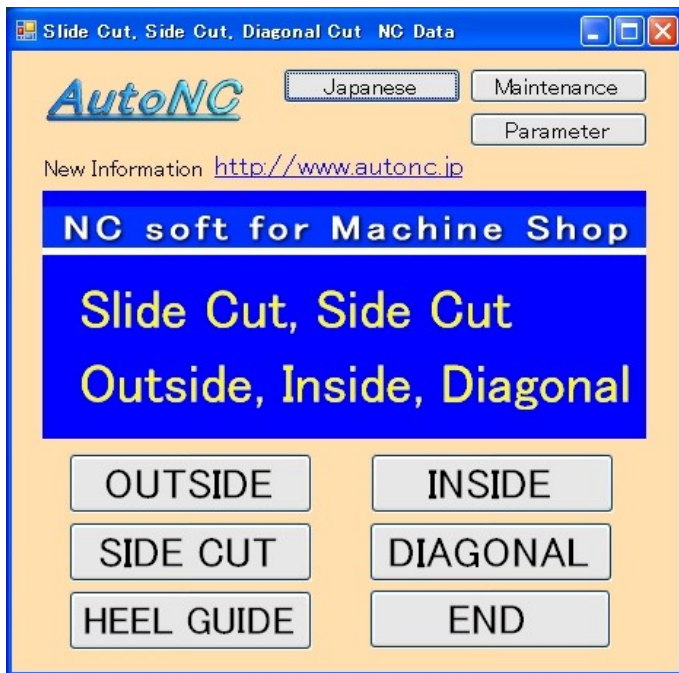




NC soft for Machine Shop

Home Page <http://www.autonc.jp>

Manual of Slide Cut



[Japanese]

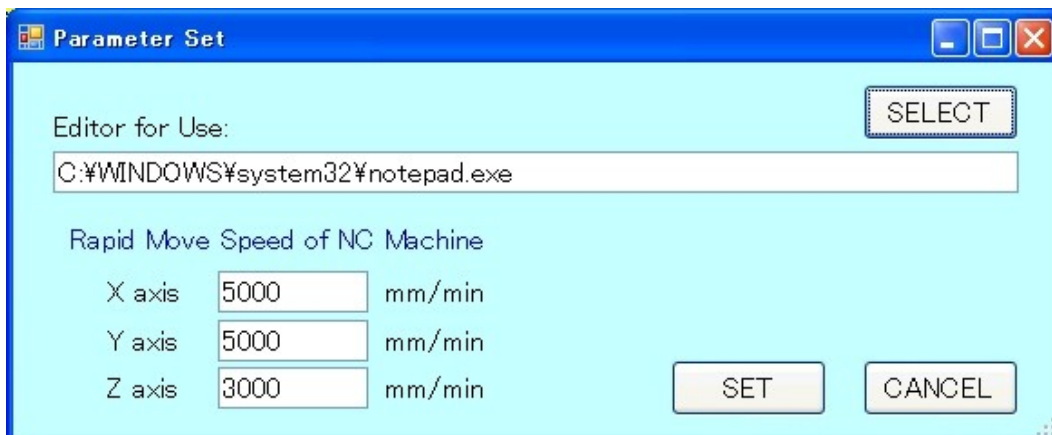
When pushing this button, it becomes Japanese display.

[Parameter]

You specify an editor for the editing.

You start up the editor at the "EDIT" button of the program.

At present, you aren't using the rapid move speed of the machine tool.



OUTSIDE (Slide cut)

Slide Outside

Slide (Outside) When one of X,Y,Z,L(Length),AP(Approach Length) is blank, That data is skipped.

Rapid move Z Height All same Z INPUT 30

Expand Length for all data All same Length INPUT 10

Cutter R + 5mm

All same Approach INPUT

G92 Yes No

Coordinate Clear

Check Height 0

Finish Cutting Times: 2 Times 10 mm Above Change cutting mode.

Write Holder: C:¥ SELECT

Rough Data: SlideSotoAra EDIT

Finish Data: SlideSotoSiage EDIT

Check Data: SlideSotoCheck EDIT

Graphic Display: ROUGH FINISH CHECK

START CANCEL

TOOL

Diameter 50 mm

Offset D No. 1

Rough

Feed rate 100 mm/min

Spindle Speed 100 rev/min

Finish

Feed rate 200 mm/min

Spindle Speed 200 rev/min

Back Feed 1000 mm/min

X: -600 Y: 150 Z: -300 L: 100 AP: 50

X: -400 Y: 250 Z: -300 L: 100 AP: 50

X: 400 Y: 250 Z: -300 L: 100 AP: 50

X: 600 Y: 150 Z: -300 L: 100 AP: 50

X: -600 Y: -200 Z: -300 L: 100 AP: 50

X: -400 Y: -300 Z: -300 L: 100 AP: 50

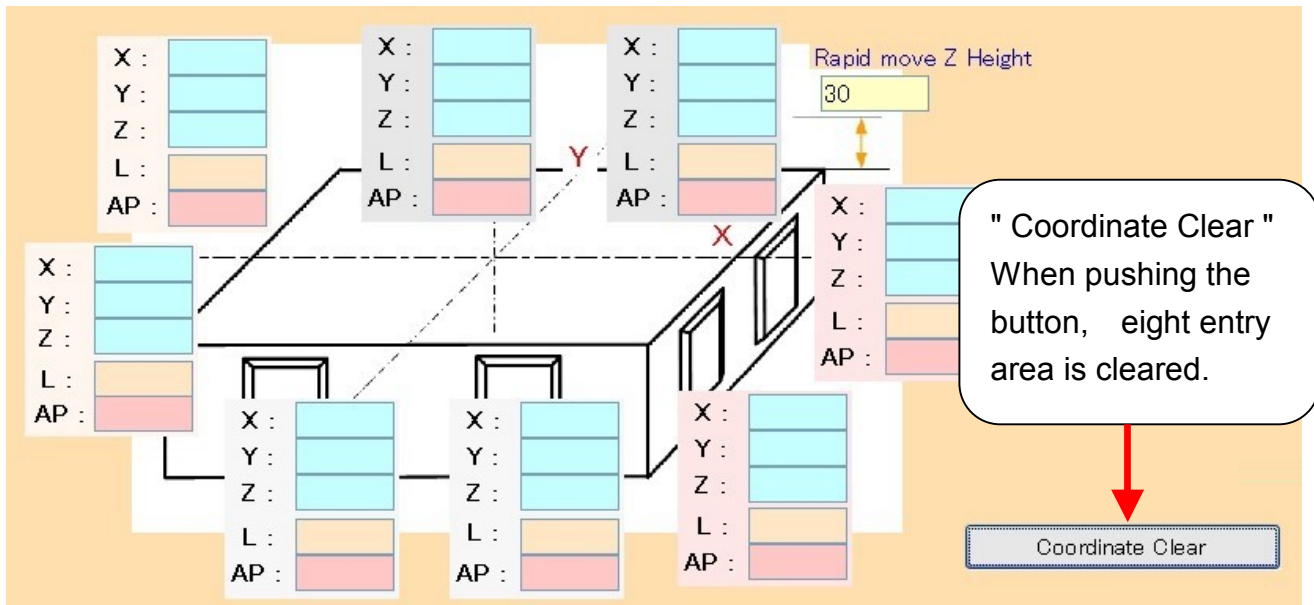
X: 400 Y: -300 Z: -300 L: 100 AP: 50

X: 600 Y: -200 Z: -300 L: 100 AP: 50

It creates the tool radius offset data which cuts the outside of the material.
It starts from the position which is X0Y0Z(rapid move Z height).

It made an approach 45 degrees from the end of the slide for the interference to be least.
Also, Z rises at the position that is distant of the tool radius + 5 mm.

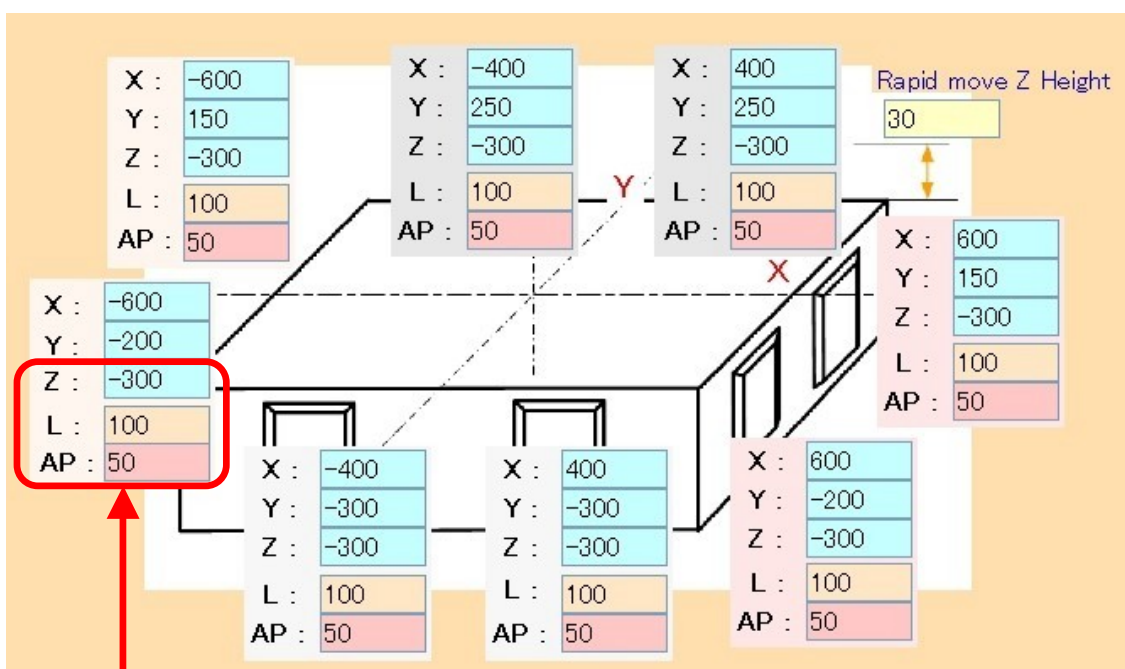
To avoid the interference in each place, Z, L, the AP can be individually changed.



- Input a coordinate-value with slide epicenter to the light-blue X, the Y.
(The epicenter becomes a division center with slide length.)
- Input the position Z where the tool goes down.
- Input the length of the slide to the L (the length).
- Put a distance in the AP (the approach length) from the slide surface, where Z goes down.

If not needing below the decimal point, omit a decimal point.

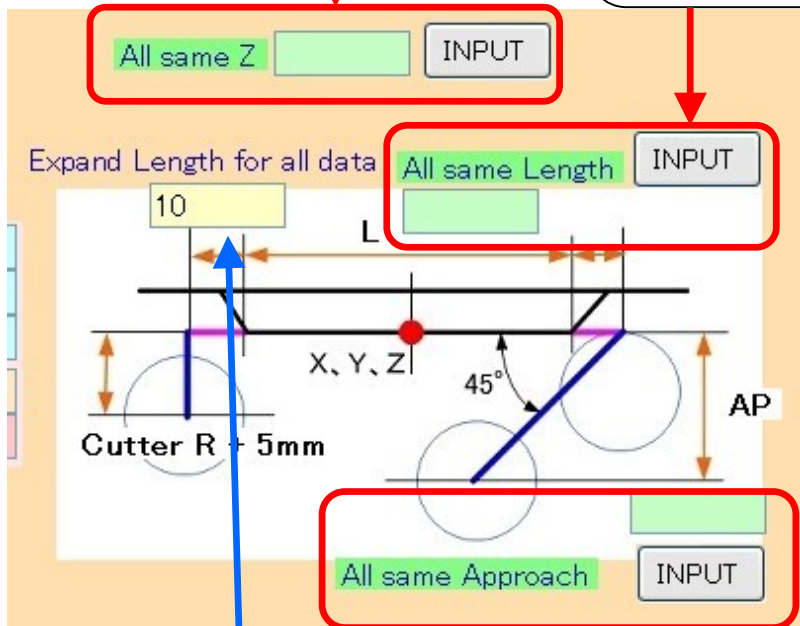
If any one of the X, the Y, the Z, the L (the length), the AP (the approach length) is space, it can be removed from the cut object.



About Z,L,and AP, there is collective input function.

Same Z data is written in light-blue eight places when inputting Z value to the olive-green area and pushing the " INPUT " button.

Same L data is written in light-orange eight places when inputting L value to the olive-green area and pushing the " INPUT " button.



Same AP data is written in the pink eight places when inputting the AP (the approach length) to the olive-green area and pushing the " INPUT " button.

The slide length can be controlled at the extension length.

Eight all of the places are extended.

The extension length is the value which is added to both sides of slide length (L).

When slide length is 100 and extension length is 10, actual cutting length is 120.

You choose Yes or No at the <G92>.

When you choose Yes, G90G92X0Y0Z (the rapid move z height) is stored.

When it is No, G90X0Y0; G01Z (the rapid move z height) is stored.

(For the details, you refer to the NC data).

It becomes a cutting mode from above this
than entered Z value.

"Select" At the
button, it selects a
write folder.

The check data rises to the check height after goes
down Z depth once and checks a movement.

The screenshot shows a CNC control interface with several sections:

- TOOL** (highlighted with a red box):
 - Diameter: 50 mm
 - Offset D No.: 1
 - Rough: Feed rate 100 mm/min, Spindle Speed 100 rev/min
 - Finish: Feed rate 200 mm/min, Spindle Speed 200 rev/min
 - Back Feed: 1000 mm/min
- Check Height**: 0
- Finish Cutting Times**: 2 Times
- Write Holder**: C:¥
- Rough Data**: SlideSotoAra (EDIT button)
- Finish Data**: SlideSotoSiage (EDIT button)
- Check Data**: SlideSotoCheck (EDIT button)
- Graphic Display** (highlighted with a red box):
 - ROUGH button
 - FINISH button
 - CHECK button
 - START button
 - CANCEL button
- G92** (highlighted with a red box): Yes (selected), No
- 10 mm Above Change cutting mode.** (highlighted with a red box)

Red arrows point from the text boxes to the corresponding fields in the interface. A blue arrow points from the 'SELECT' button to the 'G92' section.

You enter all file names.

The check data is NC data for the confirmation of the input data.

" Edit " When pushing the button, the editor starts up and opens
a file.

It is possible to
display the NC data.

You enter tool information.

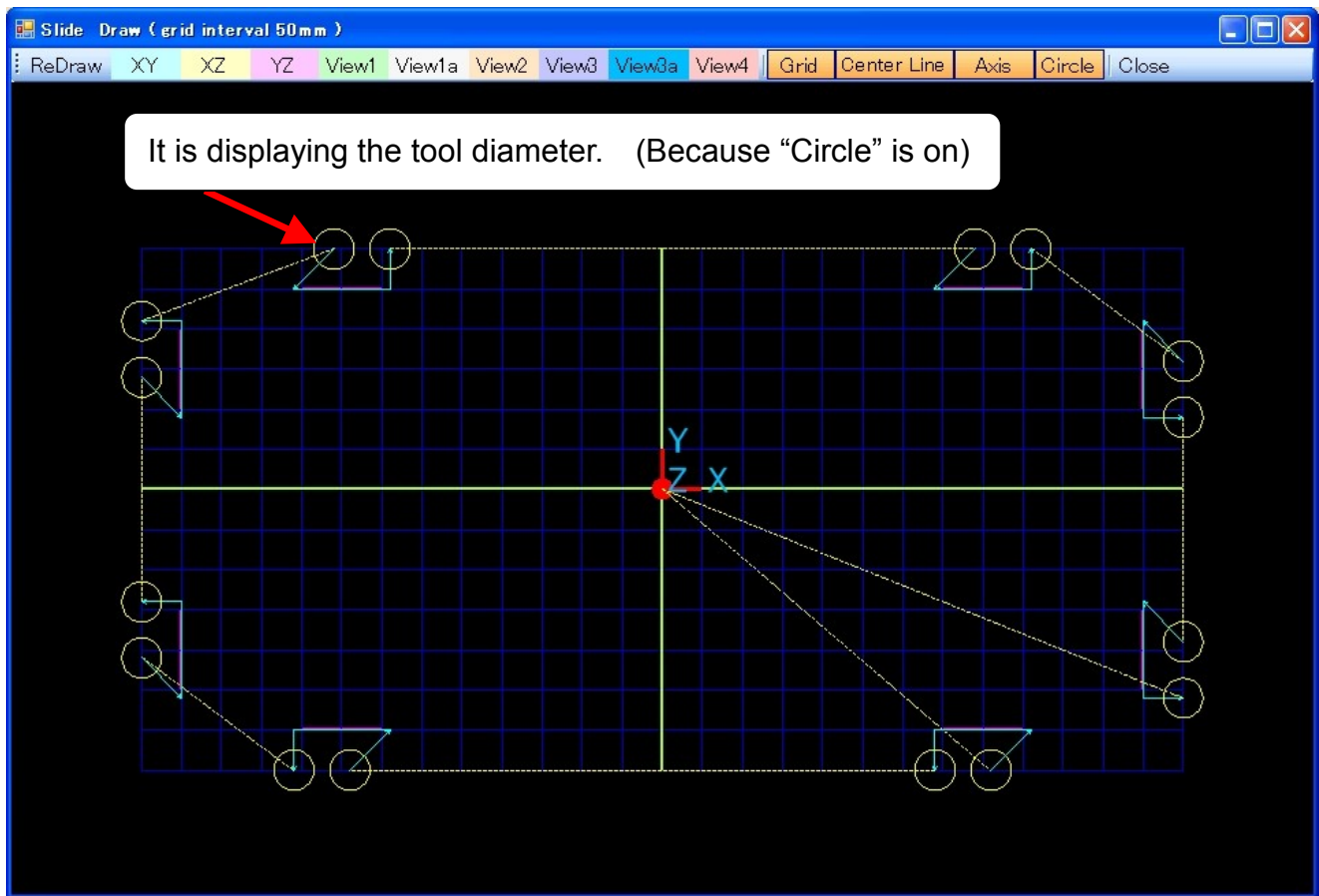
When putting equal to or more than 2 in the
Cutting-Times,
It returns to the position in front of G41 from the
position that was left in G40 as same Z height at
the Back-Feed-Rate speed.

When pushing the "Start" button
after fill in all data, the NC data of
the file name is created in folder.

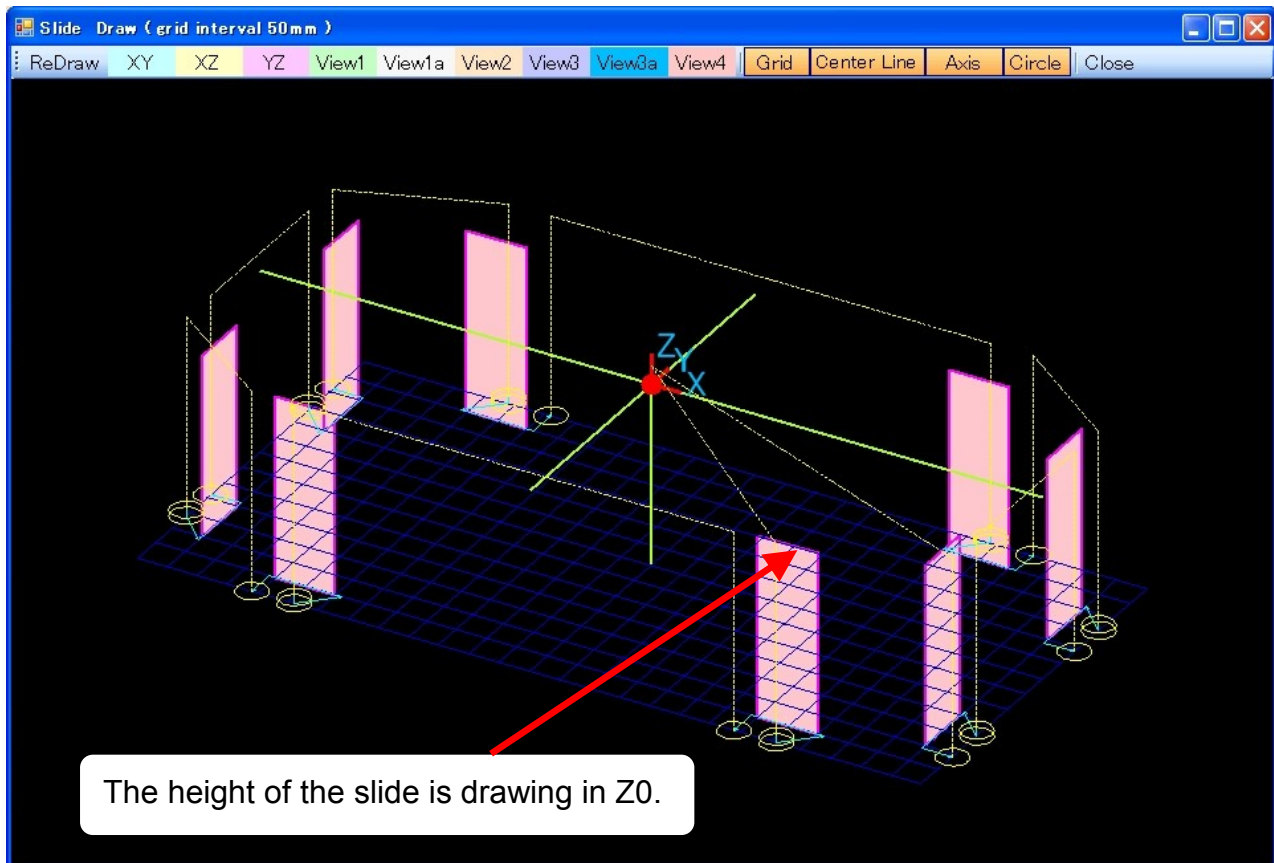
When pushing the "Cancel" button,
it ends.
Input data is saved and is restored
in the next time.

The Display of the NC data

The following shows by "ROUGH" button. This figure is shown in "the XY plane".



It is displaying the following figure in VIEW2.



The Display menu



You can select the display direction.

XY plane , XZ plane ,YZ plane, View1, View1a, View2, View3, View3a, View4.

View is the show that was seen from the diagonal top.

View1, View2, View3, View4 are the show which was seen from 30 degrees above from just beside.

View1a, View3a are the show, which was seen from 60 degrees above from just beside.

The show button of Grid, the centerline, the Axis, Circle becomes on.

When making "Grid" off, the grid of blue 50 mm disappears.

When making "Centerline" off, the olive-green X-axis, the Y-axis, the Z-axis disappear.

When making "Axis" off, the coordinate system of the X, the Y, Z disappears.

When making "Circle" off, the tool diameter display disappears.

The part can be displayed in the expansion when clicking with the mouse and dragging.

It returns to the ex-screen by "Close".

INSIDE (Slide cut)

Slide (Inside) When one of X,Y,Z,L(Length),AP(Approach Length) is blank, That data is skipped.

Rapid move Z Height

Expand Length for all data

☒ Yes ☐ No

TOOL

Diameter mm
 Offset D No.

 Feed rate mm/min
 Spindle Speed rev/min

 Feed rate mm/min
 Spindle Speed rev/min
 Back Feed mm/min

Check Height Finish Cutting Times Times mm Above Change cutting mode.

Write Holder :

Rough Data:
 Finish Data:
 Check Data:

Graphic Display

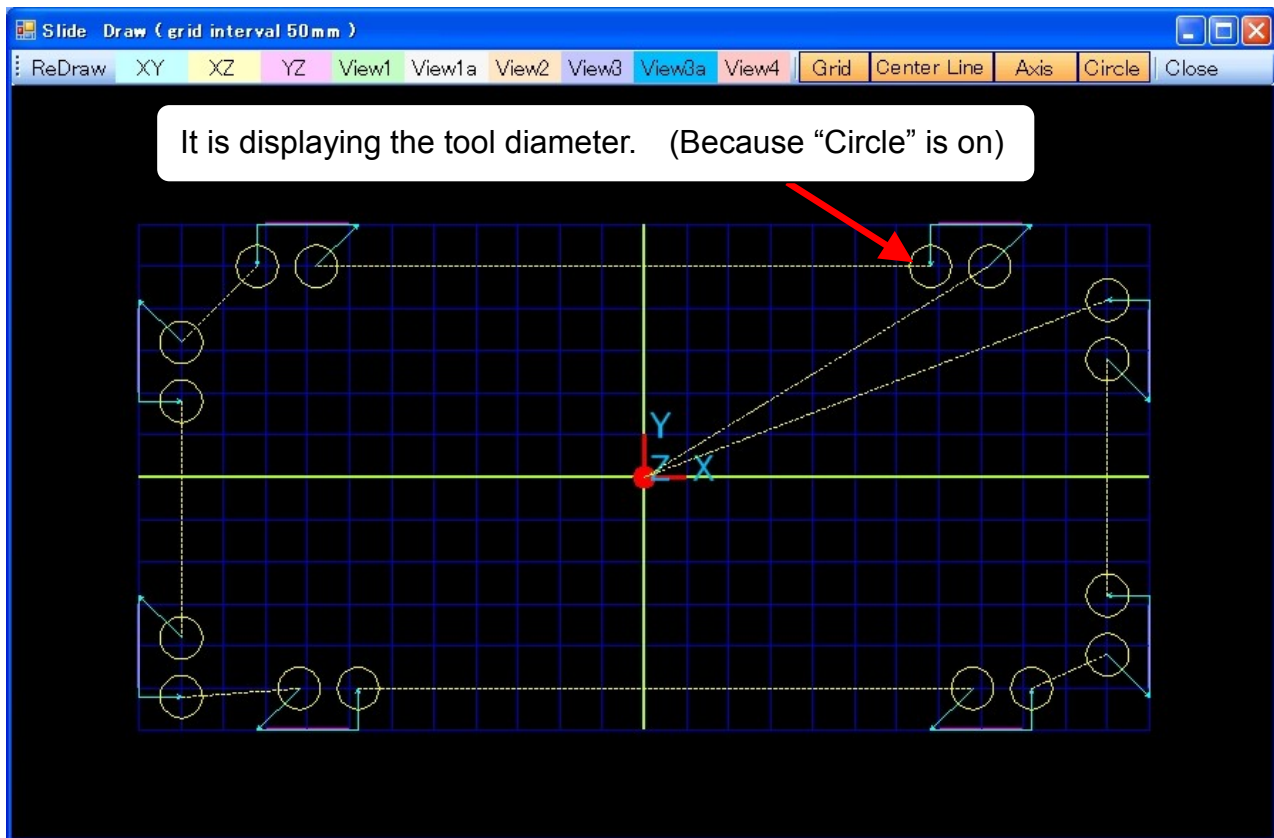
The way of the data definition is the same as the OUTSIDE.
 It creates the tool radius offset data which cuts the inside of the material.

It made an approach 45 degrees from the end of the slide for the interference to be least.
 Also, if leaving in the tool radius +5 mm, Z rises.

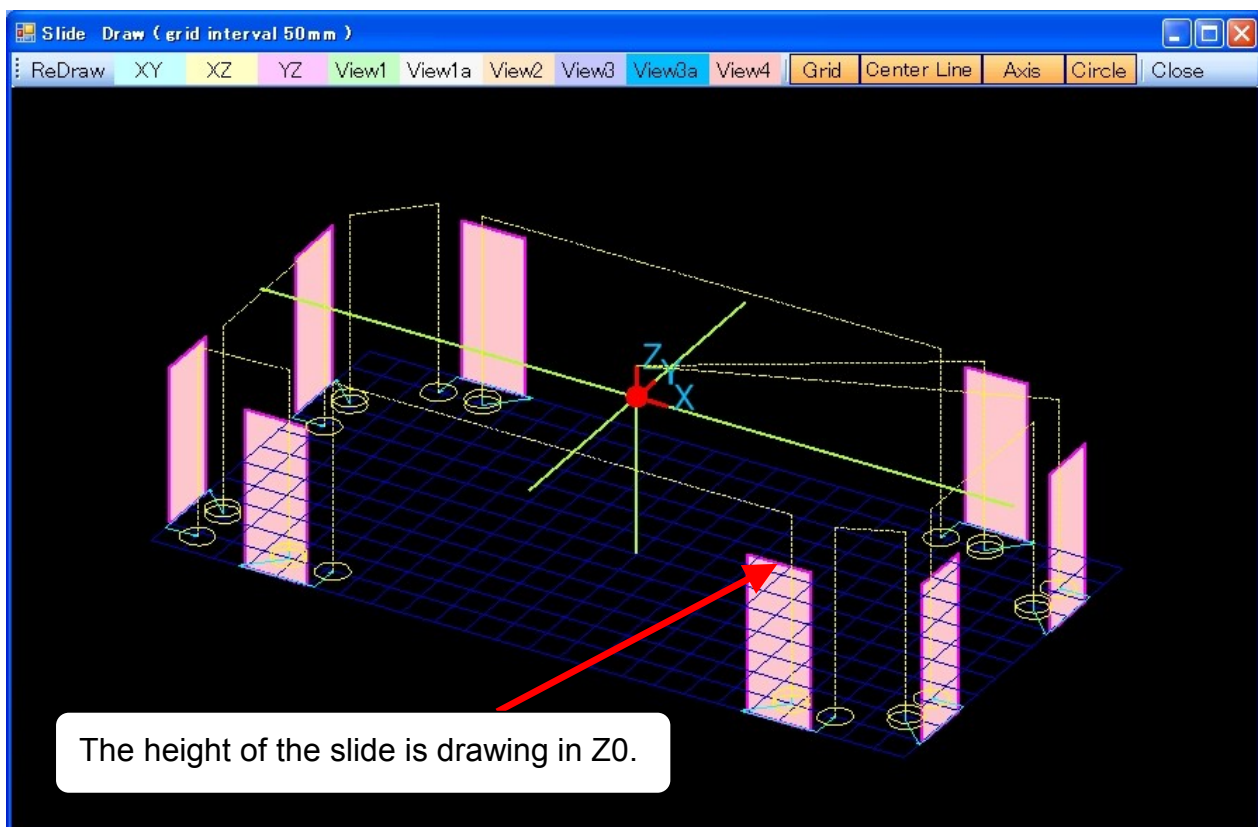
To avoid the interference in each place, Z, L, the AP can be individually changed.

The Display of the NC data

The following shows by "ROUGH" button. This figure is shown in "the XY plane".



It is displaying the following figure in VIEW2.



SIDE CUT

SIDE CUT

☒ NC Data ☐ Others

When No D Point ☐ 1/1 ☒ 1/1000 ☐ 1/100

Add Read Data

Cut Direction	X	Y	Z	Width (W)	Approach (AP)	Rough Leng(L1)	Finish Leng(L2)
L	-500	100	-50	100	50	50	70
R	450	0	0	120	40	30	50
T	300	300	10	150	50	50	80
B	-100	-300	-30	200	60	100	150
*							

Clear Data Insert Data Input Same

ROUGHING TOOL

Diameter : 50 mm

Offset D No. : 1

Cut Deep Rate : 1 mm/rev

Feed Rate : 1000 mm/min

Spindle Speed : 1000 rev/min

FINISH TOOL

Diameter : 50 mm

Offset D No. : 2

Cut Times : 2 Times

Feed Rate : 100 mm/min

Spindle Speed : 100 rev/min

Back Feed : 1000 mm/min

G92 ☐ Yes ☒ No

Rough G01 Mode 10 above

Height of Rapid Move 50

Finish G01 Mode 10 above

Holder for Write C:¥

Roughing Data: SokumenAra EDIT

Finish Data: SokumenSiage EDIT

Rough Check: SokumenAraCheck EDIT

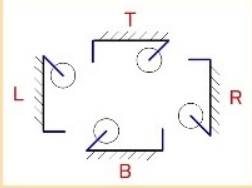
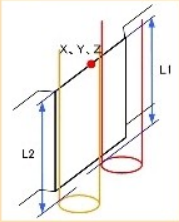
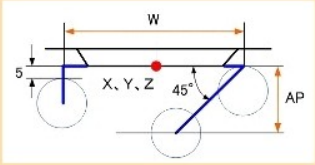
Finish Check: SokumenSiageCheck EDIT

SELECT

ROUGHING FINISH

R CHECK F CHECK

START CANCEL

The number and the direction of the SIDE CUT machining don't have limitation like the slide(OUTSIDE, INSIDE).

The one line shows one place of cut data.

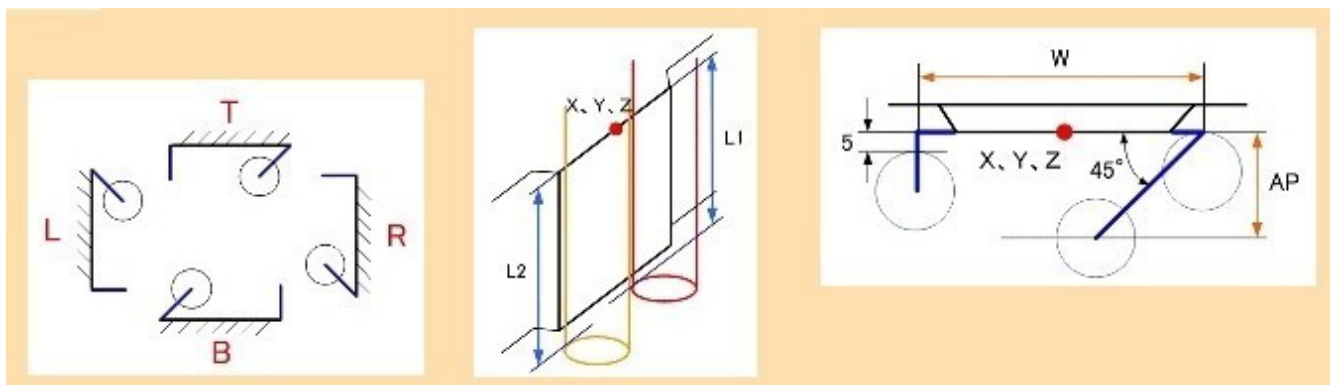
It cuts deeply at the pace from above by roughing data. It cuts more than once by finishing data.

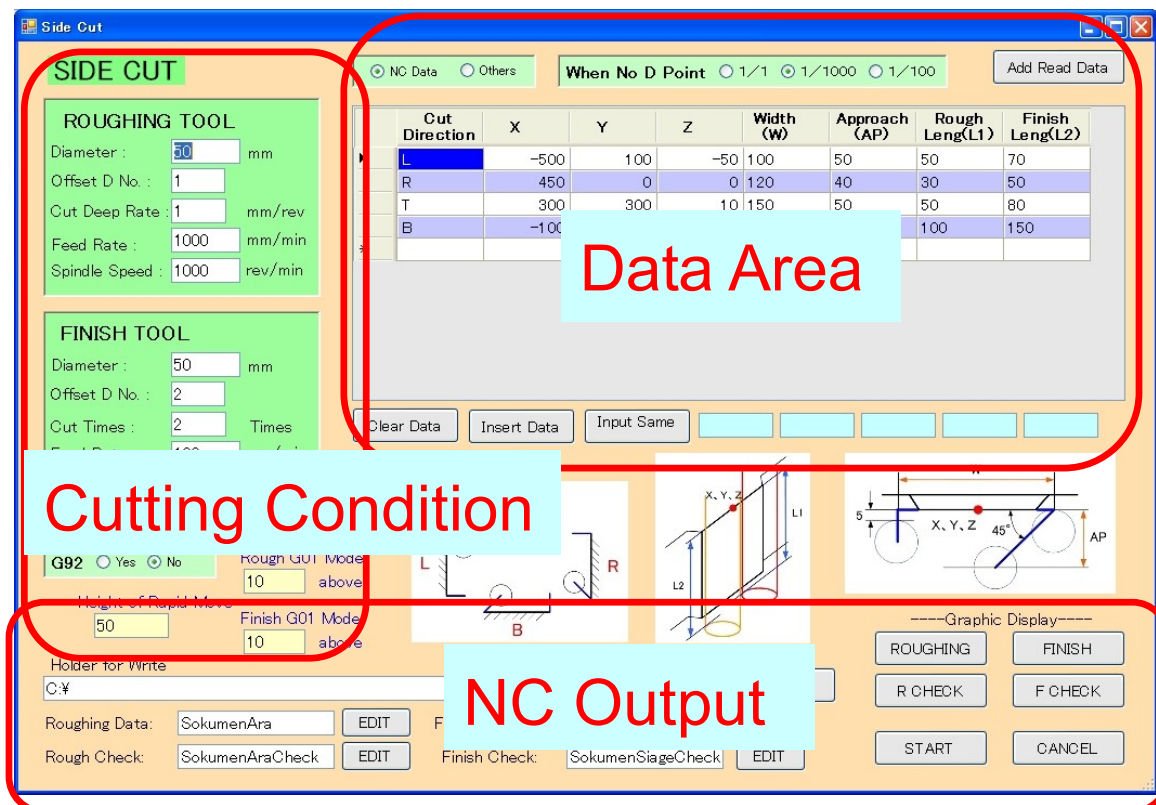
When wanting to cut once of roughing data, make a "Cut Deep Rate" bigger than the biggest Rough length (L1). Both are offset data.

The Cut Direction is L(the left side), R (the right side), T (the top side), B (the bottom side).

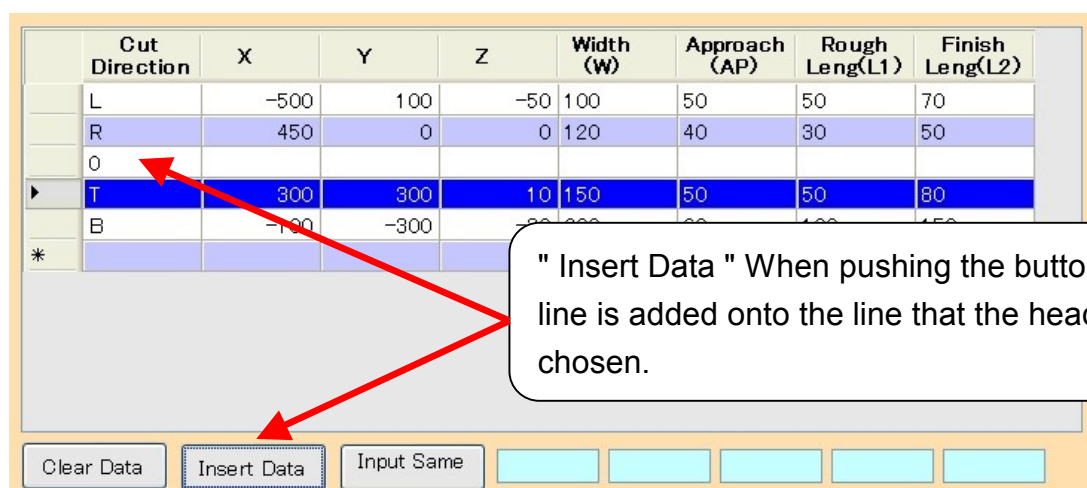
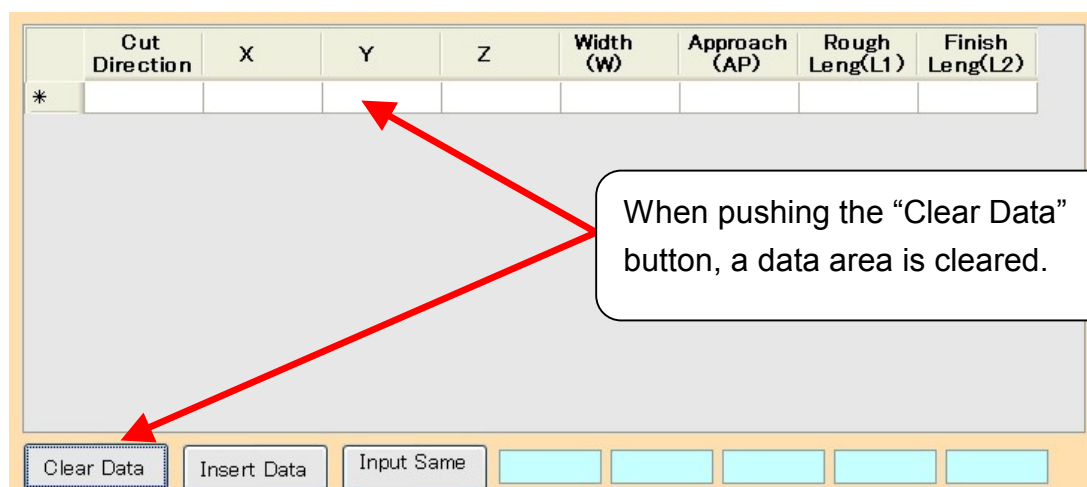
The X, the Y, Z are a center position of upper edge of the surface.

As for the length of cut, it inputs a distance from the upper edge to L1, L2 in positive.





Data Area



By "Add Read Data" button, It is possible to read the NC data, the text data, the CSV data and so on.

This figure is data after reading NC data.

Cut Direction	X	Y	Z	Width (W)	Approach (AP)	Rough Leng(L1)	Finish Leng(L2)
▶	-145	-5	0				
	-675	35	0				
	-665	-195	0				
	640	-125	0				
	660	95	0				
*							

When there is not a decimal point in the data to read, it follows this unit. When there is a decimal point, it follows that.

The NC data 1/1000 reading in

```
%
(test)
(X100.0Y200.0Z300.0)
N0001G90
N0002G92X0Y0Z0
N0003M03
(test)
(X100.0Y200.0Z300.0)
N0004G00X-145000Y-5000
N0005X-675000Y35000
N0006X-665000Y-195000
N0007X640000Y-125000
N0008X660000Y95000
N0009G80
N0010G00X0Y0
N0011M02
%
```

You choose NC data or the others. As for the others, the data is independent every line. Even if the NC data moves only a X axis, the previous Y and Z position is kept.

In the reading of the NC data, it is skipped the following line.

1. Including the () data.
2. The line of X0Y0.
3. The line where there is not a movement.

It isn't possible to read from the NC data except the X, or Y, Z.

Make the data to read here positioning data in circle center.

It adds the remainder to the read NC data.

Pushing "Input Same" button after inputting in each light blue area below, the same data are added in the list.

☒ NC Data ☐ Others
 When No D Point ☐ 1/1 ☒ 1/1000 ☐ 1/100
 Add Read Data

	Cut Direction	X	Y	Z	Width (W)	Approach (AP)	Rough Leng(L1)	Finish Leng(L2)
▶		-145	-5	10	100	50	120	150
		-675	35	10	100	50	120	150
		-665	-195	10	100	50	120	150
		640	-125	10	100	50	120	150
		660	95	10	100	50	120	150
*								

Clear Data Insert Data
 Input Same
 10 100 50 120 150

The reading in of the other data

Text data

```
L -500 100 -50 100 50 50 70
R 450 0 0 120 40 30 50
T 300 300 10 150 50 50 80
B -100 -300 -30 200 60 100 150
```

☐ NC Data ☒ Others
 When No D Point ☒ 1/1 ☐ 1/1000 ☐ 1/100
 Add Read Data

	Cut Direction	X	Y	Z	Width (W)	Approach (AP)	Rough Leng(L1)	Finish Leng(L2)
▶	L	-500	100	-50	100	50	50	70
	R	450	0	0	120	40	30	50
	T	300	300	10	150	50	50	80
	B	-100	-300	-30	200	60	100	150
*								

Clear Data Insert Data Input Same

NC Output

“Rough G01 Mode 10 above” and “Finish G01 Mode 10 above” is meaning that it goes down from the height of rapid move to 10mm above of Z value, and goes down to Z value by G01 mode.

The screenshot shows a control panel for NC output. A red box highlights the top-left section containing the G92 status (Yes/No), Rough G01 Mode (10 above), Height of Rapid Move (50), and Finish G01 Mode (10 above). Another red box highlights the bottom-left section with fields for Holder for Write (C:¥), Roughing Data (SokumenAra), Finish Data (SokumenSiage), and their respective Check fields (SokumenAraCheck, SokumenSiageCheck), each with an EDIT button. A third red box highlights the bottom-right section labeled "----Graphic Display----" containing buttons for ROUGHING, FINISH, R CHECK, F CHECK, START, and CANCEL. Red arrows point from the text box above to the first red box, and from the text box below to the second and third red boxes.

For roughing cut, it cuts deeply at the equal pace in Z.

For finishing cut, it turns around the same height several times.

The Check file first moves to lowest depth and goes up to Z value and moves once to confirm a path.

If confirming check data, it's no need to confirm Roughing data and Finish data.
" EDIT " When pushing the button, the editor starts up and opens a file.

Cutting Condition

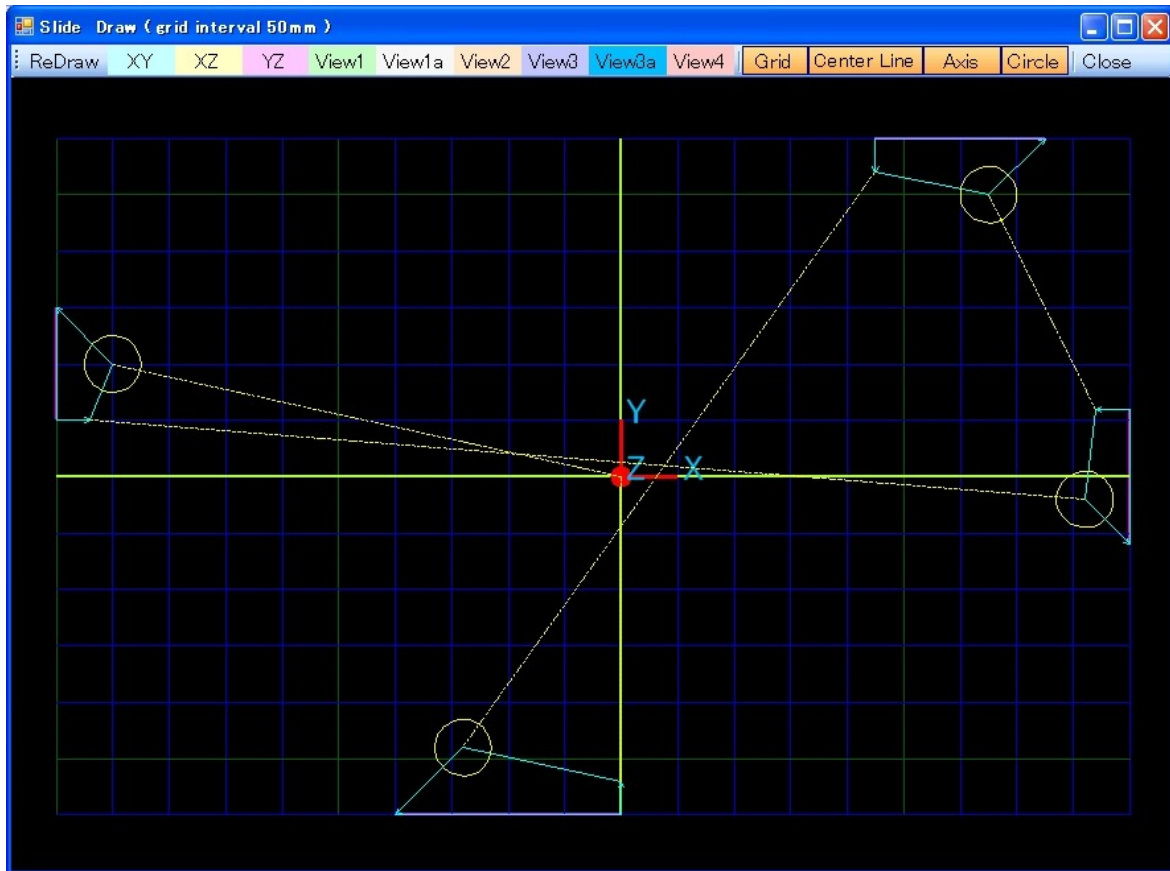
Back Feed:

When the finish cut number of times is equal to or more than 2, it returns in front of G41 with the same Z height.

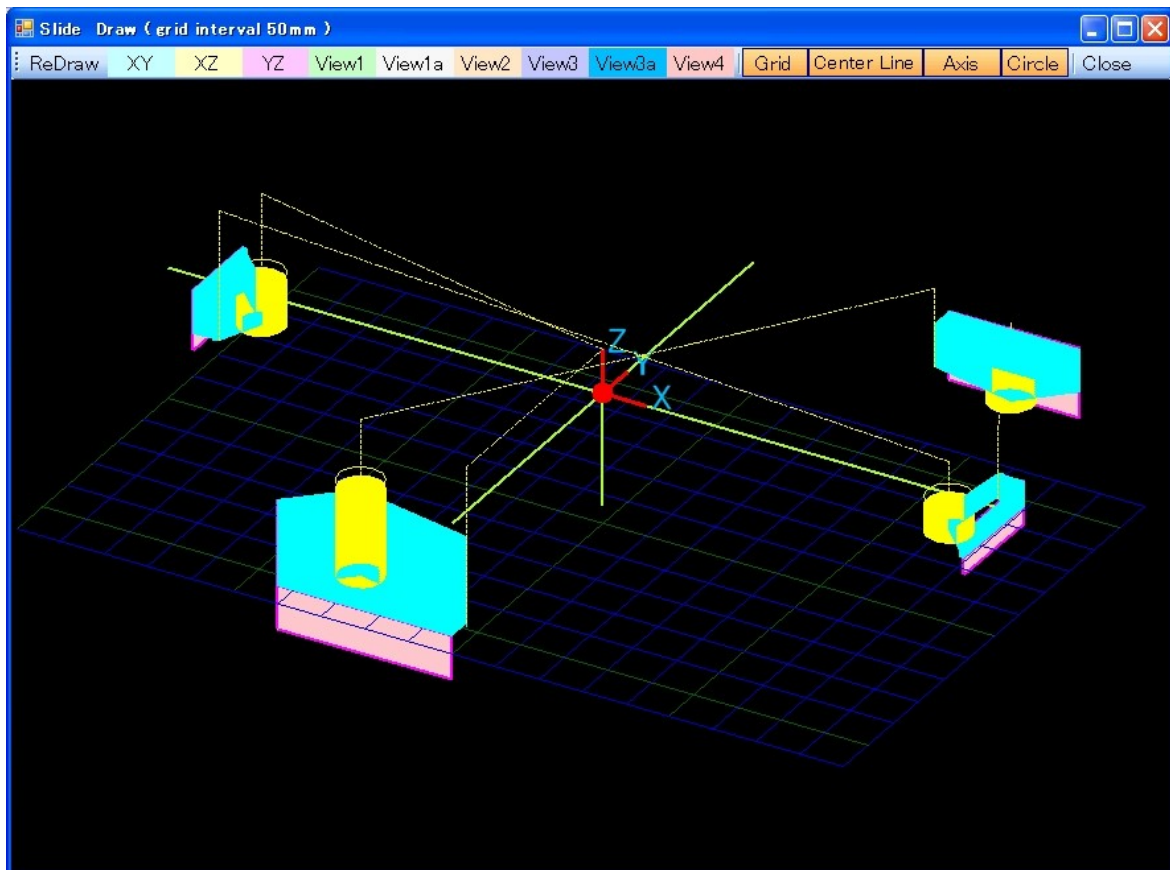
It calls this returning speed “Back Feed”.

The Display of the NC data

The following shows by "ROUGHING" button. This figure is shown in "the XY plane".

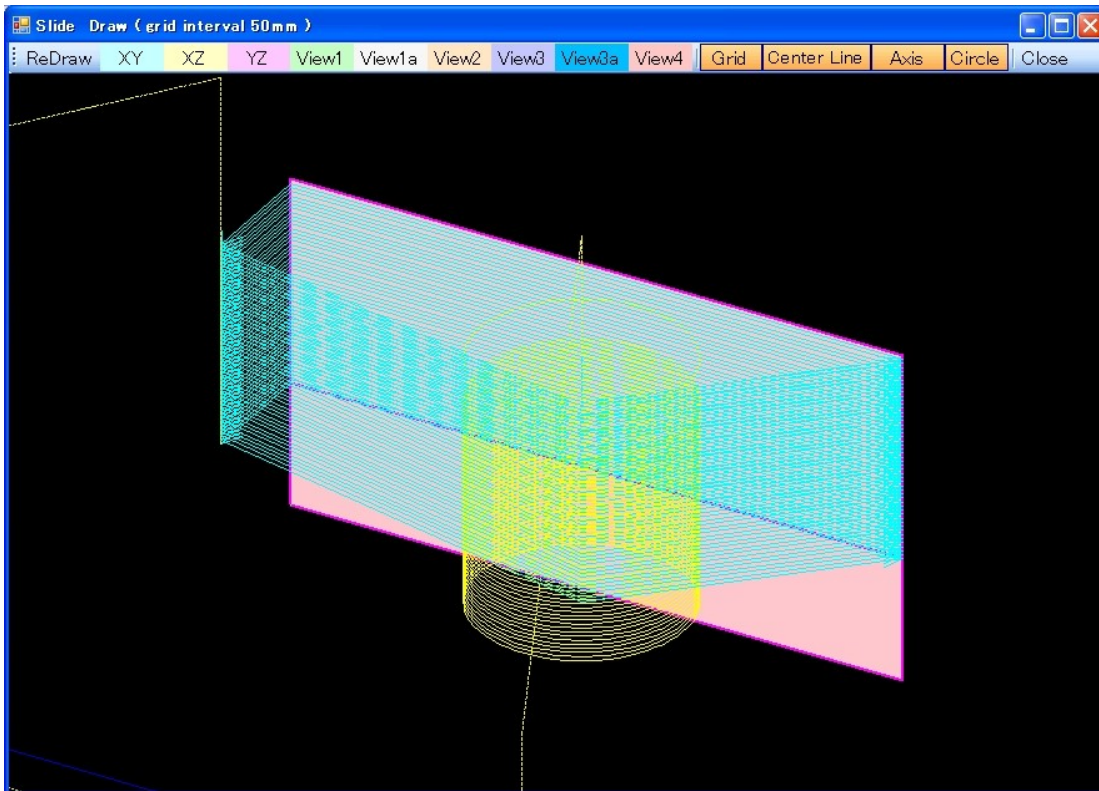


It is displaying the following figure in VIEW2.



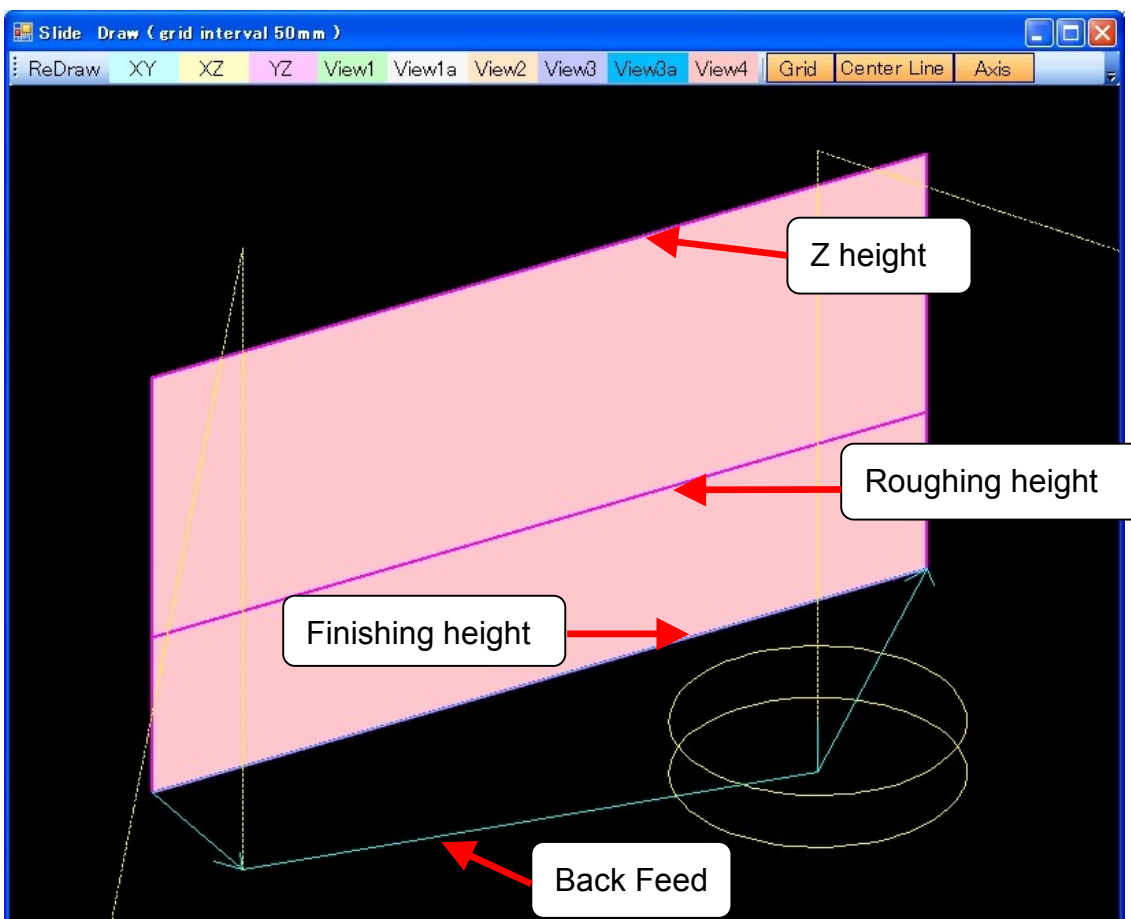
Following figure is shown in "VIEW2".

It is partially expanded with clicking and dragging by the mouse.



The following shows by "FINISH" button. This figure is shown in "VIEW2" and expanded.

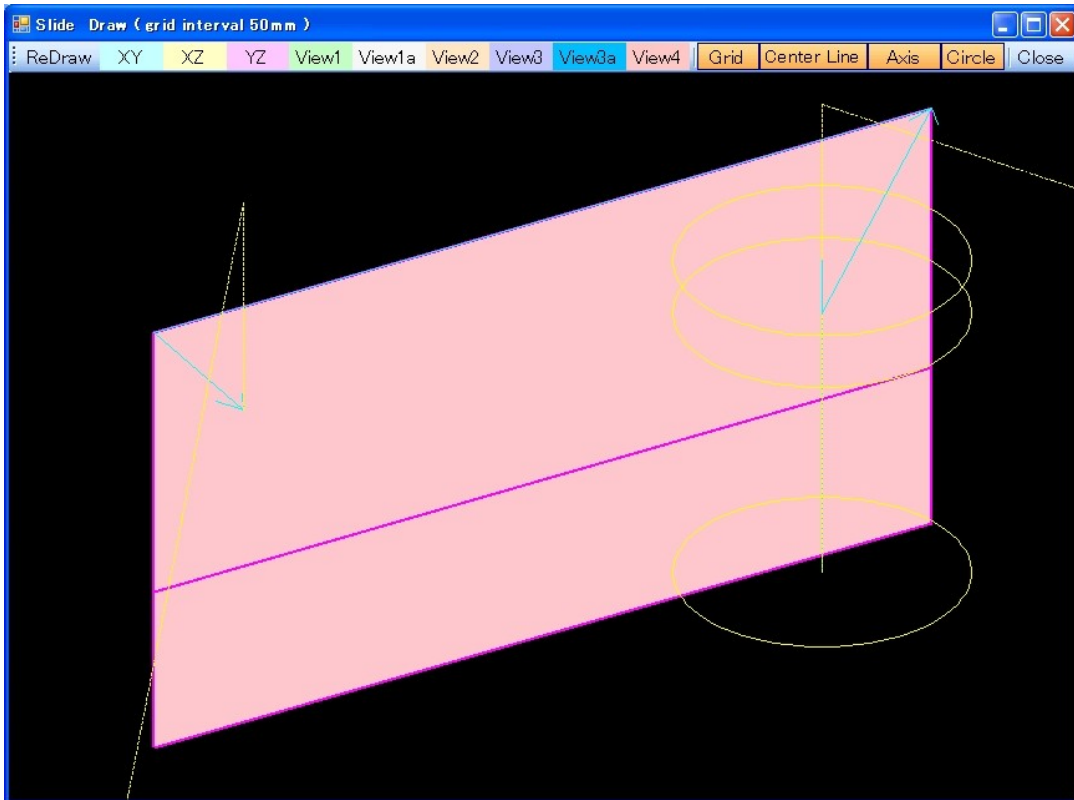
The line at the center of the plane is the roughing height, and the plane bottom is the finishing height .



The following shows by "R CHECK" button to confirm the roughing cut.

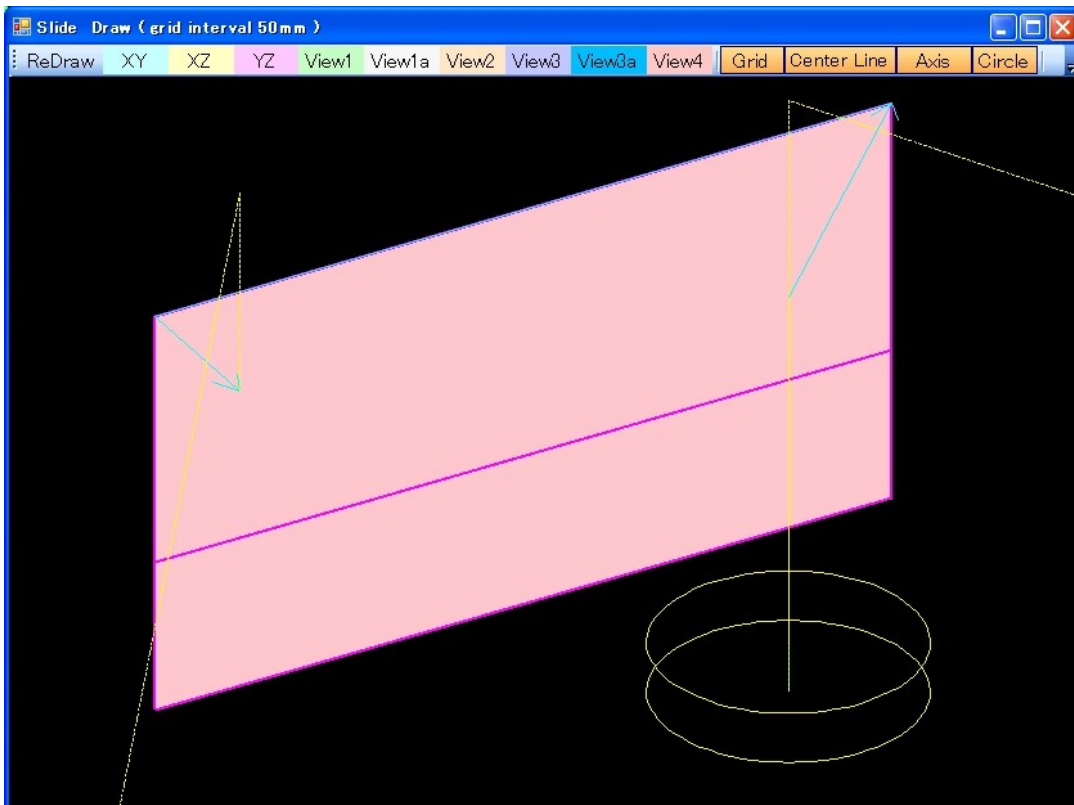
This figure is shown in "VIEW2" and expanded.

The Check data first moves to lowest depth and goes up to Z value and moves once to confirm a path.



The following shows by "F CHECK" button to confirm the finishing cut.

The Check data first moves to lowest depth and goes up to Z value and moves once to confirm a path.



DIAGONAL

Diagonal Cut

DIAGONAL CUT ☒ NC Data ☐ Others **When No D Point** ☐ 1/1 ☒ 1/1000 ☐ 1/100

ROUGHING TOOL

Diameter : mm
 Offset D No. :
 Cut Deep Rate : mm/rev
 Feed Rate : mm/min
 Spindle Speed : rev/min

FINISH TOOL

Diameter : mm
 Offset D No. :
 Cut Times : Times
 Feed Rate : mm/min
 Spindle Speed : rev/min
 Back Feed : mm/min

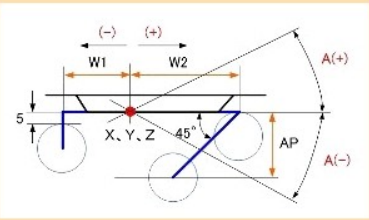
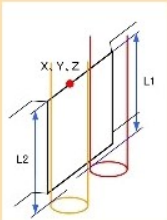
Ang(A)	X	Y	Z	W1	W2	AP	Rough Len(L1)	Finish Len(L2)
30	-500	100	-50	-20	100	50	50	70
-30	450	0	-50	50	40	30	30	50
60	300	300	10	0	150	50	50	80
90	-100	-300	-30	50	200	60	100	150
*								

G92 ☐ Yes ☒ No **Rough G01 Mode** above
Height of Rapid Move
Finish G01 Mode above

Holder for Write C:¥

Roughing Data: Finish Data:
 Rough Check: Finish Check:

Graphic Display

DIAGONAL is the one to have added an angle to the "SIDE CUT".

The one line of data is one place. The machining is a down cut by the offset.

It cuts a X extension surface of some reference point (X,Y,Z).

It shows the width at width1(W1) and width2(W2).

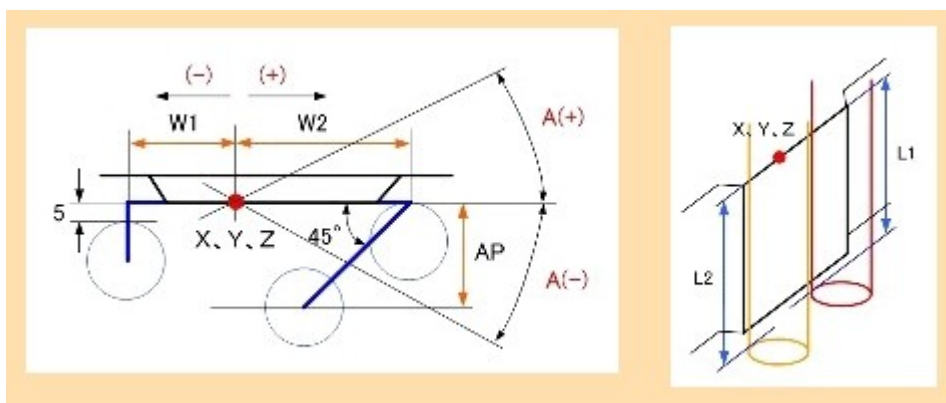
Width1 is the left width of the cut surface and width2 is the right width.

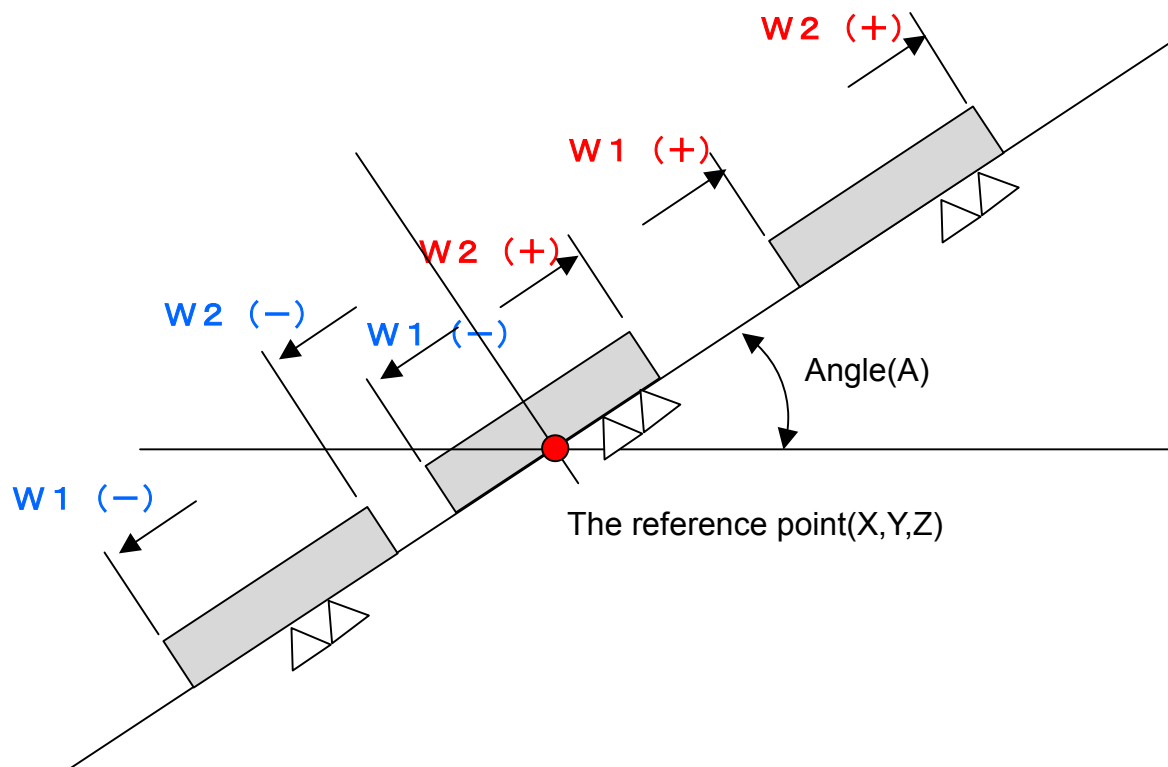
If the reference point is on the cut surface, width 1 is negative and width 2 becomes positive.

If the cut surface is on the right from the reference point, width1, width2 are positive together.

If the cut surface is on the left from the reference point, width1, width2 are negative together.

It tilts the data at the angle. The tilt center is a reference point.

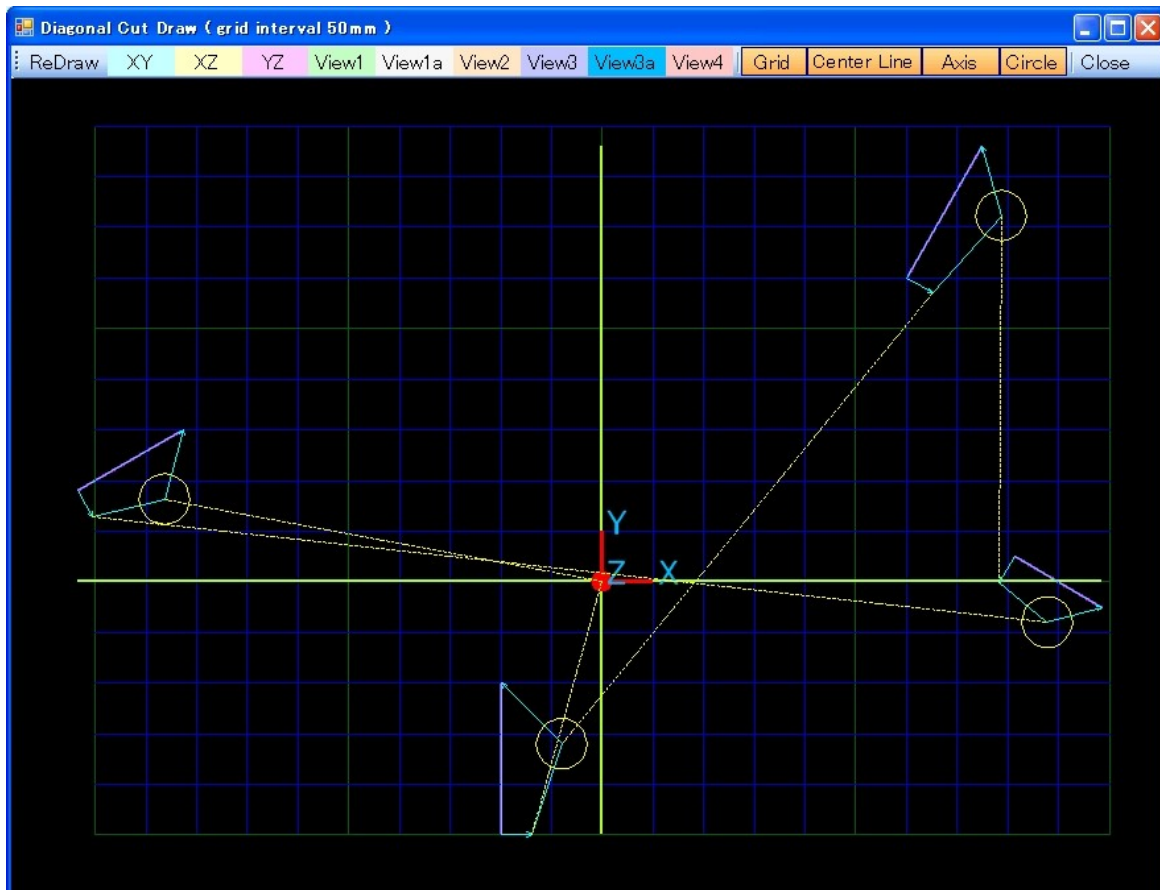




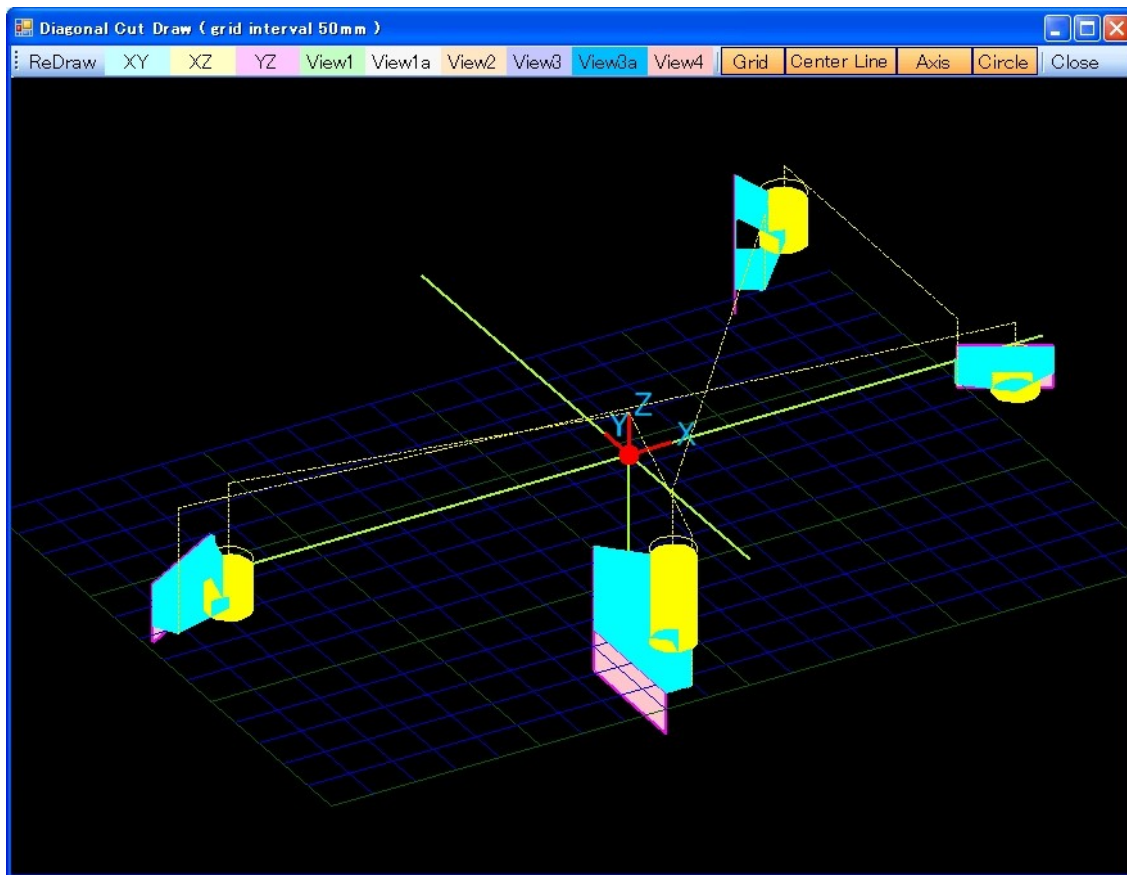
The others are the same as the "SIDE CUT".

The Display of the NC data

The following shows by "ROUGHING" button. This figure is shown in "the XY plane".

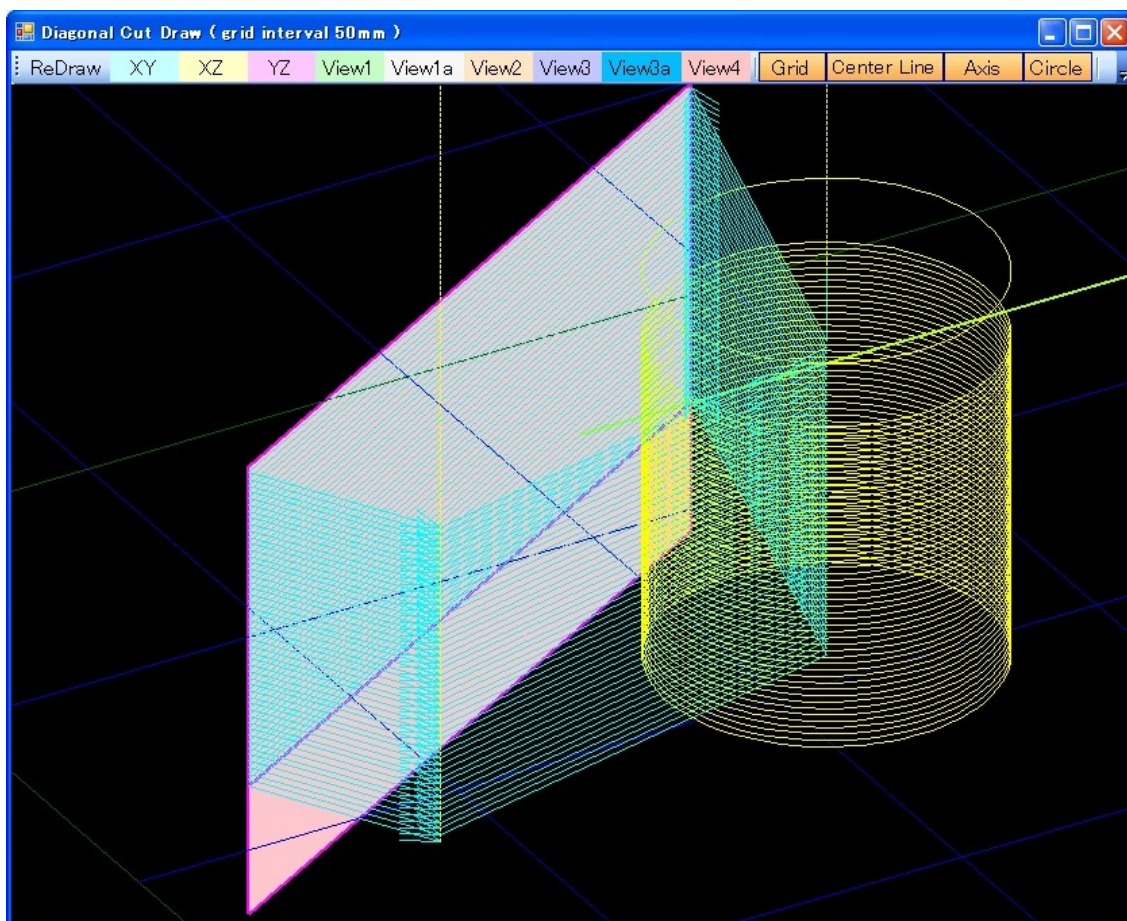


It is displaying the following figure in VIEW1.



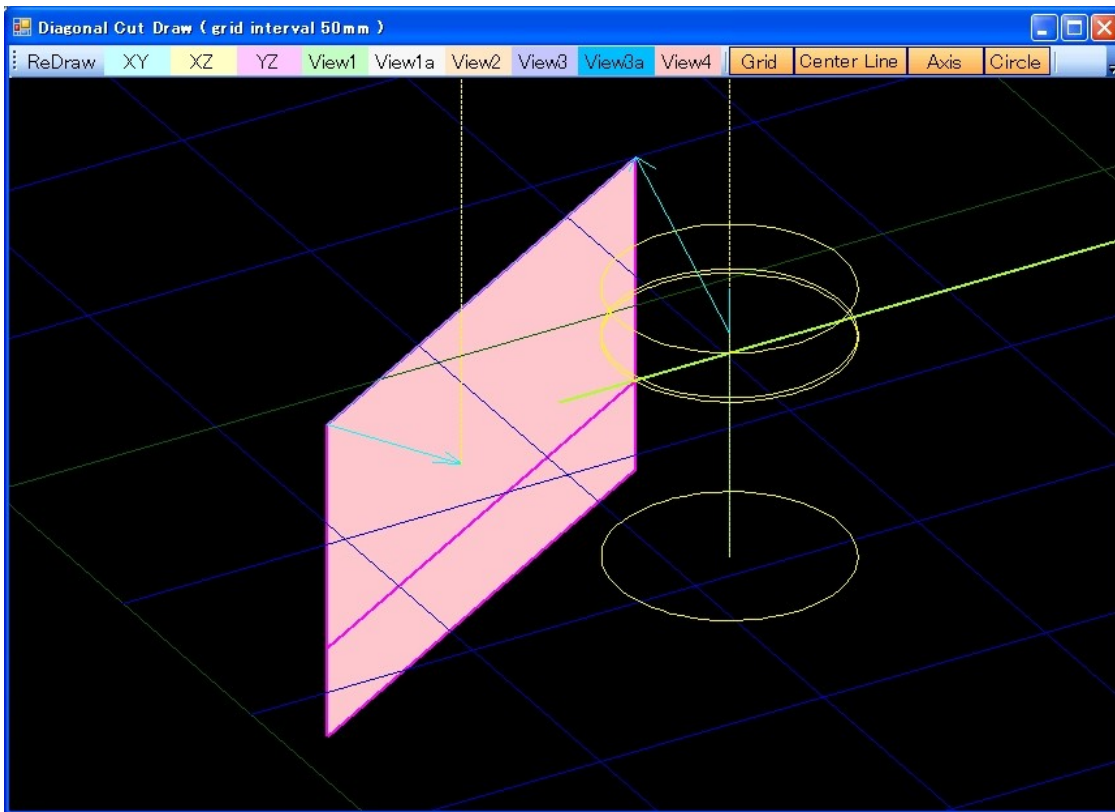
Following figure is shown in "VIEW1".

It is partially expanded with clicking and dragging by the mouse.



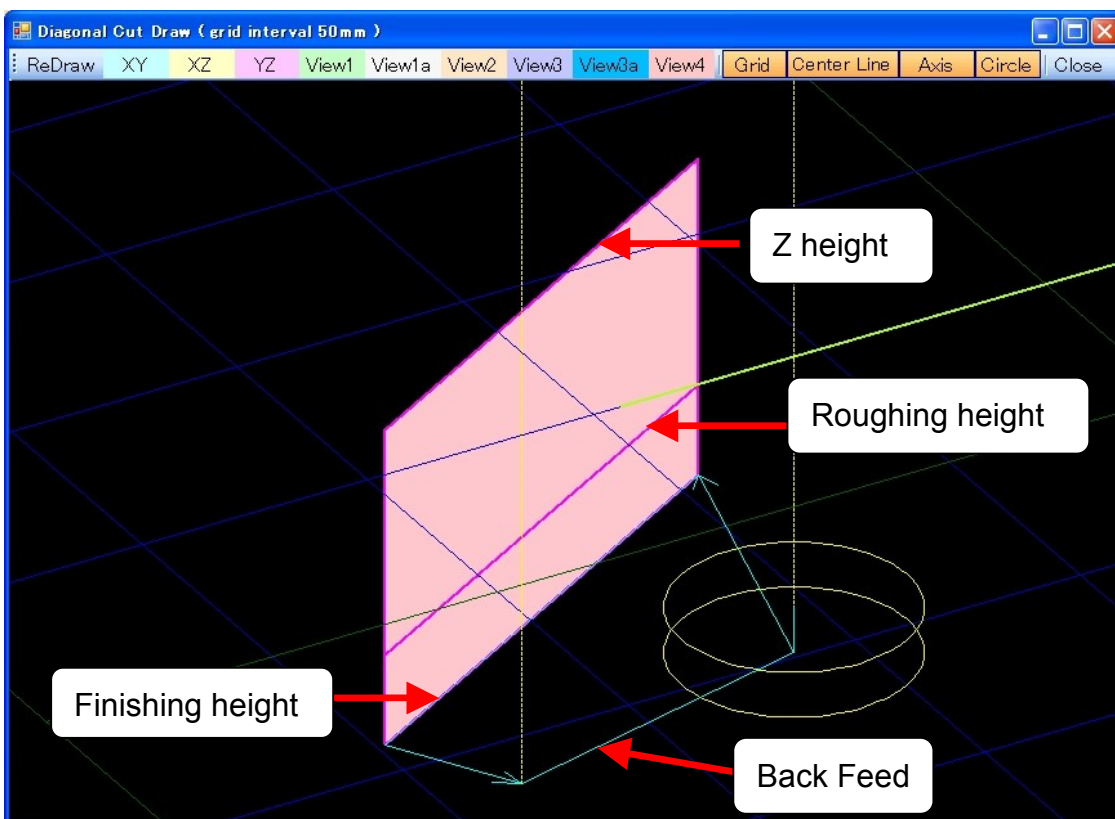
The following shows by "R CHECK" button to confirm the roughing cut.

The Check data first moves to lowest depth and goes up to Z value and moves once to confirm a path.



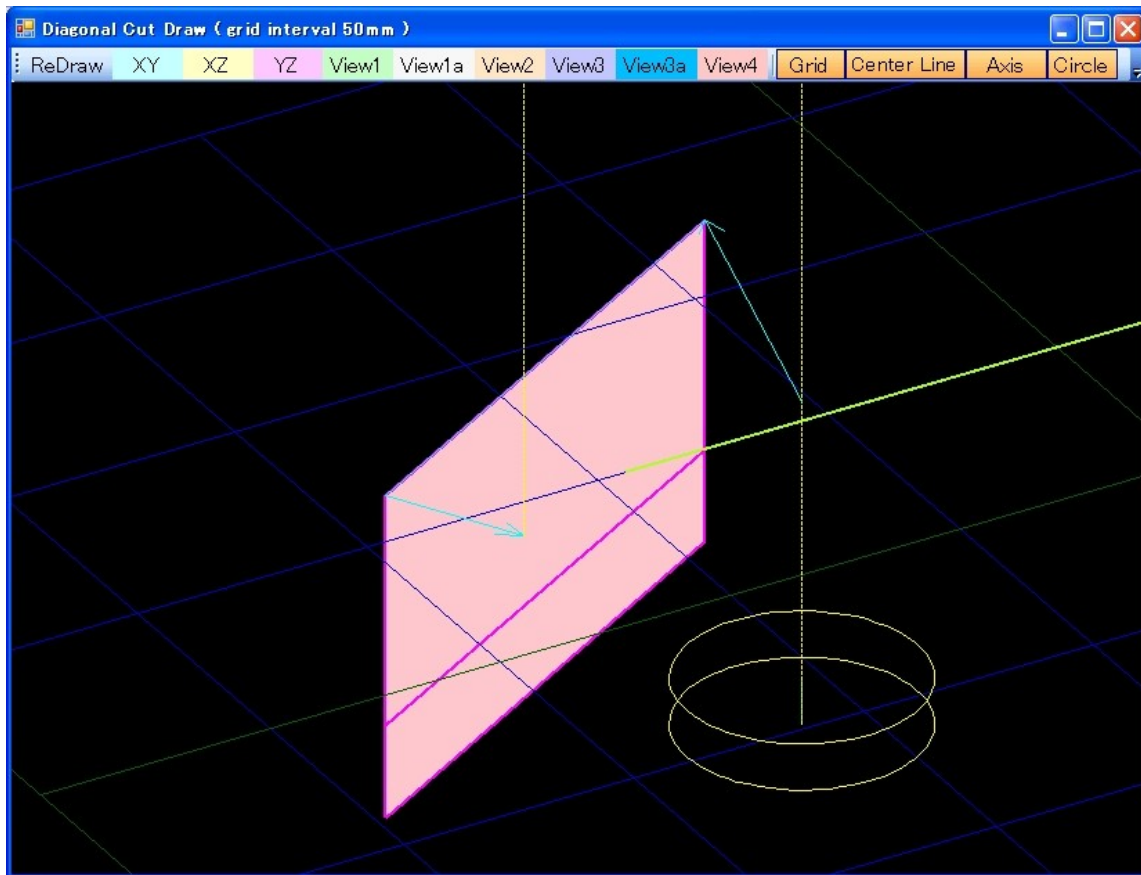
The following shows by "FINISH" button. This figure is shown in "VIEW1" and expanded.

The line at the center of the plane is the roughing height, and the plane bottom is the finishing height .



The following shows by "F CHECK" button to confirm the finishing cut.

The Check data first moves to lowest depth and goes up to Z value and moves once to confirm a path.



HEEL GUIDE

HEEL GUIDE

☒ NC Data
 ☐ Others

When No D Point
 ☐ 1/1
 ☒ 1/1000
 ☐ 1/100

Add Read Data

ROUGHING TOOL

Diameter : mm
 Offset D No. :
 Cut Deep Rate mm/rev
 Feed Rate : mm/min
 Spindle Speed : rev/min

FINISH TOOL

Diameter : mm
 Offset D No. :
 Cut Times : Times
 Feed Rate : mm/min
 Spindle Speed : rev/min
 Back Feed Rate mm/min

☐ G92
 ☒ Yes
 ☐ No

Rough G01 Mode above
 Finish G01 Mode above

Holder for Write
 C:¥

Roughing Data:
 Finish Data:

Rough Check:
 Finish Check:

	Cut Direction	X	Y	Z	Width1 (W1)	Width2 (W2)	Rough Leng(L1)	Finish Leng(L2)
▶	T	400	-300	0	150	60	120	150
	T	-400	-300	0	150	60	120	150
	B	-400	300	0	150	60	120	150
	B	400	300	0	150	60	120	150
*								

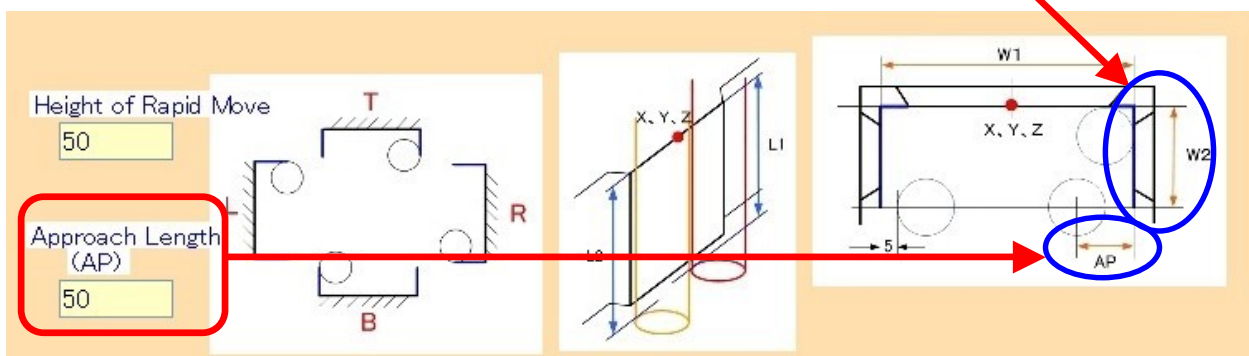
Height of Rapid Move

Approach Length (AP)

“HEEL GUIDE” is the same as "SIDE CUT" almost.

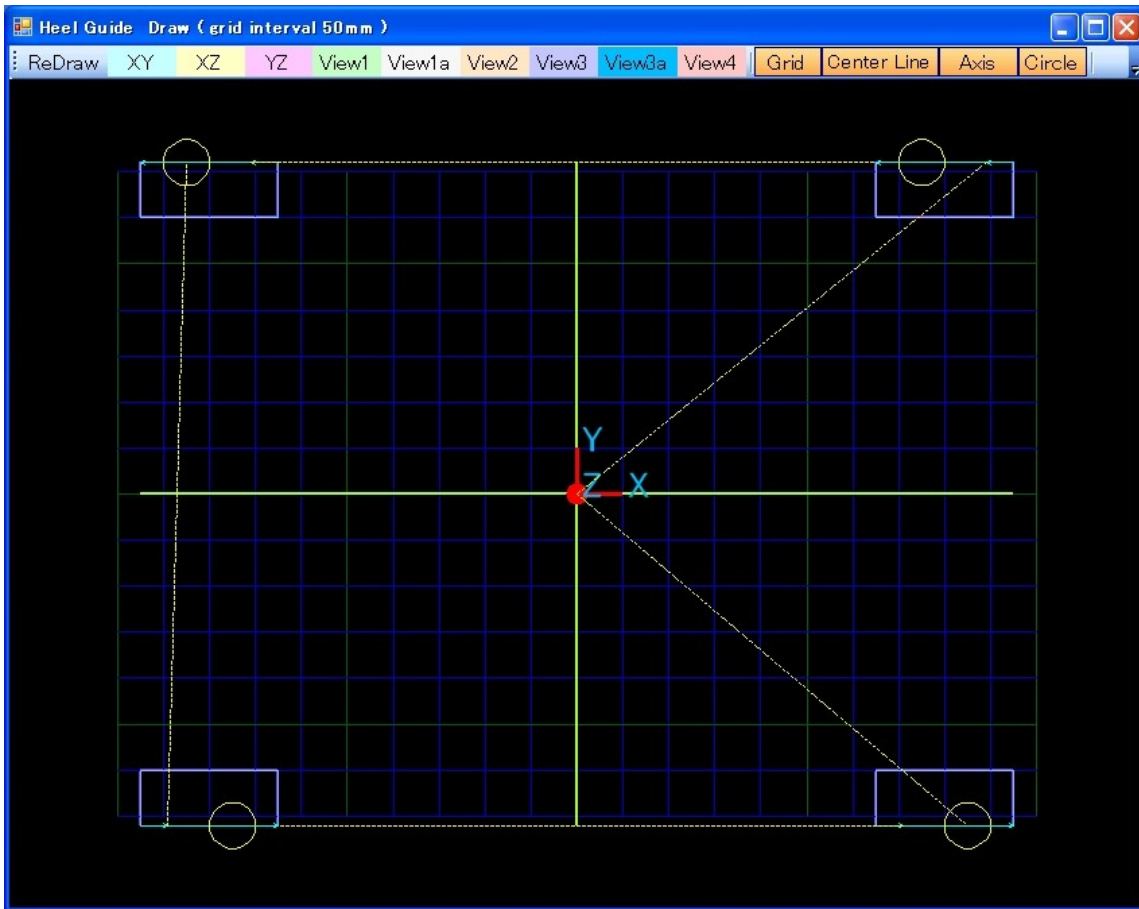
The difference is below.

	Cut Direction	X	Y	Z	Width1 (W1)	Width2 (W2)	Rough Leng(L1)	Finish Leng(L2)
▶	T	400	-300	0	150	60	120	150
	T	-400	-300	0	150	60	120	150
	B	-400	300	0	150	60	120	150
	B	400	300	0	150	60	120	150
*								

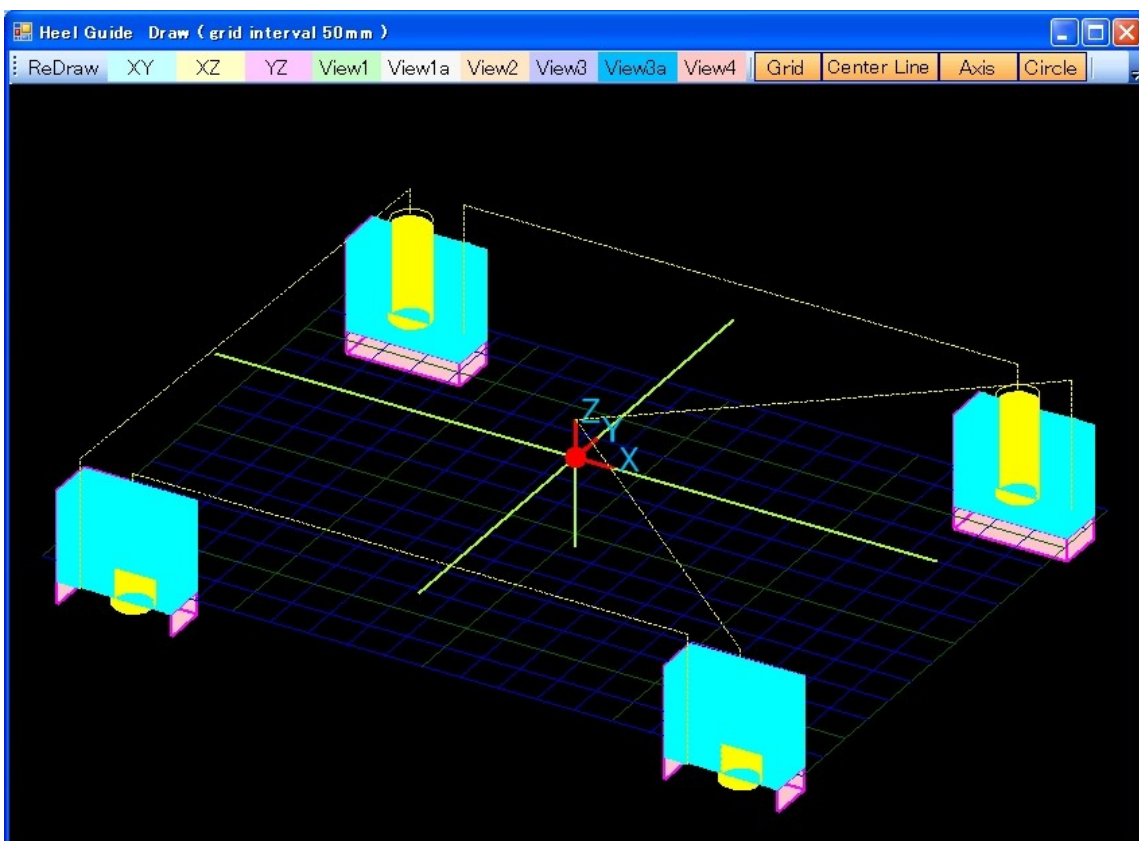


The Display of the NC data

The following shows by "ROUGHING" button. This figure is shown in "the XY plane".

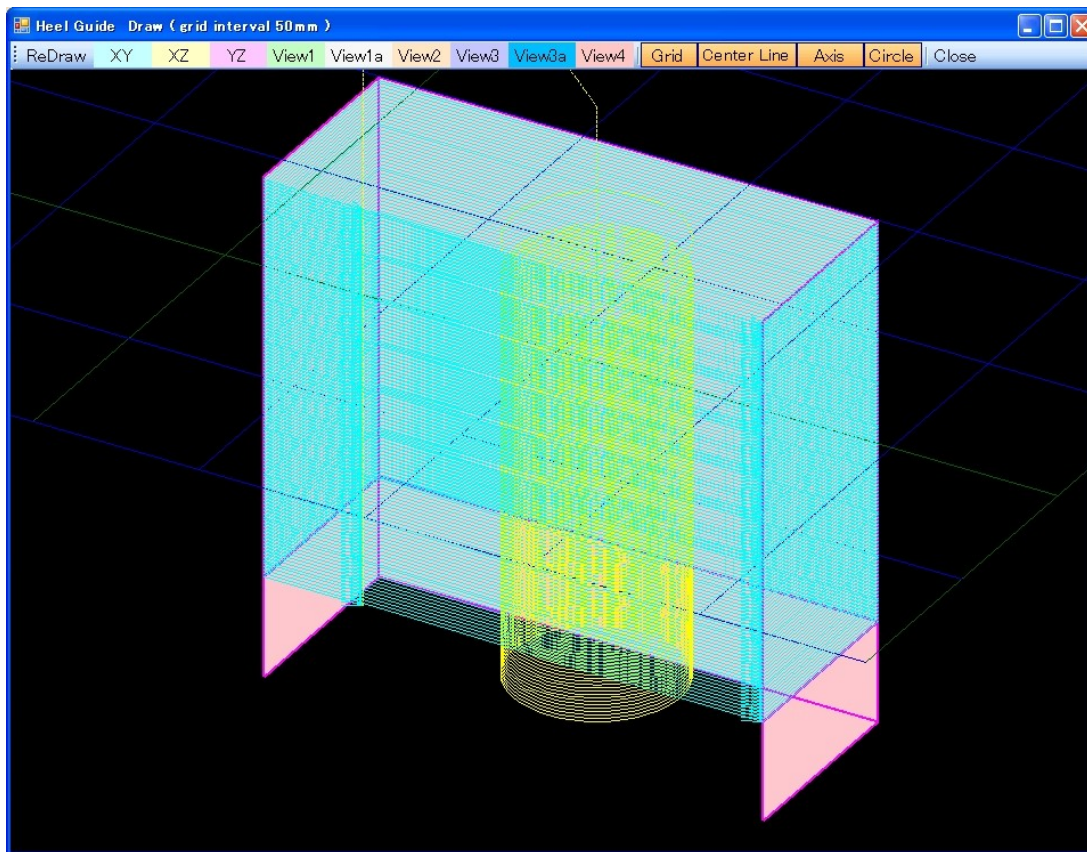


It is displaying the following figure in VIEW2.



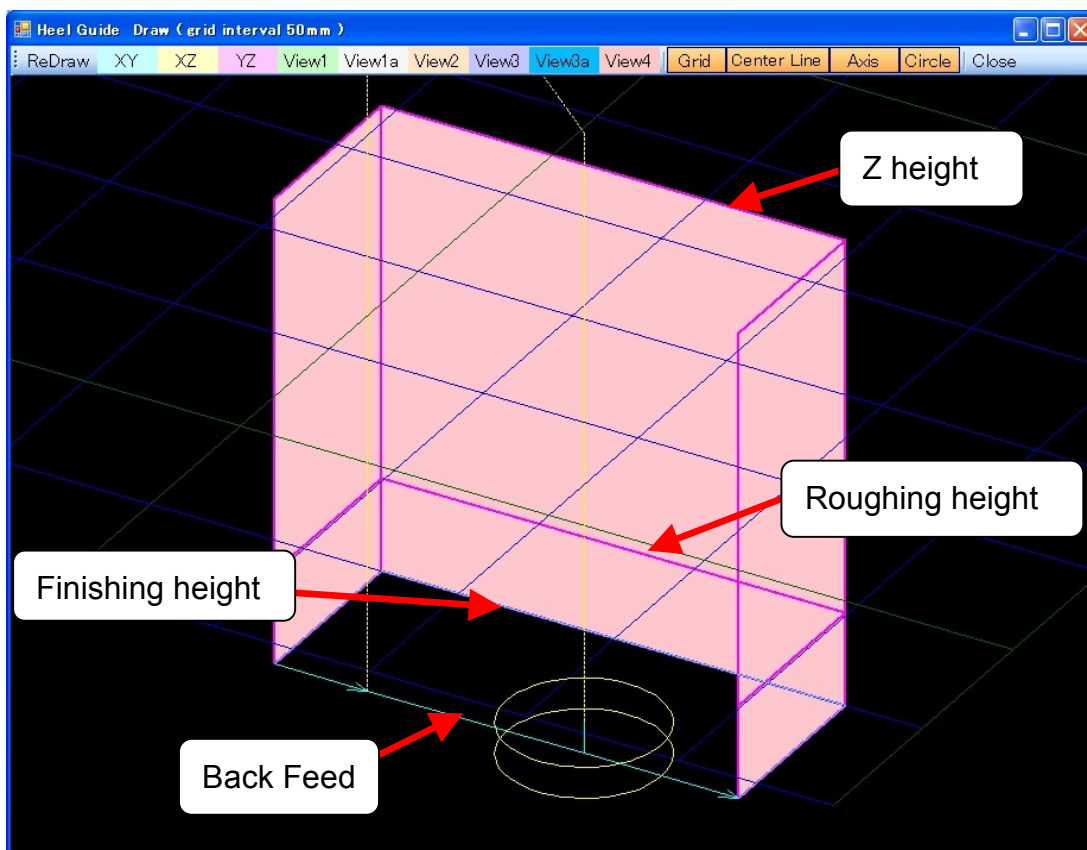
Following figure is shown in "VIEW2".

It is partially expanded with clicking and dragging by the mouse.



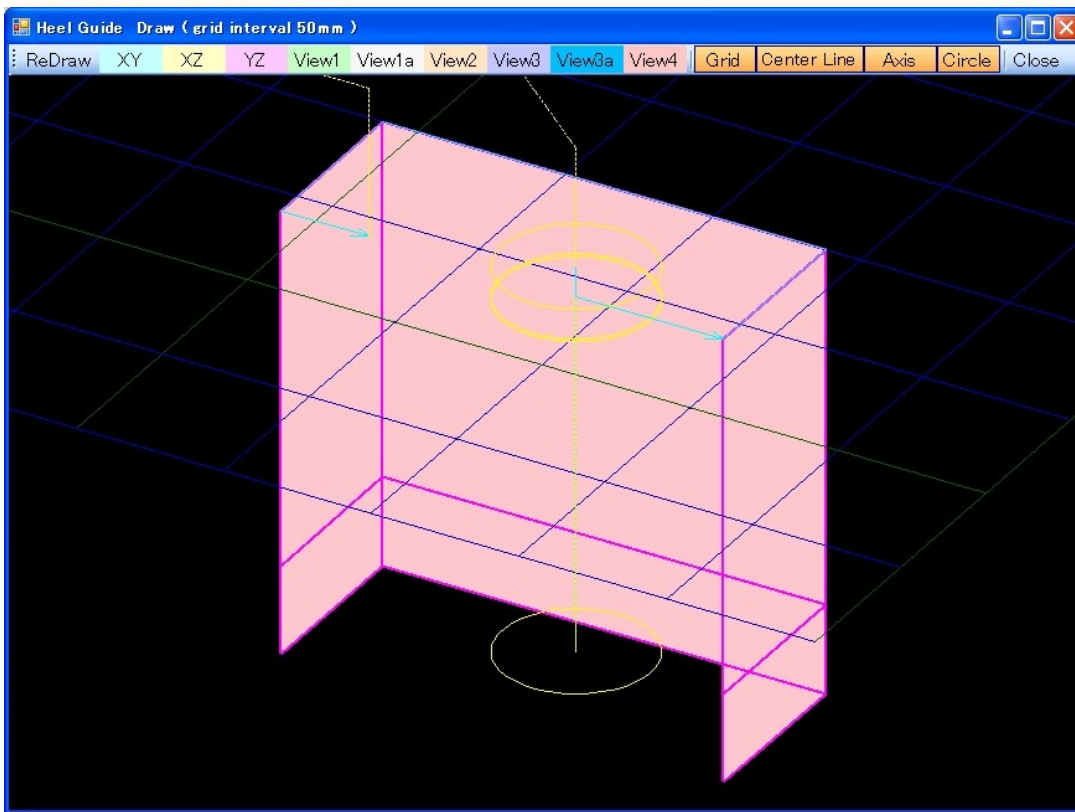
The following shows by "FINISH" button. This figure is shown in "VIEW2" and expanded.

The line at the center of the plane is the roughing height, and the plane bottom is the finishing height .



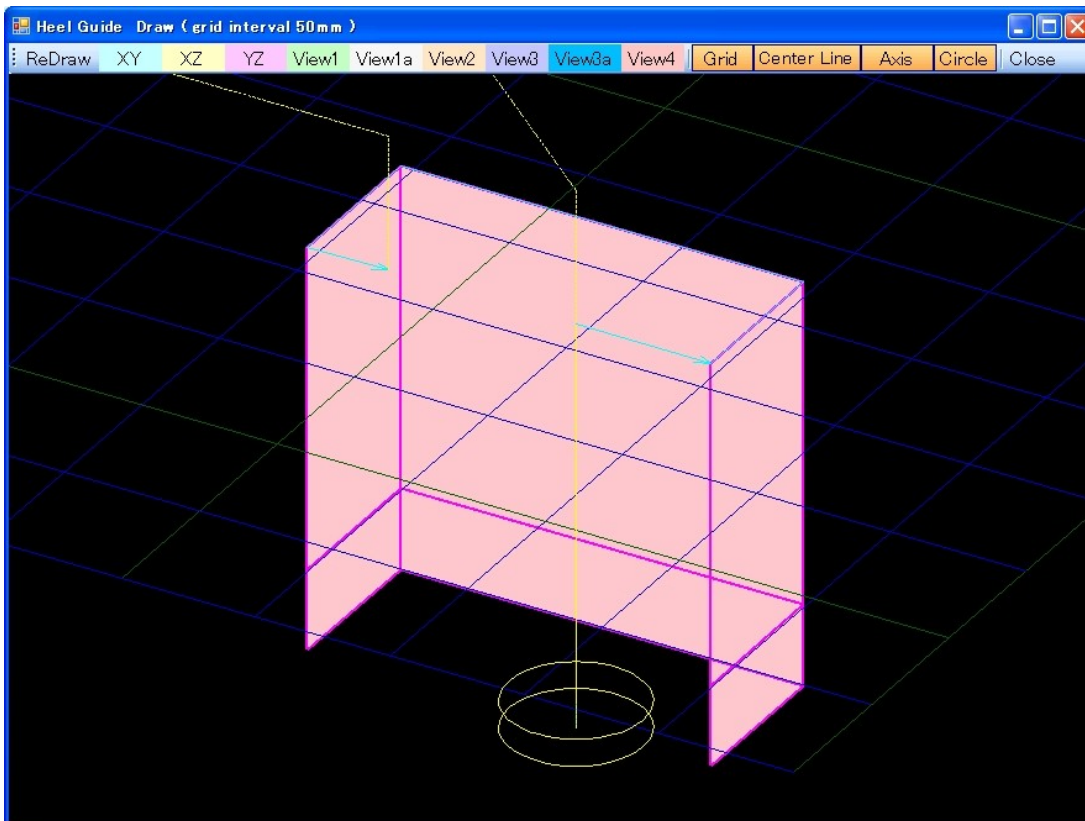
The following shows by "R CHECK" button to confirm the roughing cut.

The Check data first moves to lowest depth and goes up to Z value and moves once to confirm a path.



The following shows by "F CHECK" button to confirm the finishing cut.

The Check data first moves to lowest depth and goes up to Z value and moves once to confirm a path.



The above