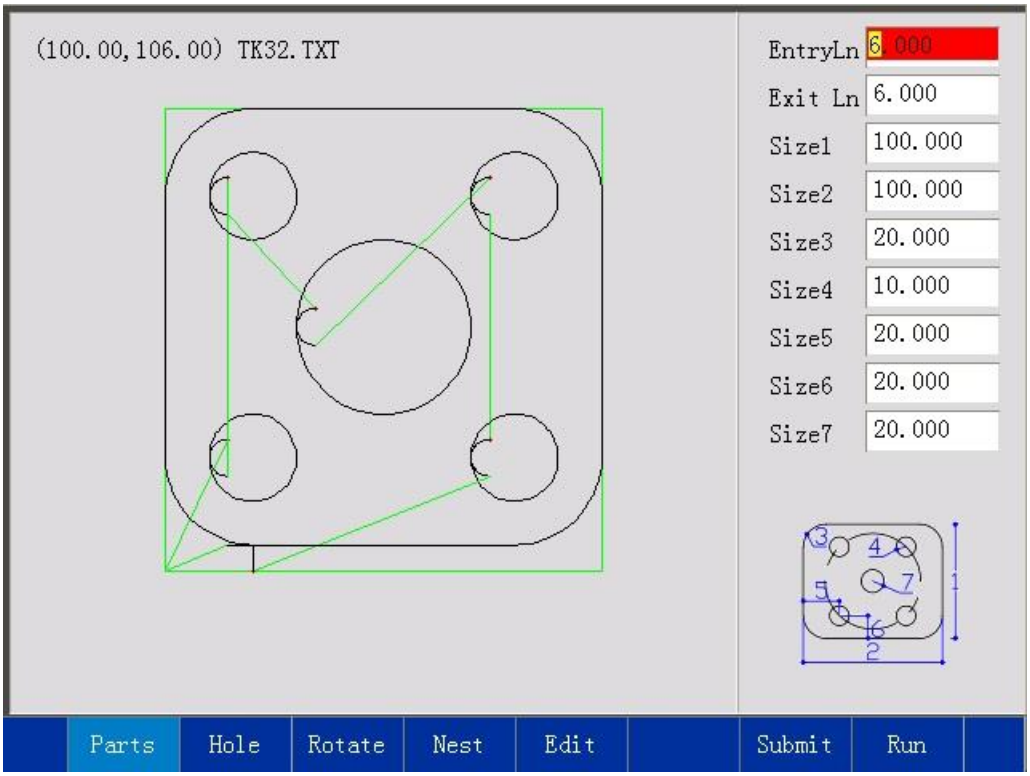
C: press number keys to test axis movement

Load parts

Load from shape library

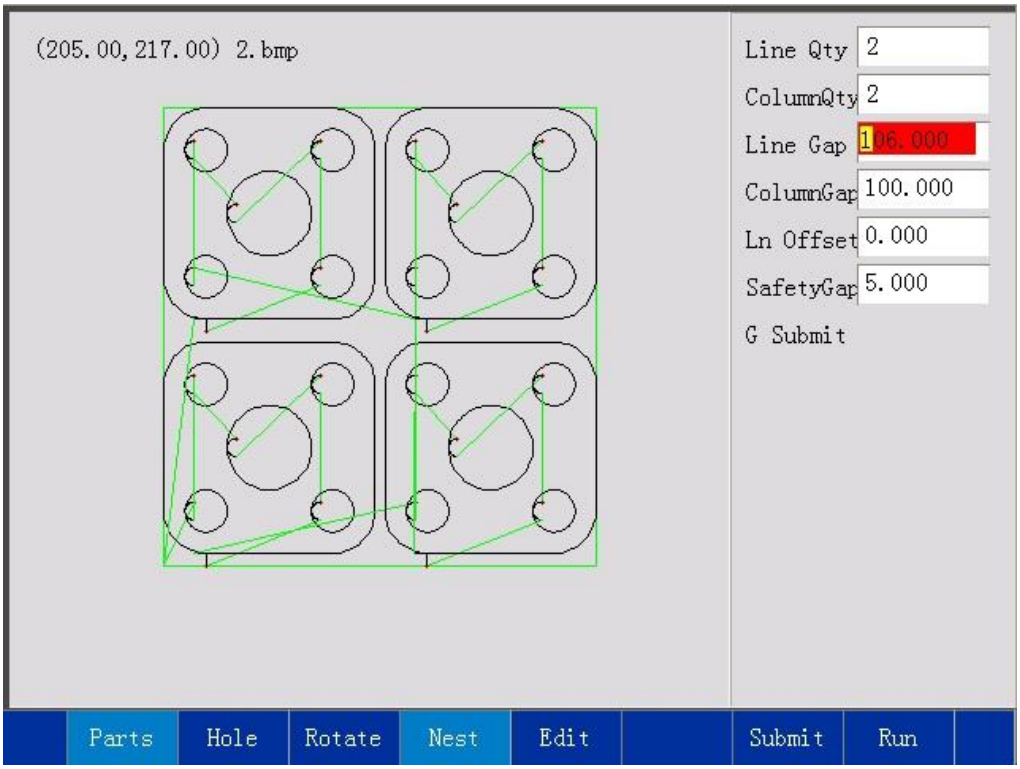
Press F1 key to enter library and choose shape, then press Enter key to set parameters, then press F7 to submit.





F1	Parts	Entry line and exit line are outside

F2	Hole	Entry line and exit line are inside
F3	Rotate	Set rotation angle
F4	Nest	Nest shape
F5	Edit	Parts code
F7	Submit	Refresh shape
F8	Run	Enter cutting interface

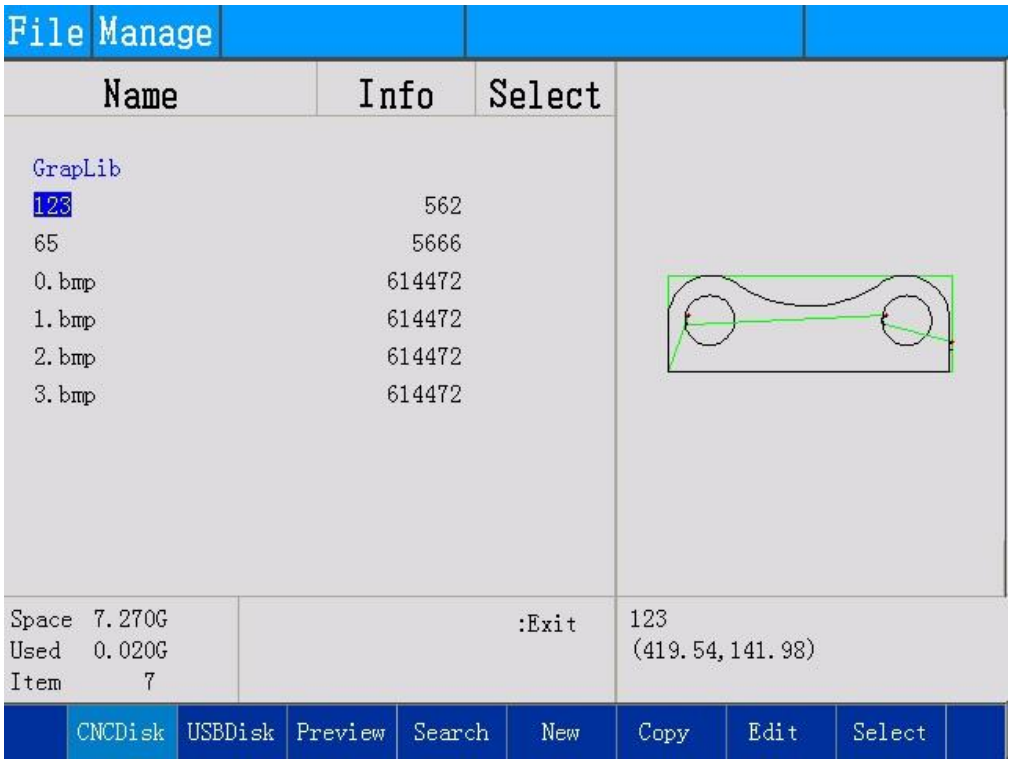


Press F4 to nest shape

Press G key to submit

Press F8 to cutting interface

Load from disk



Press F2 to enter file manager, choose controller disk or USB flash disk, then choose file and press Enter key to confirm.

F1	CNC Disk	Files in controller disk
F2	USB Disk	Files in USB flash disk
F3	Preview	Preview shape of file
F4	Search	Input file name to search
F5	New	Build a folder
F6	Copy	Copy selected files to USB flash disk
F7	Edit	Edit interface of file
F8	Select	Select file

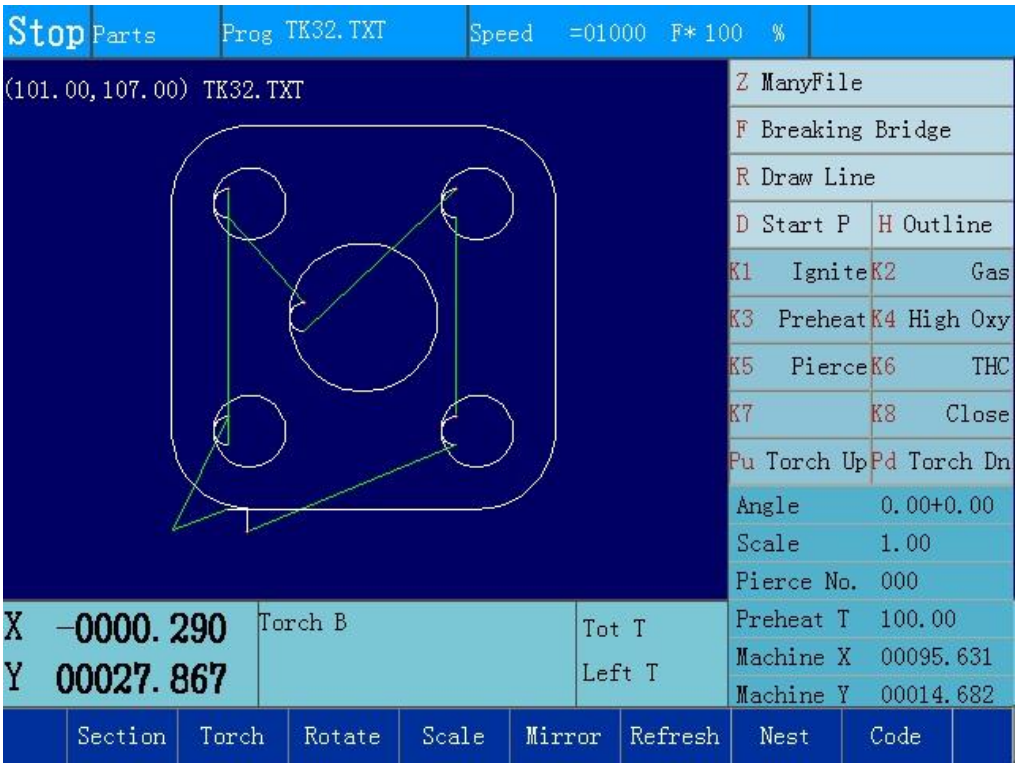
Note

1. The format of USB flash disk is FAT32.

2. Select several files to copy or delete at the same time.

3. Choose folder, press right arrow key to enter, press left arrow key to exit.

Parts menu



Press F3 to enter parts menu

F1	Section	Cut from designated position (choose different pierce point, line number and drill point)
F2	Torch	Use different torch to work (torch A, or torch B or A and B)
F3	Rotate	Set rotation angle
F4	Scale	Set scale
F5	Mirror	X mirror, Y mirror and XY mirror
F6	Refresh	Refresh and preview shape
F7	Nest	Nest shape
F8	Code	Code of shape
F	Breaking bridge	When cut, pause at the connection position, restart, automatically skip the length to cut
R	Draw line	Draw line function
D	Start point	Choose cutting start point
H	Outline	Move along maximum rectangle outline of shape

Cutting mode

In auto menu, press H key for simulation cutting.

Press Z key to set kerf value.

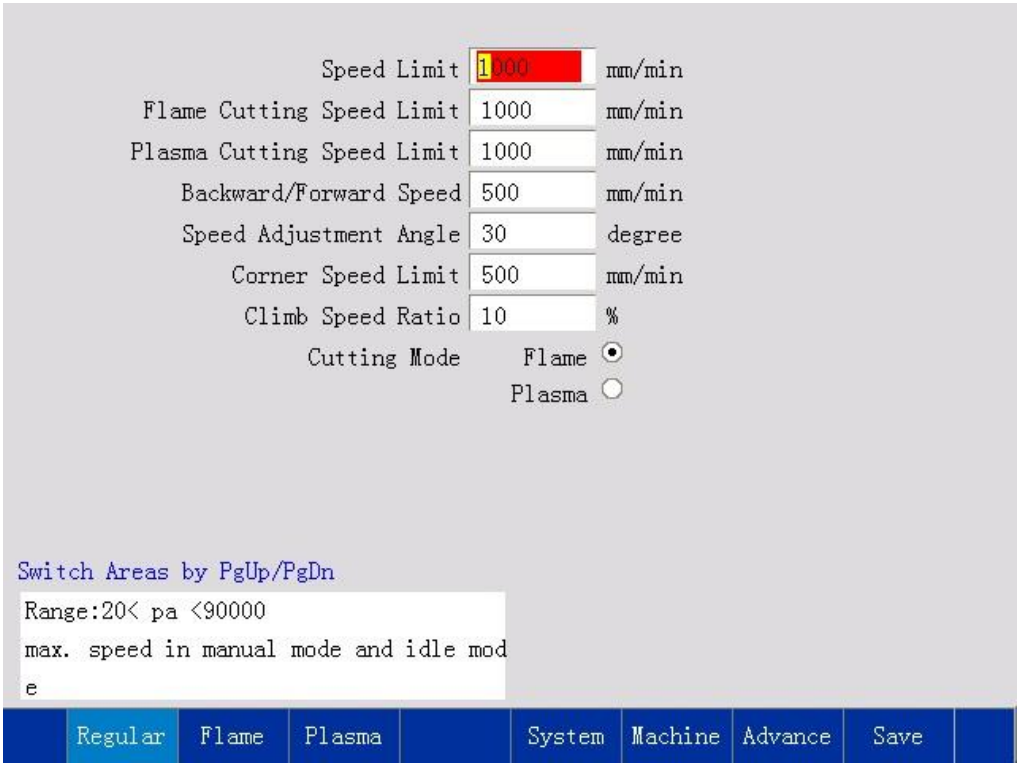
Press F key to set auto cutting speed.

Press R key to set manual speed.

Press 0 key to set more parameters about speed.

Regular parameters

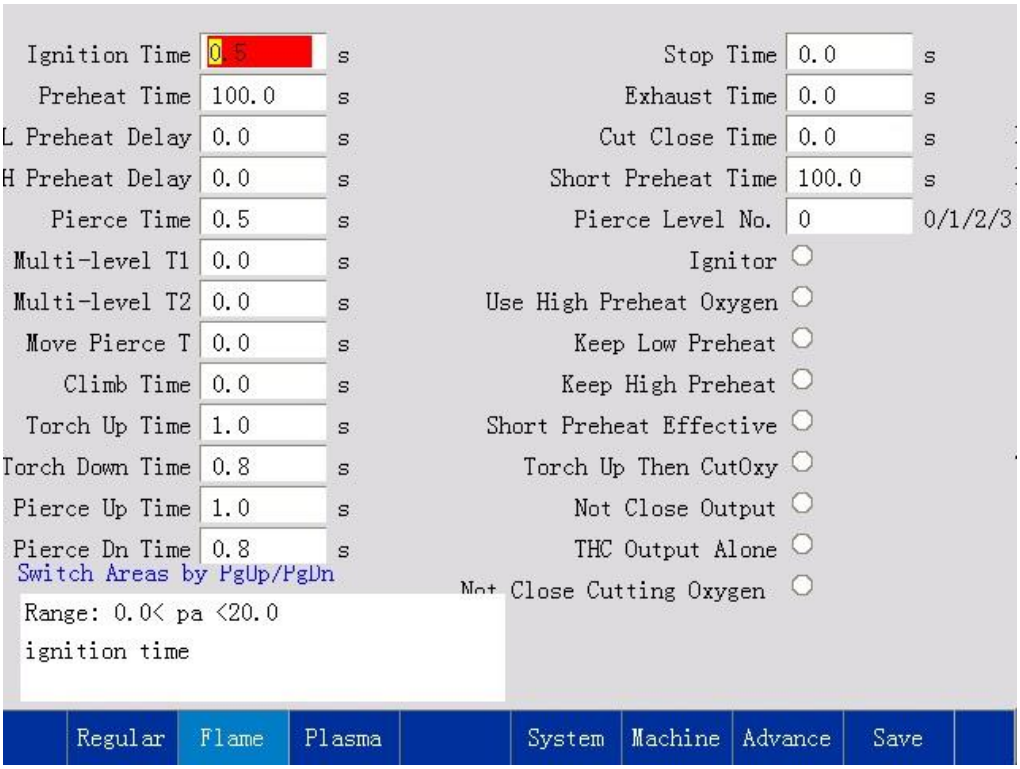
Press F4 parameter to set.



Speed limit	Maximum speed of manual movement
Flame cutting speed limit	Maximum cutting speed of flame mode
Plasma cutting speed limit	Maximum cutting speed of plasma mode
Backward/forward speed	Designated speed of moving backward/forward
Speed adjustment angle	When included angle is bigger than the value, speed down in

	advance
Corner speed limit	Maximum speed at corner
Climb speed ratio	The ratio of climb cutting speed and normal cutting speed
Cutting mode	Choose plasma cutting or flame cutting

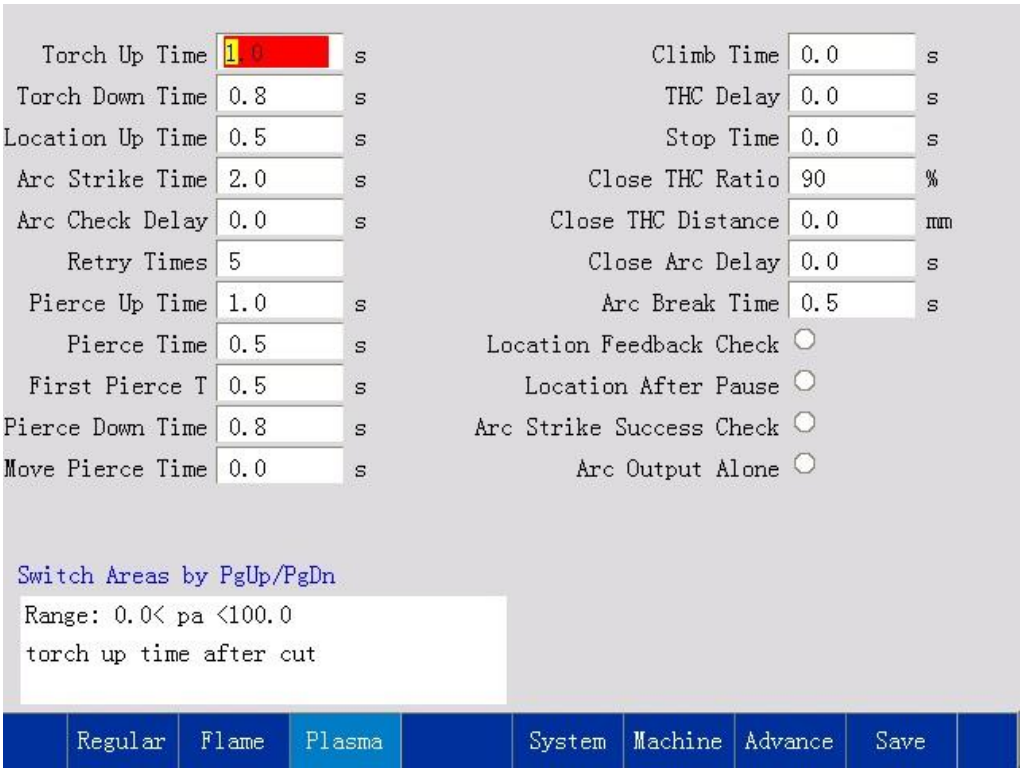
Flame mode



Ignition time	Ignition time
Preheat time	Preheat time
Pierce time	Pierce time
Move pierce time	When pierce, x/y axis movement time
Climb time	Cutting time at climb speed after torch starts to move
Torch up time	After cutting ends, torch up time
Torch down time	After cutting starts, torch down time
Pierce up time	After preheat, torch up time to the pierce height
Pierce down time	After pierce, torch down time to the cutting height

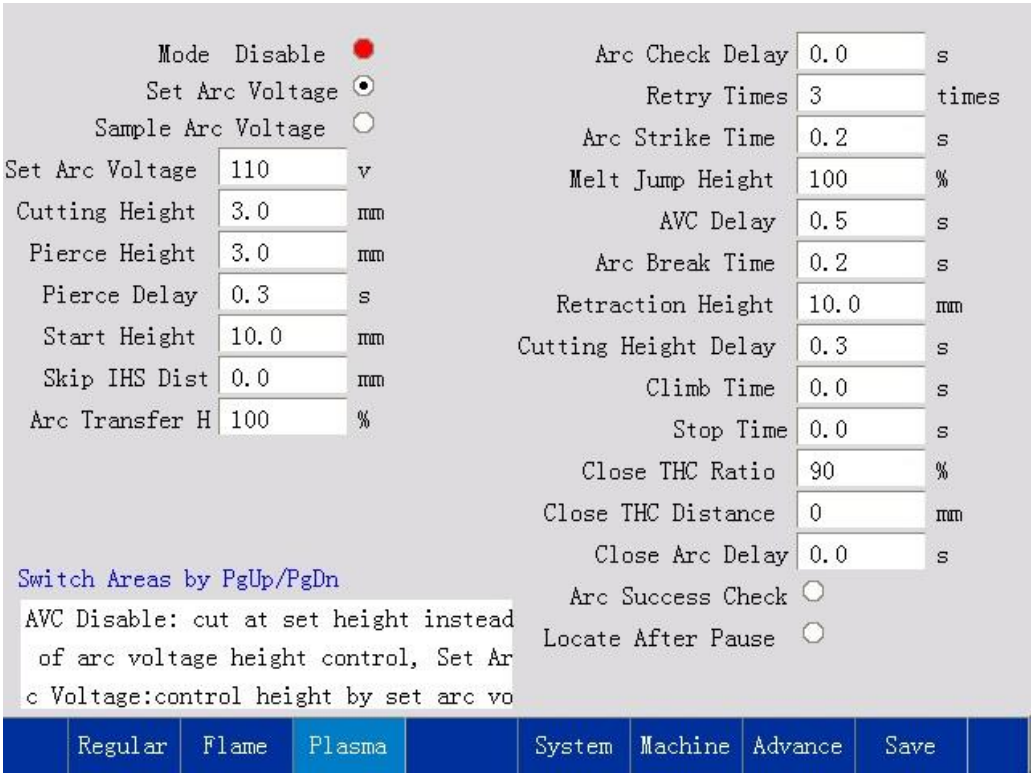
Stop time	Time of torch keeping still after cutting is over
Exhaust time	Exhaust time after cutting is over and the torch moves up
Cut close time	Time of keeping cutting oxygen after thick plate cutting stops
Short preheat time	preheat time when straight line entry
Ignitor	Use ignitor
Use high preheat oxygen	Use high preheat oxygen
Keep low preheat	Keep low preheat oxygen output when cut
Keep high preheat	Keep high preheat oxygen output when cut
Short preheat effective	Use short preheat time when straight line entry
Torch up then cutoxy	When pierce, firstly torch up, then open cutting oxygen
Not close output	After cutting is over, not close preheat, close cutting oxygen
THC output alone	Whether use the same output with plasma THC
Not close cutting oxygen	Not close cutting oxygen between two cuttings

Plasma model (IO control)



Torch up time	Torch up time after cutting is over
Torch down time	Torch down time after torch moves to pierce point
Location up time	Torch up time after receiving location signal
Arc strike time	Time of keeping arc strike switch on
Arc check delay	Delay of checking arc strike success feedback signal
Retry times	After arc strike fails, times of arc strike
Pierce up time	After arc strike, time of torch up to pierce height
Pierce time	Pierce time
First pierce time	First pierce time, usually the time is longer
Pierce down time	After pierce, time of torch down to cutting height
Move pierce time	When pierce, time of moving x/y axis
Climb time	After torch starts to move, cutting time at climb speed
THC delay	After torch starts to move, delay of keeping THC on
Stop time	Time of torch keeping still after cutting is over
Close THC ratio	When cutting speed is lower than the ratio, close THC
Close THC distance	Close THC away from the end point
Close arc delay	After closing THC, delay of closing arc
Arc break time	When check arc strike feedback, break time is longer than the value, there is alarm
Location feedback check	Check lifter location switch
Location after pause	Locate again after pause and restart
Arc strike success check	Check arc strike success feedback
Arc output alone	Arc strike output is used alone

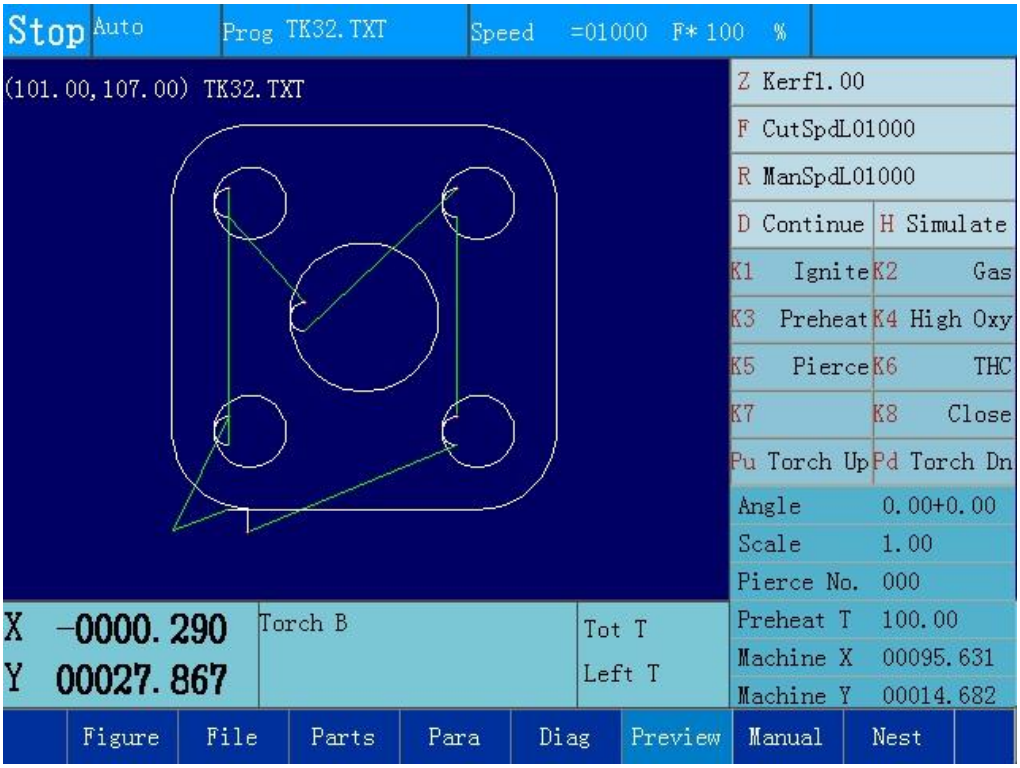
Plasma model (485 control)



AVC Disable	Cutting height is set by parameters instead of arc voltage control
Set arc voltage	Cutting height is adjusted by setting arc voltage
Sample arc voltage	Cutting height is adjusted by sample arc voltage
Set arc voltage	Set arc voltage value
Cutting height	Set cutting height
Pierce height	Set pierce height
Pierce delay	Pierce time
Start height	When initial location, start height of torch slowly approaching to plate
Skip IHS distance	When the distance between end point (last cutting) and start point (next cutting) is shorter the value, then not initially locate
Arc transfer height	Ratio of arc strike height and cutting height
Arc check delay	Delay of checking arc strike success feedback
Retry Times	After arc strike fails, times of arc strike
Arc strike time	Time of keeping arc strike switch on

Melt jump height	Ratio of cutting height
AVC delay	After torch starts to move, delay of opening THC
Arc break time	When check arc strike feedback, break time is longer than the value, there is alarm
Retraction height	After cutting is over, torch up height
Cutting height delay	Time of keeping melt jump height
Climb time	After torch starts to move, cutting time at climb speed
Stop time	Time of torch keeping still after cutting is over
Close THC ratio	When cutting speed is lower than the ratio, close THC
Close THC distance	Close THC away from the end point
Close arc delay	After closing THC, delay of closing arc
Arc success check	Check arc strike success feedback
Locate after pause	Locate again after pause and restart

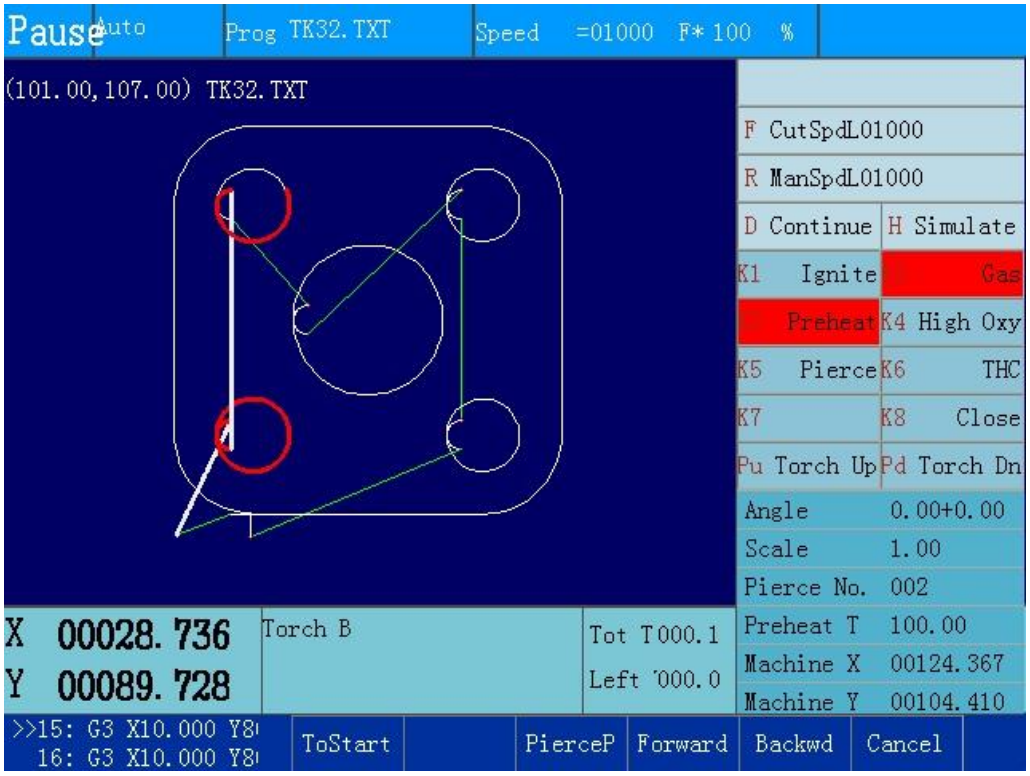
Auto cutting



Before auto cutting, can F6 to preview and move shape by cursor keys, and X key, Y key and G key are separately for zoom in, zoom out and restore. Press start key to cut.

Pause during cutting

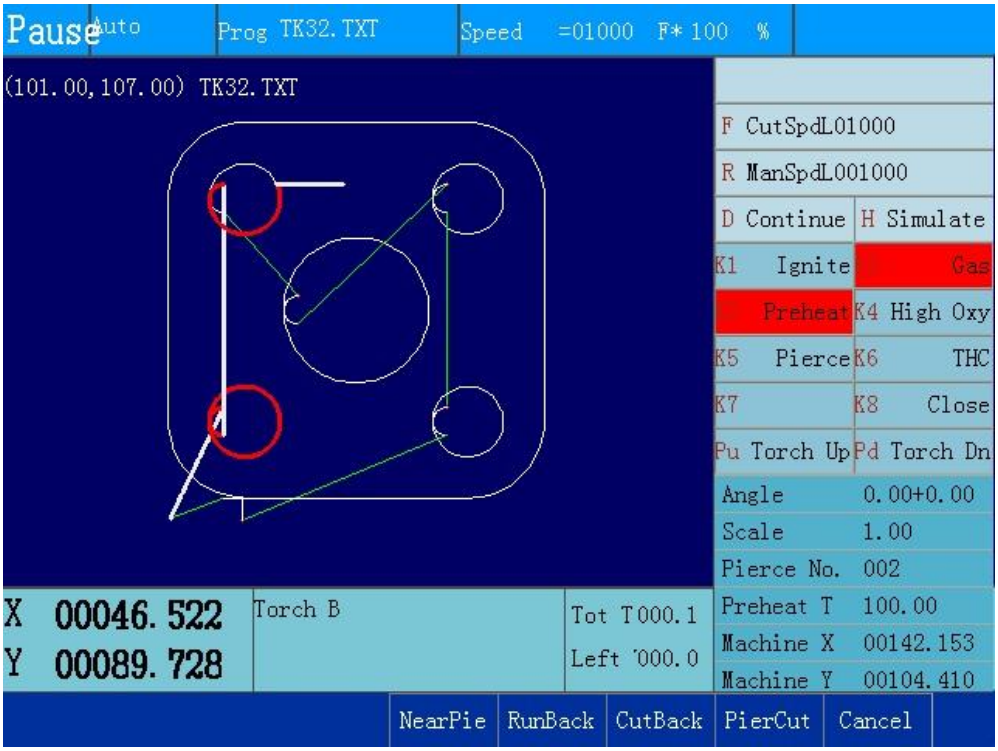
Press pause key, cutting stops, and the controller automatically record the position as breaking point to save. Continue to cut after moving torch forward or backward to a proper position and then press start key.



F3	ToStart	Back to start point, move torch to start point
F5	Pierce point	Choose pierce point
F6	Forward	Torch moves forward along path, continue to cut at next pierce point
F7	Backward	Torch moves backward along path, stop at pierce point
H	Simulate	Change to simulation mode
D	Continue	Continuously move torch in manual mode

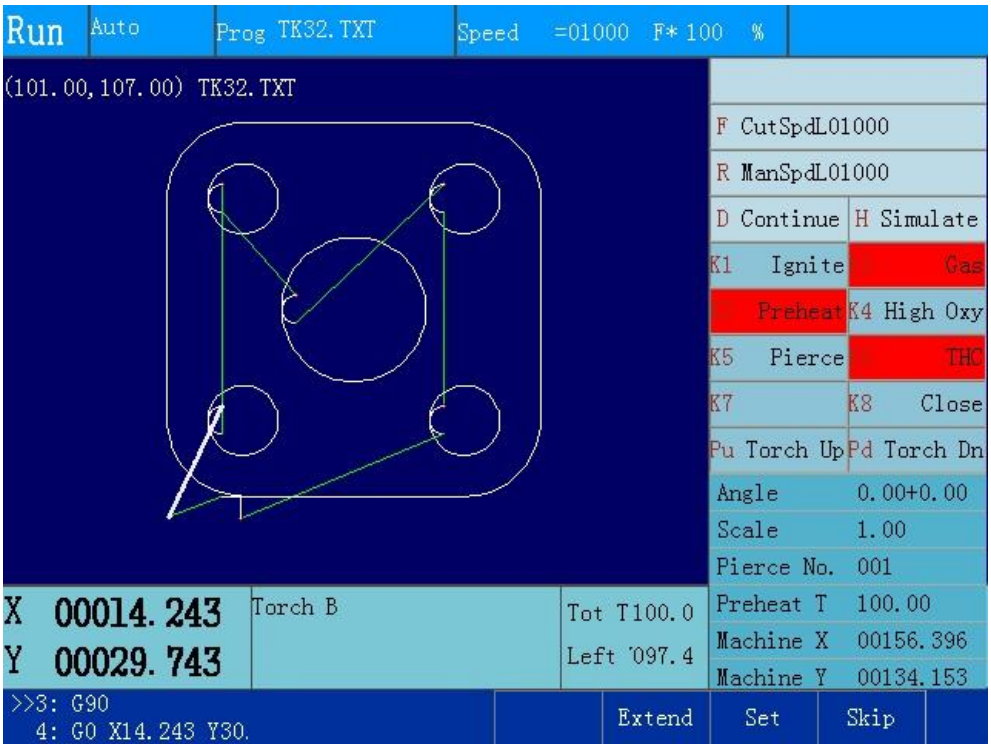
When pause, torch can be moved manually beyond path, then continue to cut and cutting

options appear.



F4	Near pierce	Choose nearest pierce point away from the current position,
F5	Run back	Move to breaking point along the shortest path
F6	Cut back	Cut from current position along the shortest path to breaking position
F7	Pierce cut	Make current position as breaking point, then cut.

When cut, timer starts to work, following options can be done.

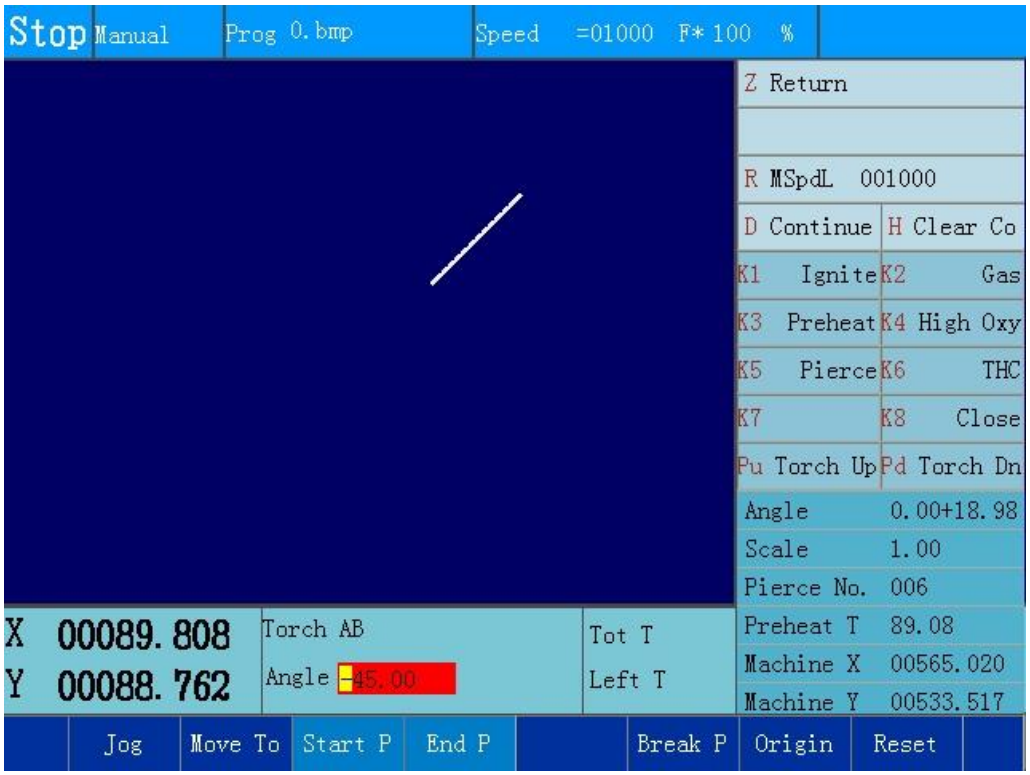


F6	Extend	Extend current time, add 100s
F7	Set	Set current time as following time of same operation
F8	Skip	Skip left time

Start key can skip left time

Note: flame mode, load new program, preheat time is 100s.

Optional operation



Manually move torch

Press direction keys to move torch, and release keys, torch stops.

Press D (continue) key, press direction keys and torch continuously moves.

Jog

Press F1 (jog) to set torch movement distance, and press direction keys, torch moves the designated distance.

Move to

Press F2 (move to) to set movement distance of X and Y axis.

Plate calibration

Move torch to one side of the plate, and press F3(start point), then move torch to another side of the plate, and press F4 (end point), then the rotation angle appears.

Breaking point

Cutting stops because of pause, emergency stop and alarm. The controller automatically record breaking point position, then use the function of “breaking point” to continue to cut. After press F6 (breaking point), shape with breaking point appears, and yellow point is the breaking point.

Return

Press Z key (return) in manual menu, then torch moves to reference point from current position.

Outline

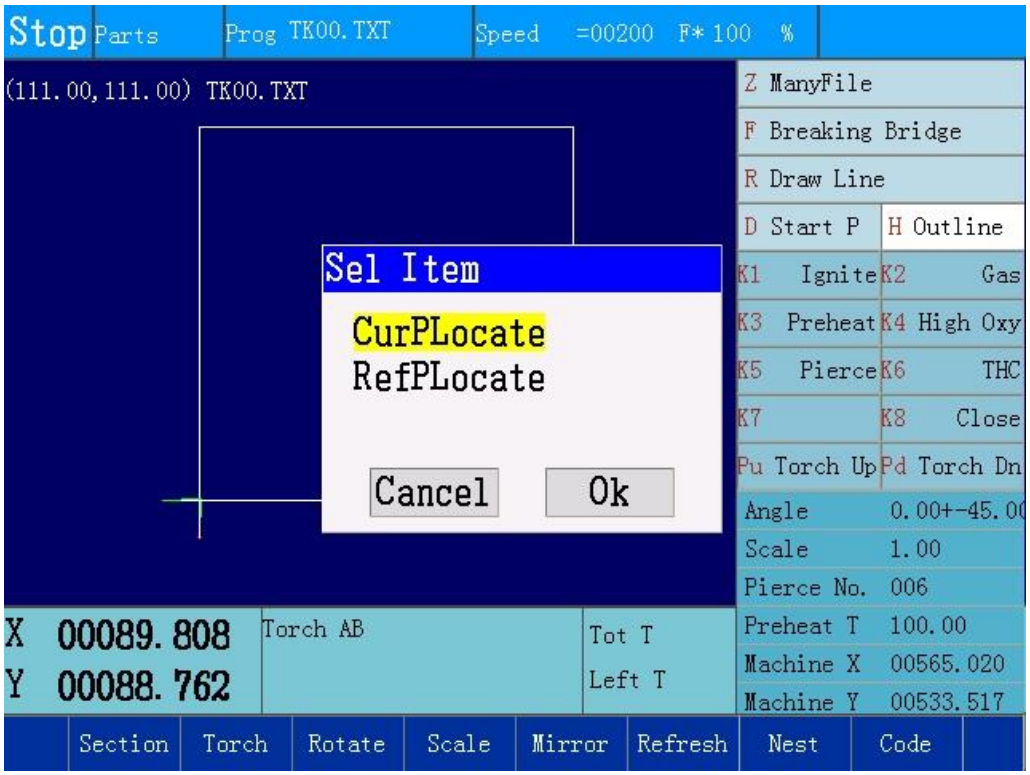
In parts menu, press H key to move along outline.

When current relative coordinate is not zero point, location options appear as below,

“current point location”: make current point as workpiece reference point and relative coordinate is set as reference point coordinate. Torch moves to the bottom left corner, and move around the workpiece along its outside edge.

“reference point location”: not change current relative coordinate, move to workpiece reference point from current point, then move to bottom left corner and move around the

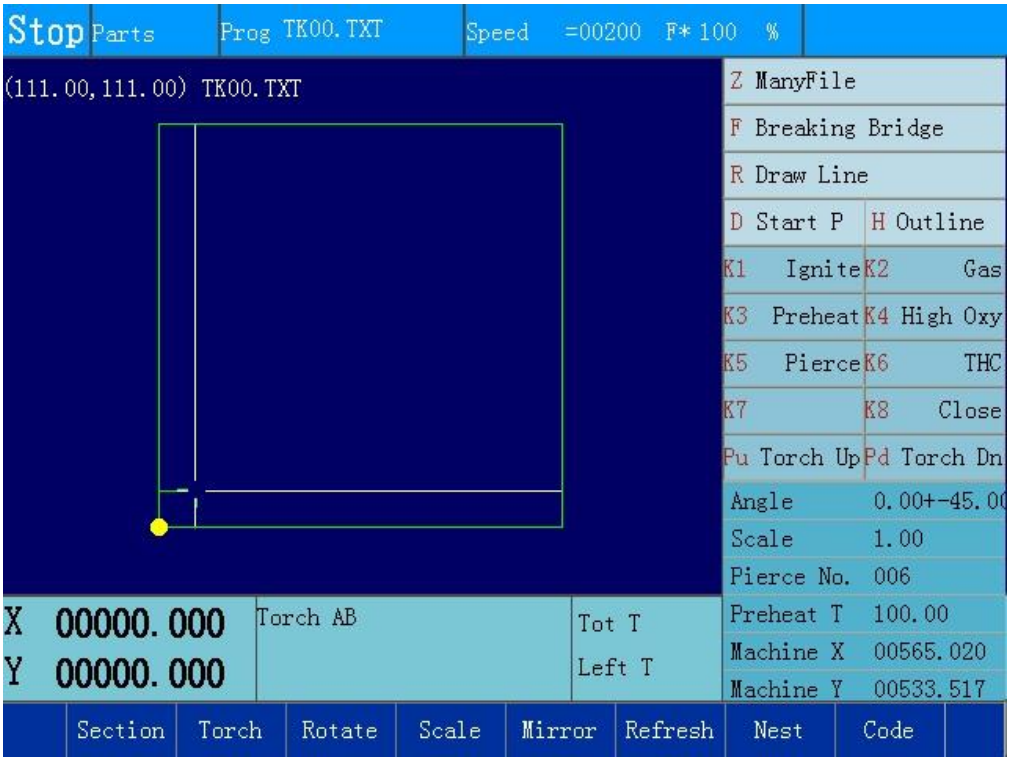
workpiece along its outside edge.



Change start point

Press D key to change different cutting start point.

Press start key, torch moves to first pierce point from start point and then starts to cut.



Section

Choose a certain position of the parts to cut.

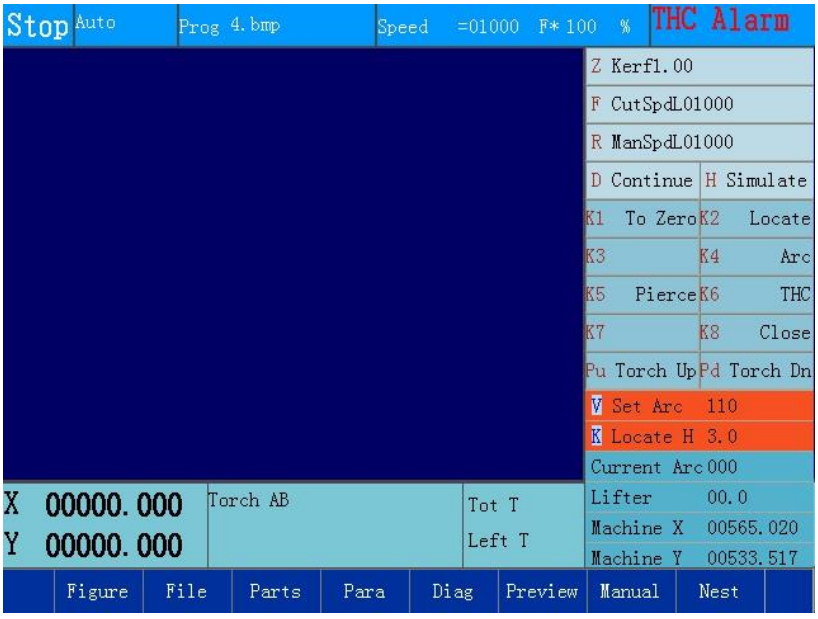
Press F1 section to choose pierce point number. Press F1 again to choose line number.

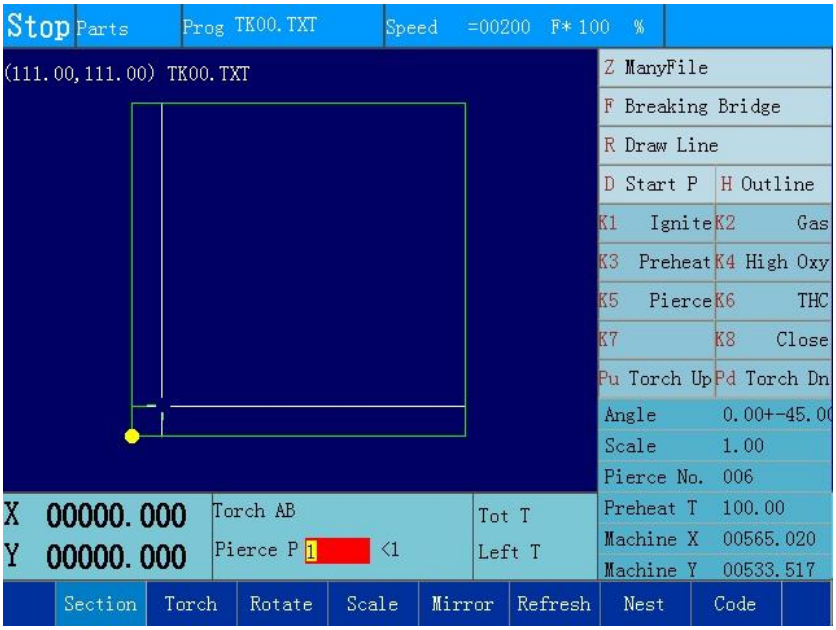
To zero and locate

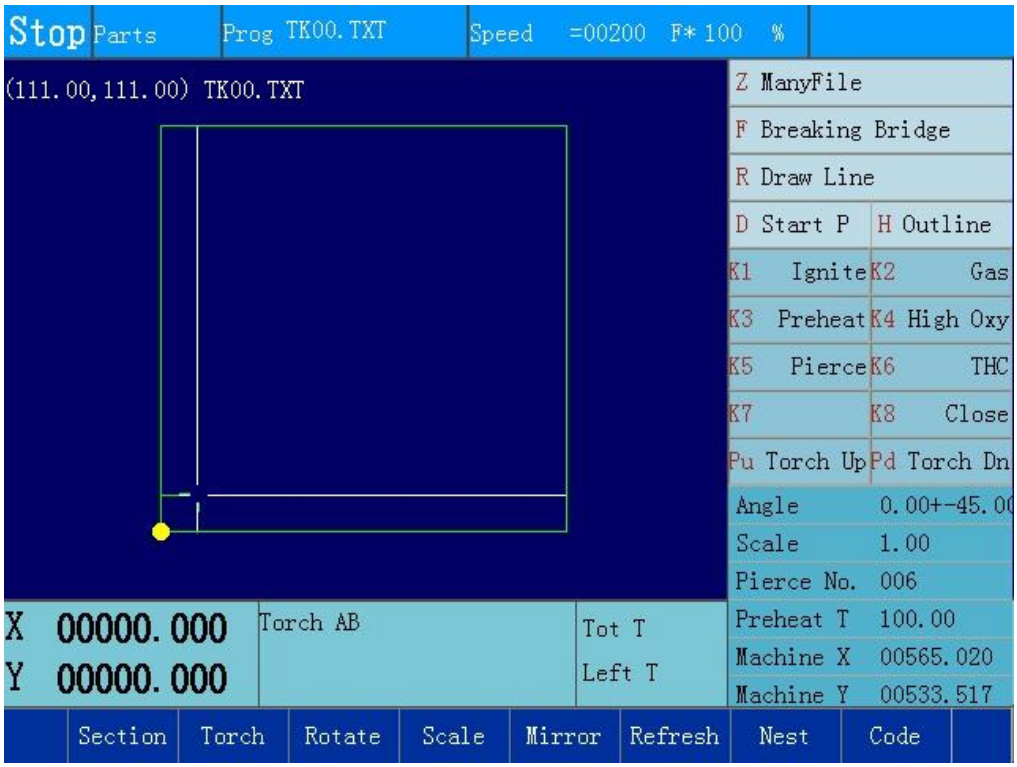
Use 485 control THC to make lifter to zero and locate

Press K1 key (To Zero), lifter moves up at fastest speed, and touches the upper limit switch and stops and lifter position becomes zero.

Press K2 key (locate), lifter moves down at fastest speed to initial location height, then speed down to IHS speed, torch continues to move down, touches location signal then moves up to location height.

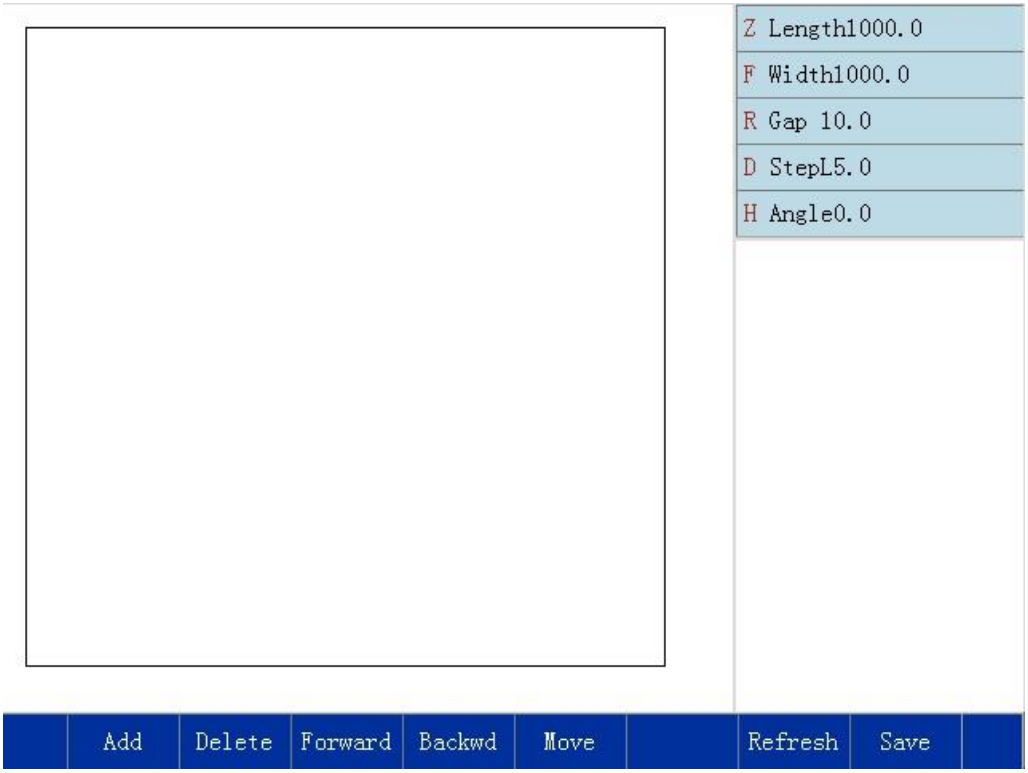






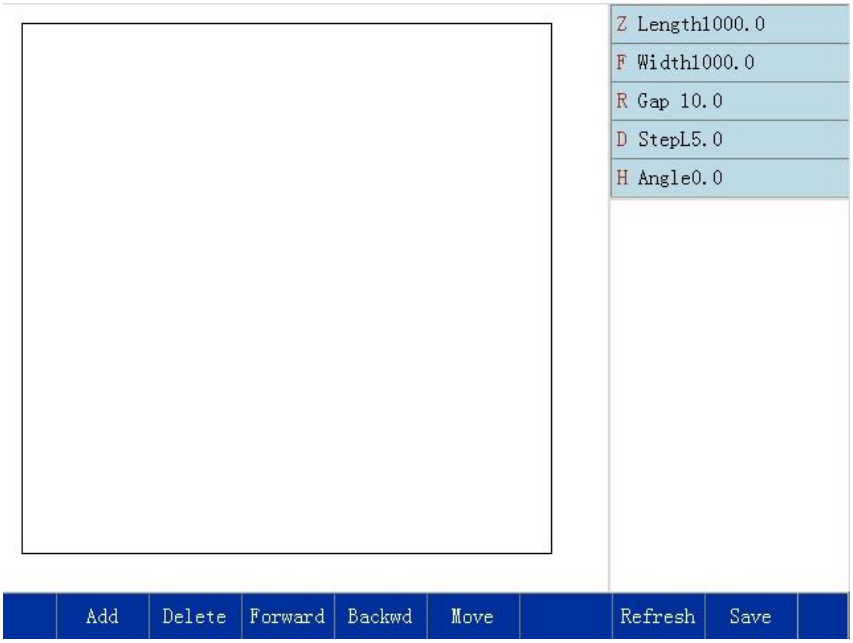
Nesting

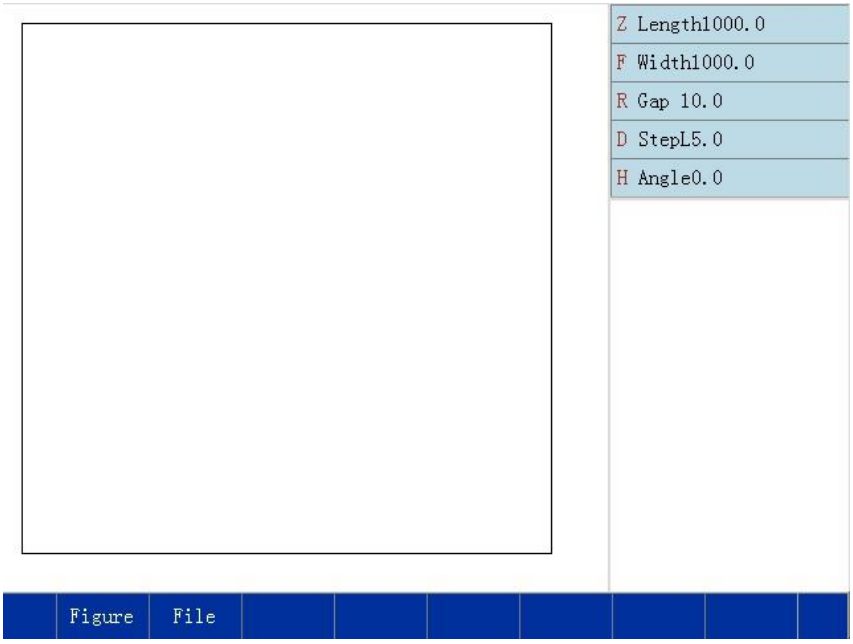
Press 8 Nest

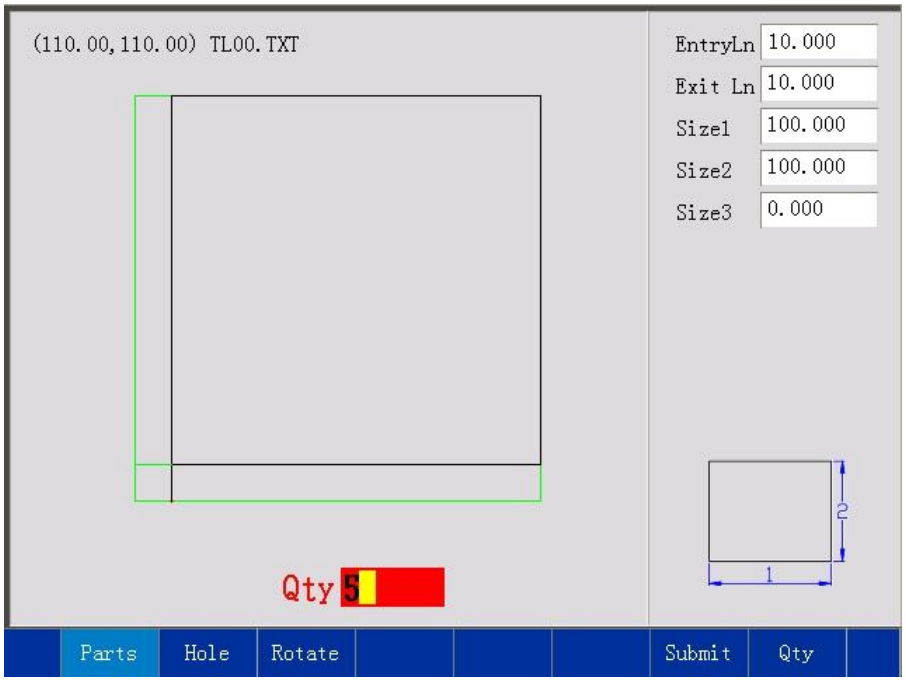


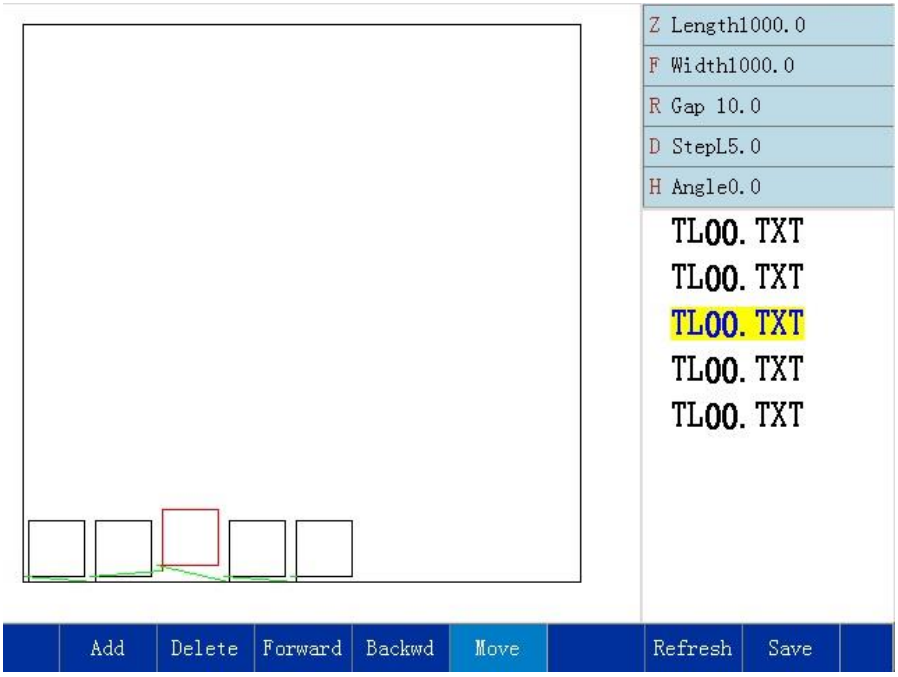
F1	Add	Add shape from library or controller disk or USB disk
F2	Delete	Delete added shape
F3	Forward	Change cutting sequence, forward

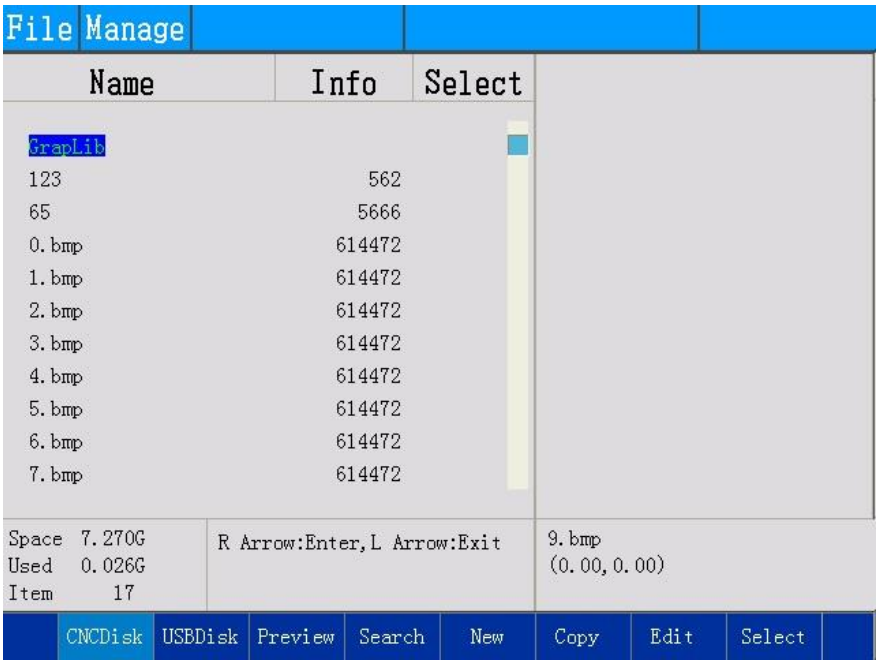
F4	Backward	Change cutting sequence, backward
F5	Move	Move shape
F7	Refresh	Refresh shape
Z	Length	Plate length
F	Width	Plate width
R	Gap	Distance between two parts
D	Step	Distance of manually moving shape
H	Angle	Rotation angle






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EntryLn 10.000
Exit Ln 10.000
Size1 100.000
Size2 100.000
Size3 0.000
Qty 5
2
1
Parts
Hole
Rotate
Submit
Qty


Z Length1000.0
F Width1000.0
R Gap 10.0
D StepL5.0
H Angle0.0
TL00.TXT
TL00.TXT
TL00.TXT
TL00.TXT
TL00.TXT
Add
Delete
Forward
Backwd
Move
Refresh
Save


File
Manage
Name
Info
Select
GrapLib
123 562
65 5666
0.bmp 614472
1.bmp 614472
2.bmp 614472
3.bmp 614472
4.bmp 614472
5.bmp 614472
6.bmp 614472
7.bmp 614472
Space 7.270G
Used 0.026G
Item 17
R Arrow:Enter,L Arrow:Exit
9.bmp
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CNCDisk
USBDisk
Preview
Search
New
Copy
Edit
Select