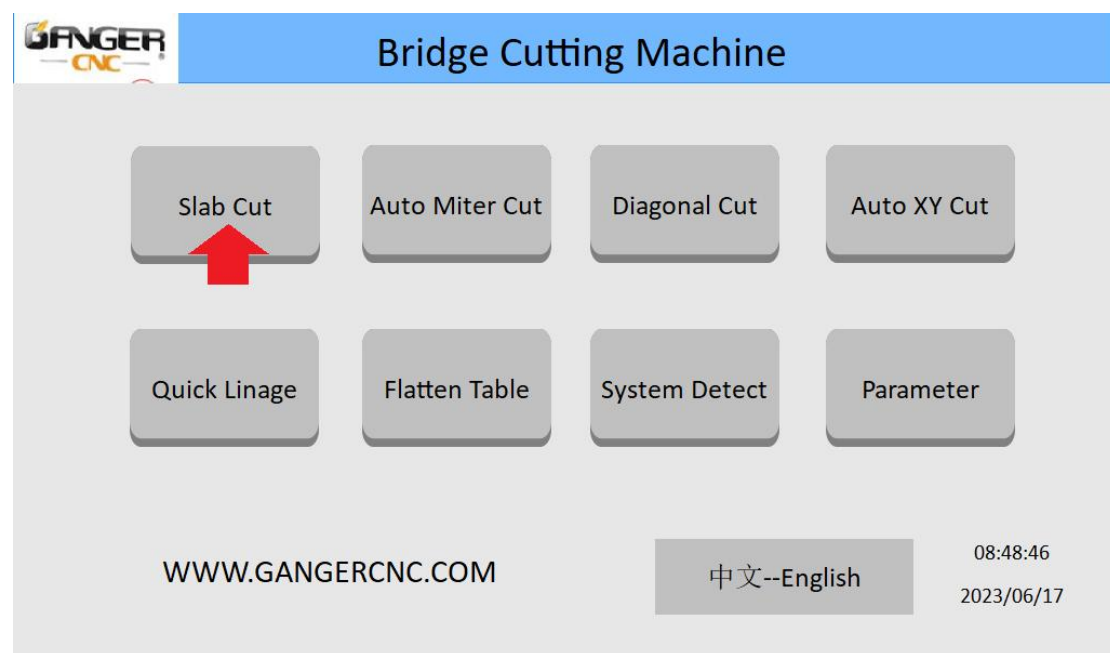


User Manual for 4 axis GQ-3220B

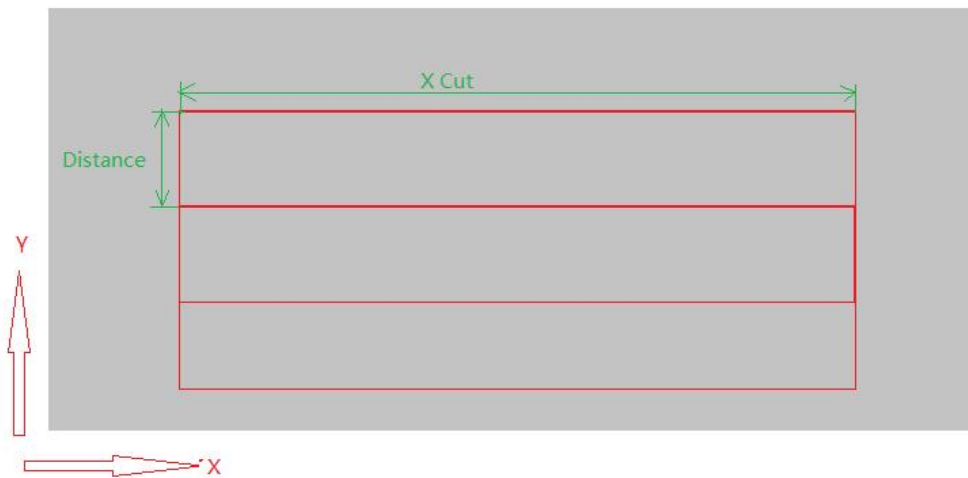
The electrical control system of GQ-3220B consists of human-machine interface/ programmable controller (PLC) / servo motor and corresponding buttons. You can complete horizontal cutting/ vertical cut /horizontal and vertical cut/ horizontal angle(0-135 angle)/layered cut and automatic miter cut.

1. SLAB CUT



Rotating [C+/C-] switch PLC panel, machine head can be switched between 0 and 90 angle of the C axis. Angle 0: X direction cut
Angle 90: Y direction cut

1. Slab Cut X (horizontal cutting), C axis rotate to Angle 0



Slab Cut X					Offset 0.0mm	
X data	Distance	X Cut	PCs	Undone		
One Cut	0.0mm	0.0mm	0		Head up limit	Flush
Group1	0.0mm	0.0mm	0		Head down limit	One Cut
Group2	0.0mm	0.0mm	0		C axis 0°	Y- Cut
Group3	0.0mm	0.0mm	0		C axis 90°	Low speed
Group4	0.0mm	0.0mm	0		X Auto Cut	Table tilt
Group5	0.0mm	0.0mm	0		Y Auto Cut	Blade set
Group6	0.0mm	0.0mm	0		Y JOG	Back
					Processing parameters	
					OFF	

Offset: thickness of Saw disc

[Flush] machine will cut size set in ONE CUT. But only cut once.

[One cut] machine will cut size listed in ONE CUT, users can set PCs ,like 5pcs. Machine will cut them all by one time

[Groups cut]machine will cut size listed from Group1 to Group6 in order, Group with 0 under Distance or PCS, machine will cut next group

automatically, Group with 0 under X cut machine will cut Group ahead.

(For example 1: machine will cut group 1+Group3

Group 1 : 200 500 1

Group 2 : 200 0 0

Group 3: 200 500 2

For example 2: machine will cut Group 1+Group2+Group3 All with X cut 500mm

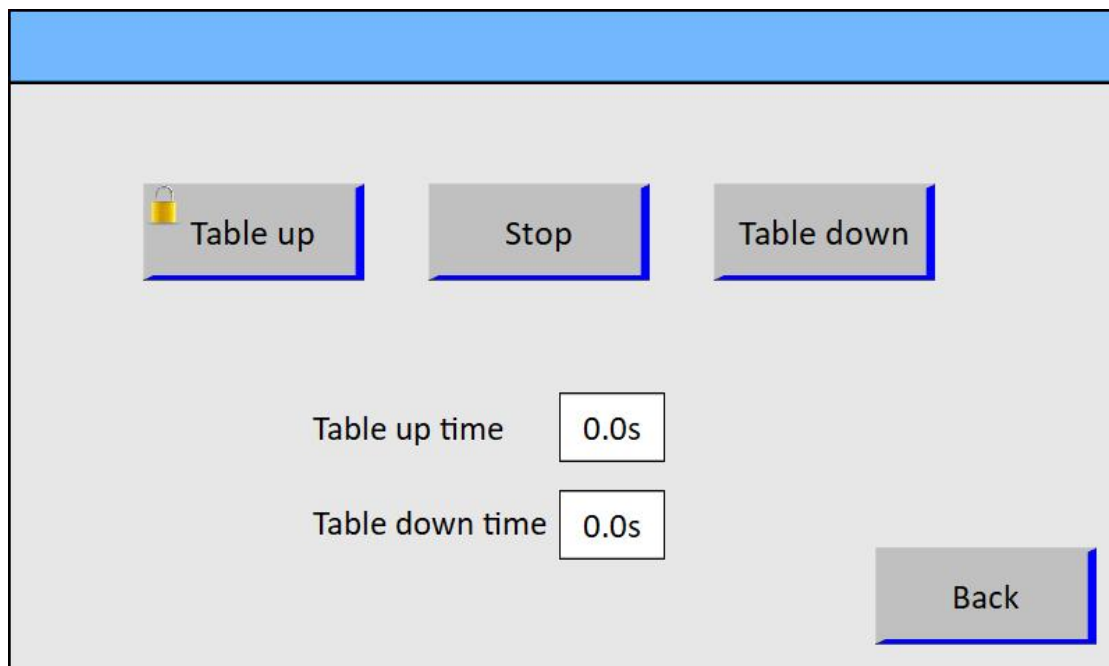
Group 1 : 200 500 1

Group 2 : 300 0 1

Group 3: 400 0 2)

[Y+ cut] Saw disc goes to next cut point

[Table tilt] Click it will comes with Table up/down interface



Only Z head at HOME position, it is safe to do [Table up],

Press HOME button on PLC panel to do HOME

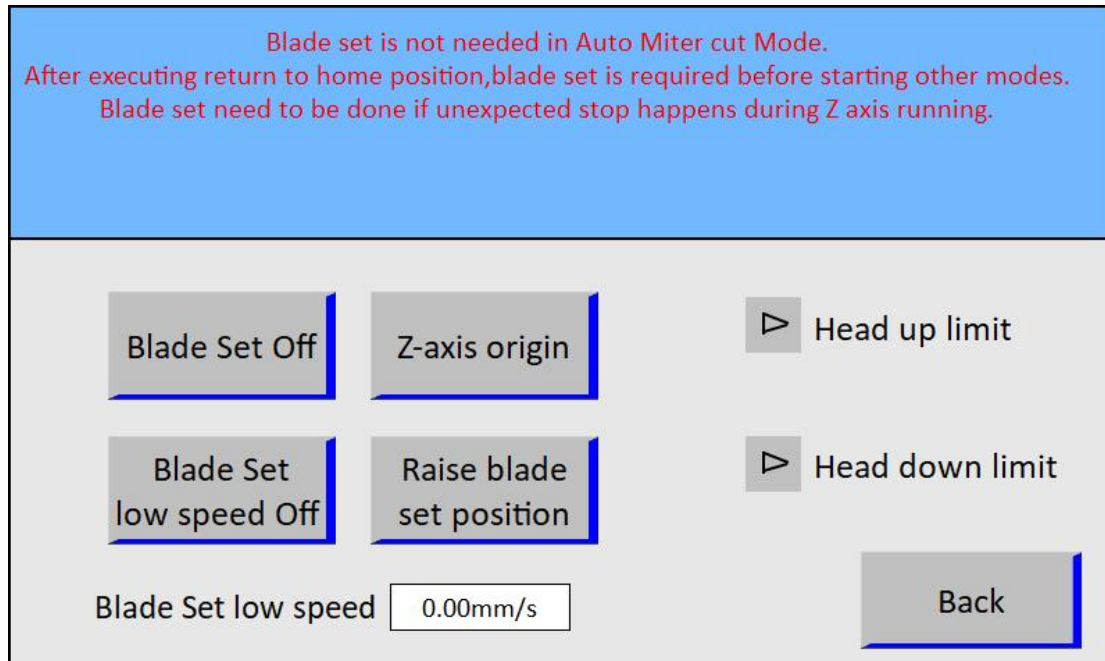
Table up time: means how long table will go up.

[Stop] table stop immediately when you click it

[Table down] means how long table will go down.

[Back] Close Table up/down interface

[Blade set] Click it to open Blade set interface



Conditions to do BLADE SET:

1. After switching from AUTO MITER CUT mode to other modes
2. The Z-axis stops unexpectedly during operation, such as an alarm, the stop button is pressed, etc.
3. Table height changes

Steps of BLADE SET:

1. Click [Blade set off] into [Blade set on] Press Z- to move down saw blade to working table surface(need ensure slab can be cut through),[blade set low speed]will help touch table surface slowly when it is very near

2. Click[Blade set on] into [Blade set off], after saw blade touching surface, Z head is on position of HEAD DOWN LIMIT

Head down limit will light on

3. Click Z+ to lift up Z head to HEAD UP LIMIT (lift up distance is set in Z axis stroke,set in PARAMETER interface)

[Back] back to main interface

[ON] The current mode is selected. Press the [RUN] button on the panel to execute cutting. At this time, some keys on the panel are locked to prevent wrong operation.



Slab Cut X

Offset 0.0mm

X data	Distance	X Cut	PCs	Undone
One Cut	0.0mm	0.0mm	0	
Group1	0.0mm	0.0mm	0	
Group2	0.0mm	0.0mm	0	
Group3	0.0mm	0.0mm	0	
Group4	0.0mm	0.0mm	0	
Group5	0.0mm	0.0mm	0	
Group6	0.0mm	0.0mm	0	

Head up limit

Head down limit

C axis 0°

C axis 90°

X Auto Cut

Y Auto Cut

Y JOG

Processing parameters

ON

Flush

Groups Cut

Y- Cut

Low speed

Table tilt

Blade set

Back

[Processing parameters]

The image shows a screenshot of a CNC control interface. It has a light blue header bar at the top. The main area has a light gray background. On the left, there are four labels: 'X feed', 'Y feed', 'X offset', and 'Y offset'. To the right of each label is a white rectangular input box with a black border. The first two boxes contain '0.00mm/s' and the last two contain '0.0mm'. In the bottom right corner, there is a gray rectangular button with the word 'Back' in black text. A blue L-shaped cursor is positioned at the bottom right corner of the 'Back' button.

X feed	0.00mm/s
Y feed	0.00mm/s
X offset	0.0mm
Y offset	0.0mm

Back

X feed:X-axis feed speed

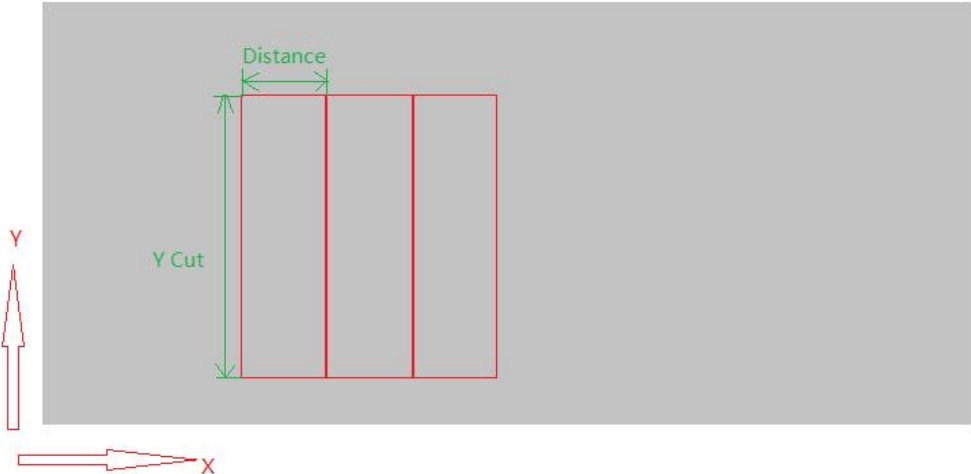
Y feed: Y-axis feed speed

X offset: Correct the deviation between the X-axis set value and the actual measured value

Y offset: Correct the deviation between the Y-axis set value and the actual measured value

2. Slab cut Y

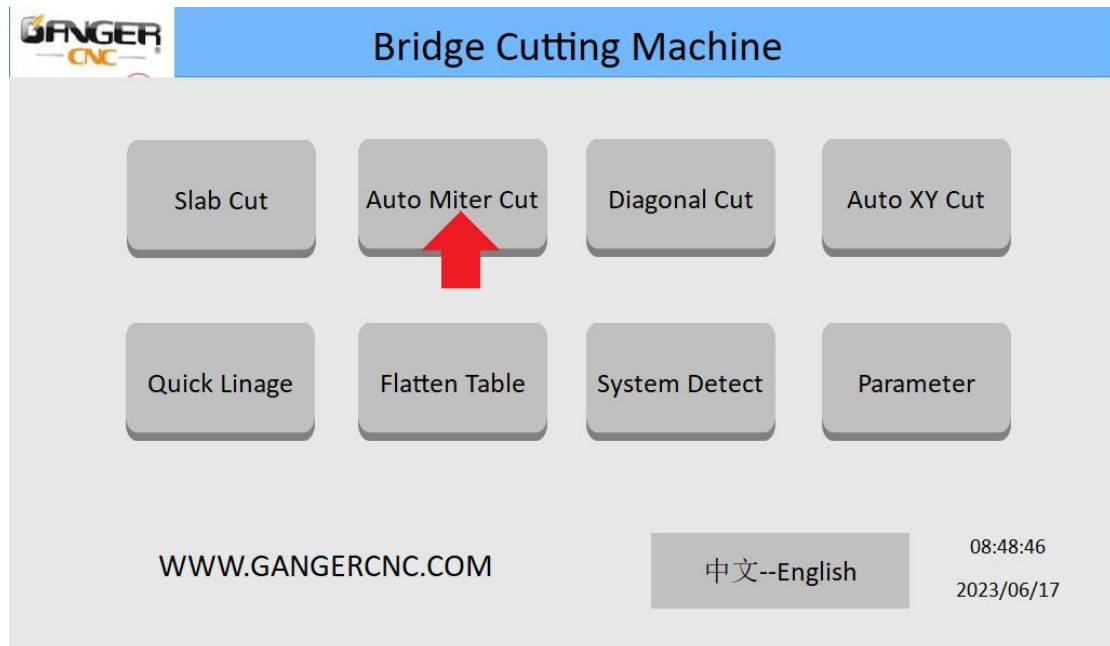
C axis at angle 90



Slab Cut Y					Offset 0.0mm	
Y data	Distance	Y Cut	PCs	Undone		
One Cut	0.0mm	0.0mm	0		▷ Head up limit	Flush
Group1	0.0mm	0.0mm	0		▷ Head down limit	One Cut
Group2	0.0mm	0.0mm	0		▷ C axis 0°	X+ Cut
Group3	0.0mm	0.0mm	0		▷ C axis 90°	Low speed
Group4	0.0mm	0.0mm	0		▷ X Auto Cut	Table tilt
Group5	0.0mm	0.0mm	0		▷ Y Auto Cut	Blade set
Group6	0.0mm	0.0mm	0		Y JOG	Back
					Processing parameters	
					OFF	

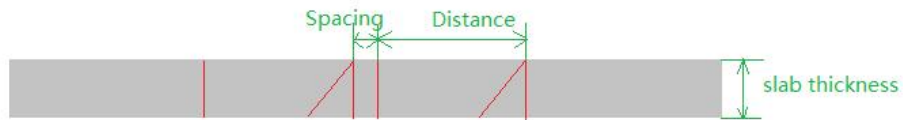
The description of other buttons is the same as above.

2.Auto Miter Cut



The screenshot shows the 'Auto Miter Cut' configuration screen. The title bar includes the GANGER CNC logo, the title 'Auto Miter Cut', and an 'Offset' field set to '0.0mm'. The main area is divided into several sections:

- Group Settings:** Three groups (Group1, Group2, Group3) are listed. Each group has input fields for 'Distance' (0.0mm), 'X Cut' (0.0mm), and 'PCs' (0). A 'Spacing' field (0.0mm) is shared between groups.
- Head Limits:** 'Head up limit' and 'Head down limit' are indicated by expandable icons.
- C Axis Settings:** 'C axis 0°' and 'C axis 90°' are indicated by expandable icons.
- Blade Settings:** 'Blade 0°' and 'Blade 45°' are indicated by expandable icons.
- Auto Cut Settings:** 'X Auto Cut' and 'Y Auto Cut' are indicated by expandable icons.
- Right Sidebar:** A vertical stack of buttons: 'Z-axis origin', 'Miter Saw back', 'Straight cut', 'Miter parameters', 'Table tilt', 'OFF', and 'Back'.
- Feed Settings:** 'X Feed' (0.00mm/s) and 'Y Feed' (0.00mm/s) are at the bottom.



[Z-axis origin] before Auto miter cut ,Click it to Move Z to HOME(safe position)

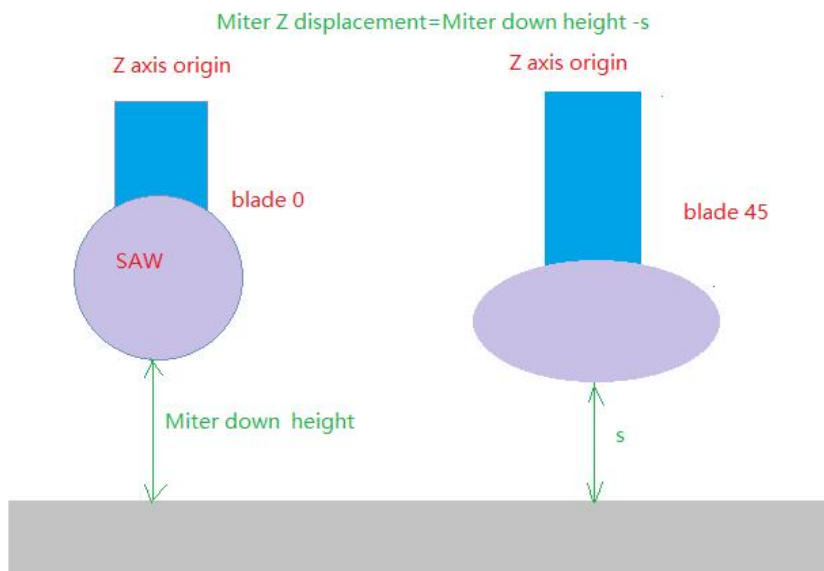
[Miter saw back]When the saw blade stops unexpectedly during the miter cut, we need restart machine and Click MITER SAW BACK withdraw the saw blade obliquely from the plate to avoid damage of saw blade.

[Straight cut] Click it to do straight cut first then second to miter cut,

[Miter parameters]

Miter Z displacement	0.0mm	X offset	0.0mm
Miter X displacement	0.0mm	Y offset	0.0mm
Miter X offset	0.0mm	slab thickness	0.0mm
Miter Y displacement	0.0mm	Miter down height	0.0mm
Miter y offset	0.0mm		

[Back](#)

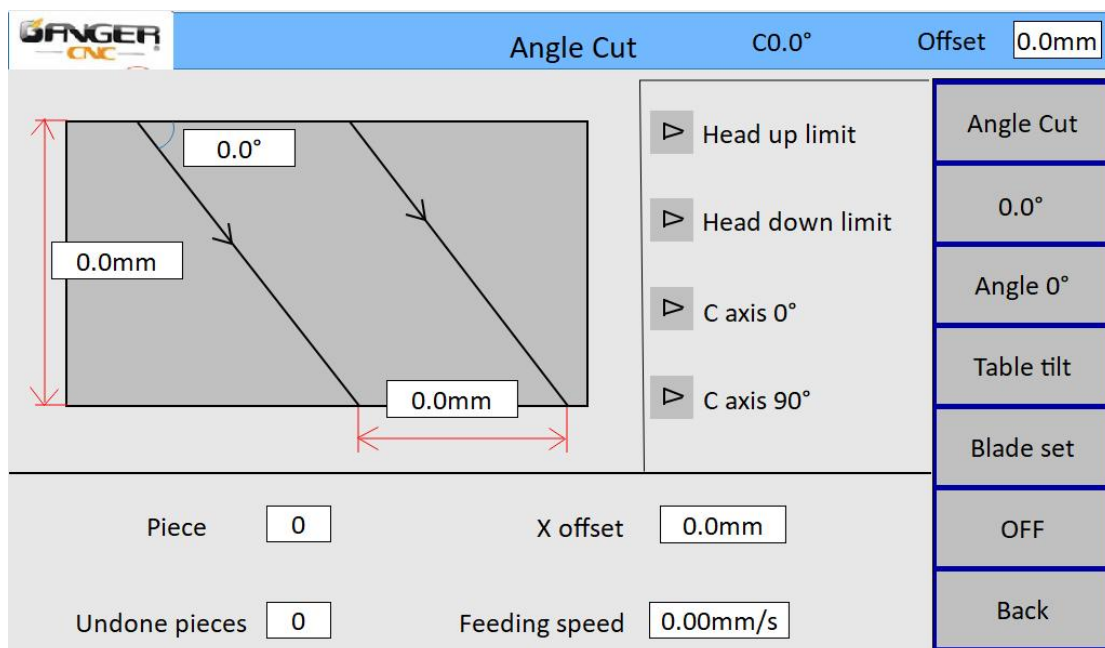
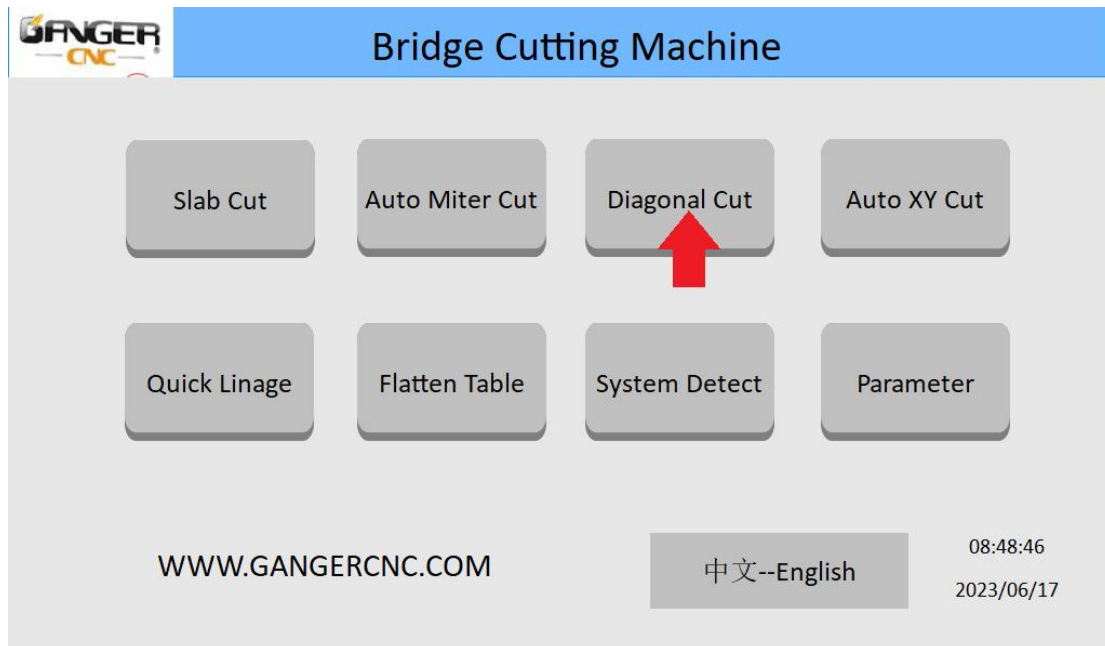


Miter X displacement: C-axis angle: 90°, Offset of saw blade cutting position at 0° and 45°

Miter Y displacement: C-axis angle: 0°, Offset of saw blade cutting position at 0° and 45°

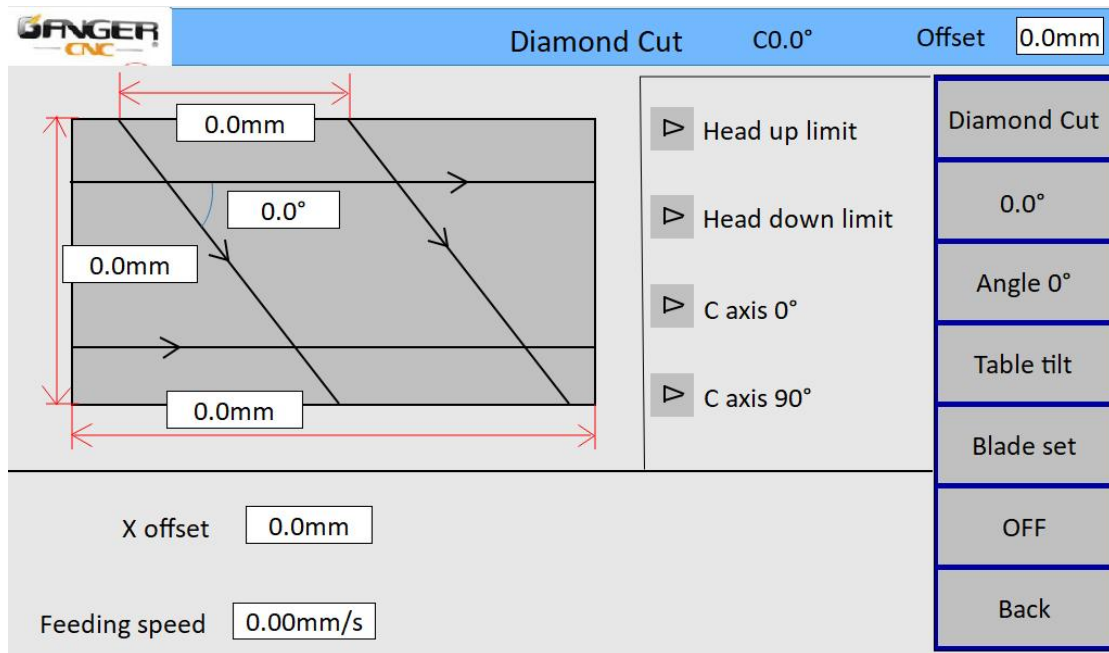
The description of other buttons is the same as above.

3.Diagonal Cut

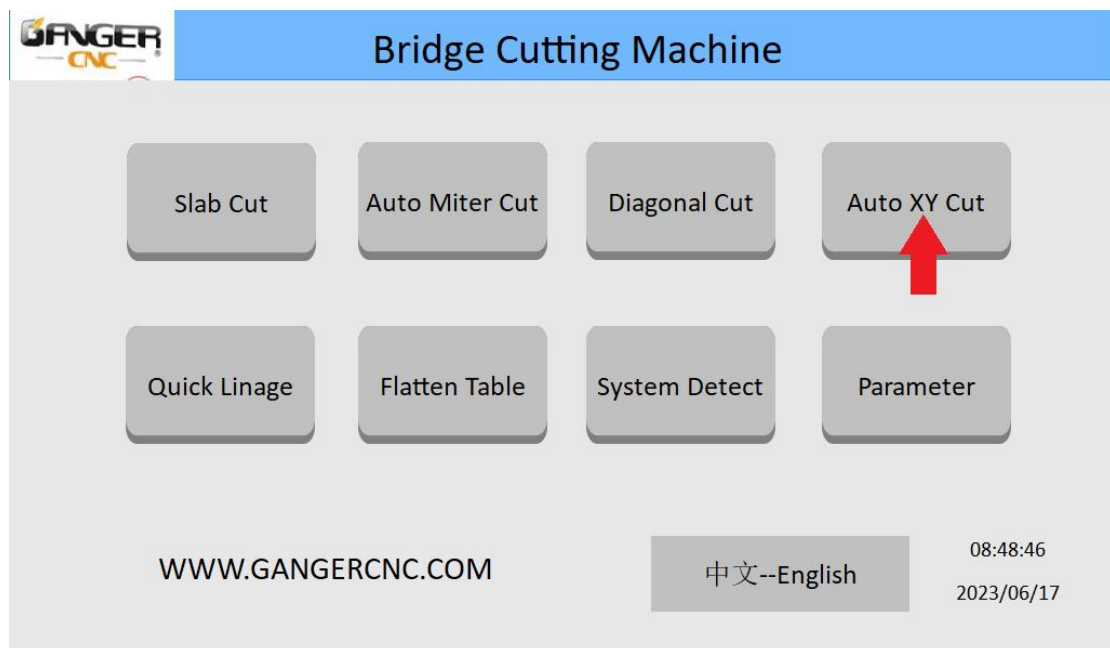


Click[Angel cut] to open Angle cut interface

The description of other buttons is the same as above.



4.Auto XY Cut





Auto XY Cut

Offset 0.0mm

Distance	PCs	Undone	Distance	PCs	Undone
Group1 0.0mm	0		Group1 0.0mm	0	
Group2 0.0mm	0		Group2 0.0mm	0	
Group3 0.0mm	0		Group3 0.0mm	0	
Group4 0.0mm	0		Group4 0.0mm	0	
X Cut 0.0mm			Y Cut 0.0mm		

▶ Head up limit
▶ Head down limit

▶ C axis 0°
▶ C axis 90°

▶ X Auto Cut
▶ Y Auto Cut

Y Jog
Low speed
Processing parameters
Table tilt
Blade set
OFF
Back

Sequence: First execute X-direction cutting. After the four sets of data are finished, the C-axis rotates to angle 90 , and then executes the Y-direction cutting. After the four sets of data are finished, the C-axis returns to angle0 and cut ends.

[Processing parameters]

The image shows a screenshot of a CNC control interface. It features a light blue header bar at the top. Below the header, the interface is divided into four rows, each with a label on the left and a numerical input field on the right. The labels are 'X feed', 'Y feed', 'X displacement', and 'Y displacement'. The input fields contain the values '0.00mm/s', '0.00mm/s', '0.0mm', and '0.0mm' respectively. In the bottom right corner, there is a grey button with the text 'Back' in black. The entire interface is set against a light grey background.

X feed	0.00mm/s
Y feed	0.00mm/s
X displacement	0.0mm
Y displacement	0.0mm

Back

X feed: The feed rate in the X cutting direction

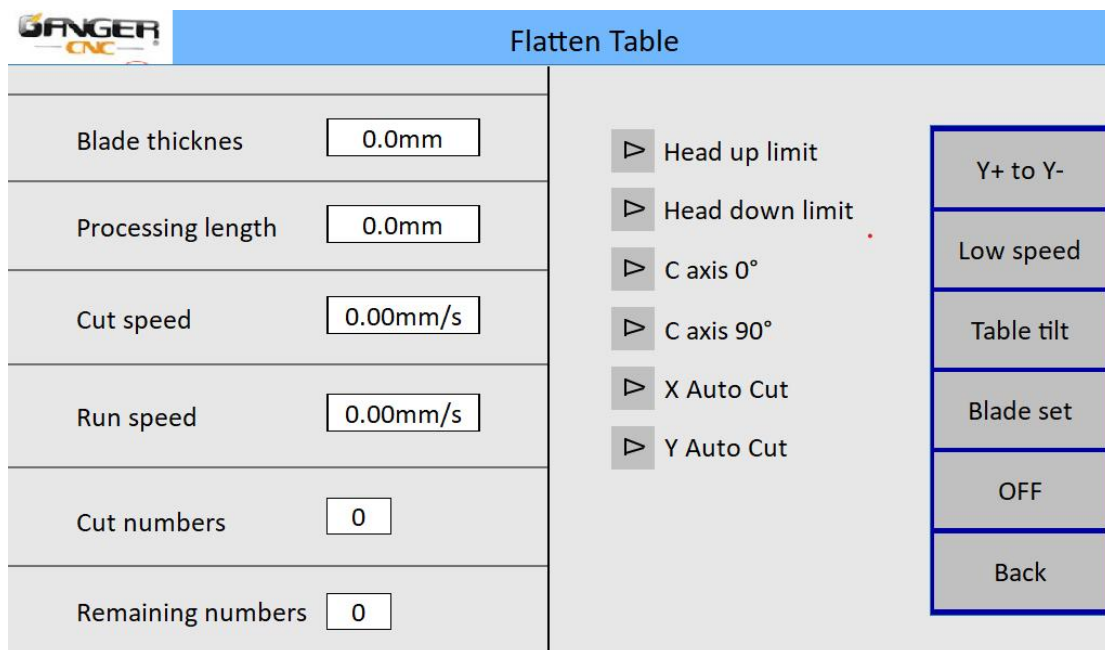
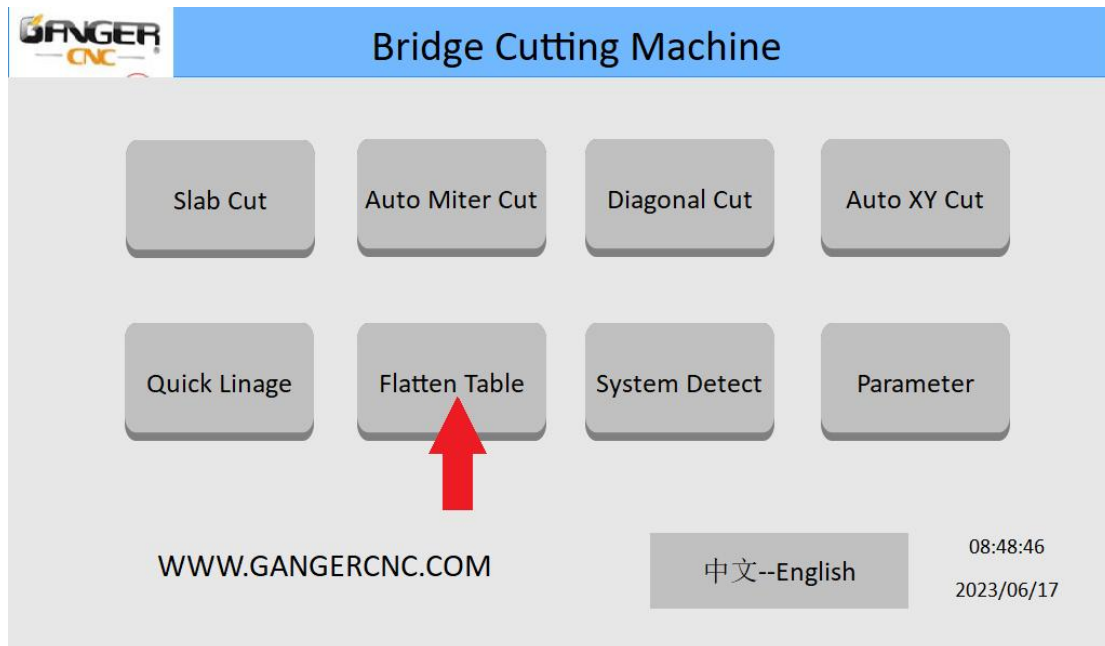
Y feed; Feed speed in Y cutting direction

X displacement: The X offset of the cutting starting point in the Y direction

Y displacement: The Y offset of the cutting starting point in the Y direction

The description of other buttons is the same as above.

5.Flatten table

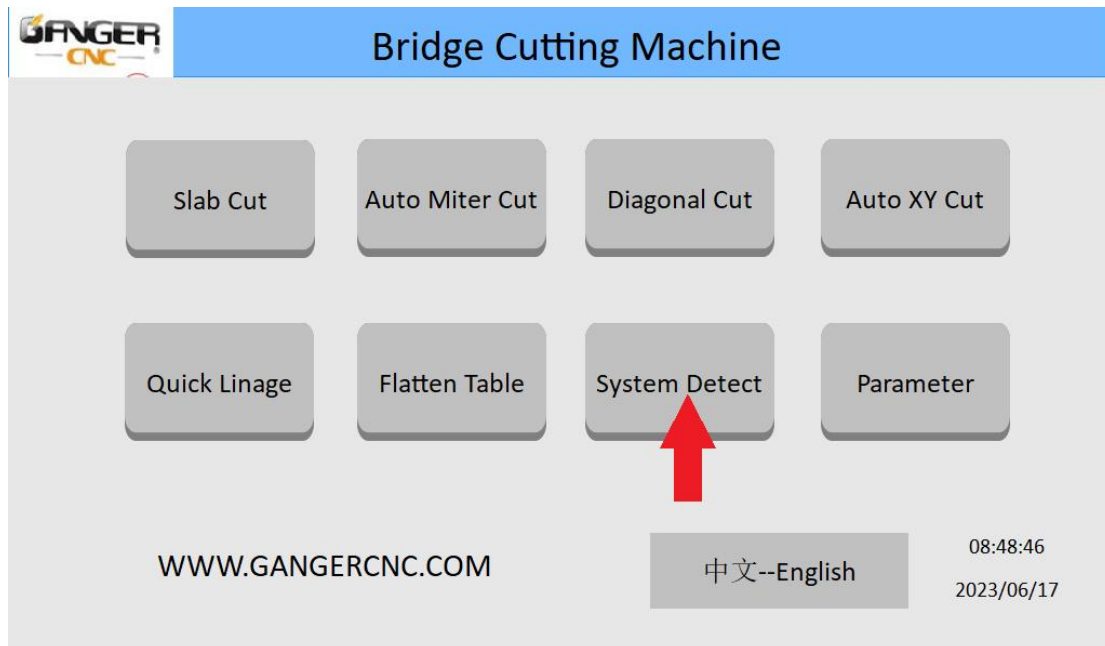


Cut numbers bigger than table width/blade thickness

[Y+to Y-] Milling direction

The description of other buttons is the same as above.

6.System detect

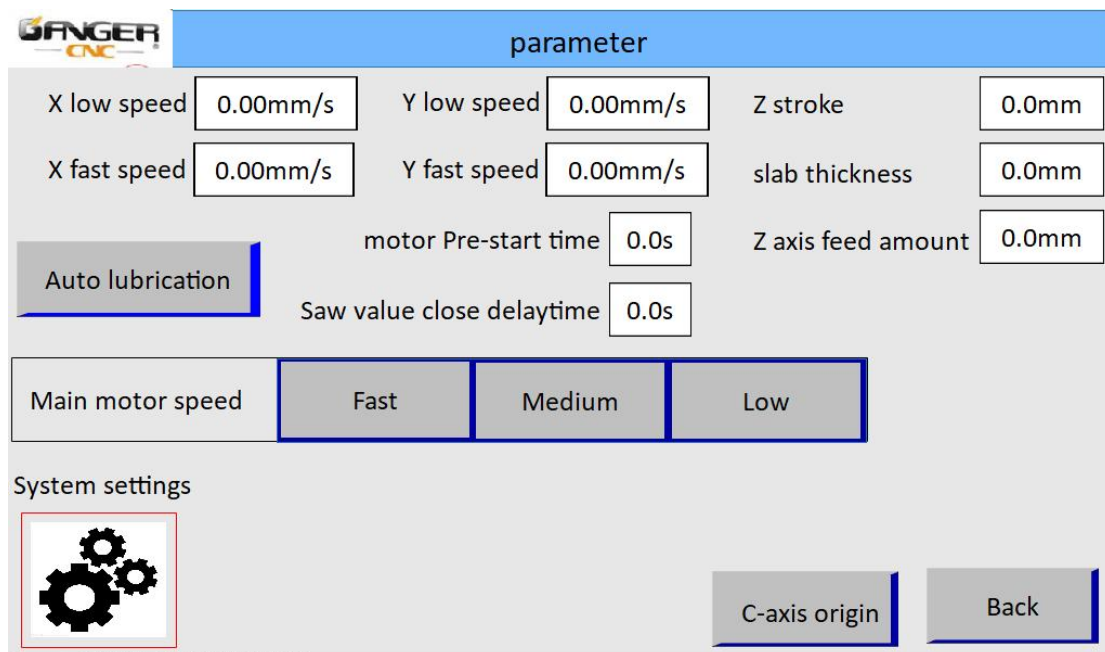
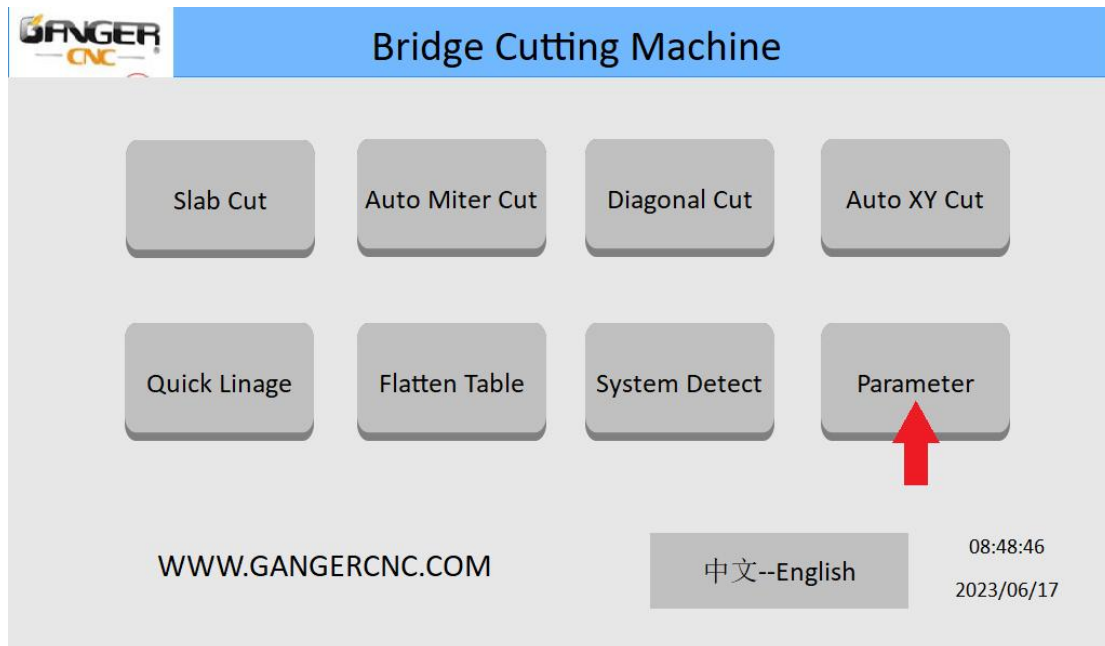


X0	Blade start manually	X17	Driver alarm	Y0	Y output	Y17	
X1		X20	Y-limit	Y1	X output	Y20	Main motor On
X2	Auto-start	X21	Y+limit	Y2	Z output	Y21	Main motor fast speed
X3	Home	X22	X-limit	Y3	Z output	Y22	Main motor medium speed
X4	Y- direction	X23	X+limit	Y4	Y inverse	Y23	Main motor low speed
X5	Y+direction	X24		Y5	X inverse	Y24	Blade 0°value
X6	X- direction	X25	Z origin	Y6	Z inverse	Y25	Blade 45°value
X7	X+ direction	X26	Main motor alarm	Y7	C inverse	M512	C axis 0°
X10	Z+ direction	X27	External EMG	Y10		M513	C axis 90°
X11	Z- direction	X30	Blade 0°	Y11	Hydraulic motor On		
X12	C+ direction	X31	Blade 45°	Y12	Table up valve		
X13	C- direction	X32	Blade 0°limit	Y13	Table down valve		
X14	Stop	X33	Blade 45°limit	Y14	Z brake		
X15	Hydraulic alarm	M517	Z+ limit	Y15	Auto-oil		
X16	C 0° limit	M518	Z- limit	Y16	Auto-water cooling		

Back

This screen displays the real-time signals of system input and output points, which is convenient for fault diagnosis.

7. Parameter



Z stroke :The distance from the HEAD DOWN LIMIT to HEAD UP LIMIT

Z axis feed amount : Cutting amount of each layer in layered cutting on Z axis。 When it cannot be divisible by the thickness of the plate, take the remainder of the cutting amount of the last layer. When set to 0, the Z axis does not perform layered cutting.(For example: slab thickness

17mm, we set Z axis feed amount 3mm, then it will cut

3+3+3+3+3+2mm)

Motor pre-start time: The spindle motor starts first, and after the set time is reached, the cutting action is performed

Saw value close delay time: in Miter cut function, saw flip from 0 to 45 and from 45 to 0 ,the solenoid valve delays the closing time to ensure reaching correct angle

[C-axis origin] Unexpected shutdown during C-axis operation, such as power failure, alarm, etc. Click this button to return the C-axis to the origin and reset the C-axis 0 position