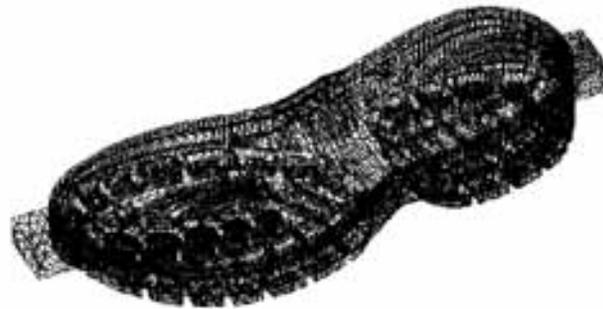# Multiple Surface Cutting Guide
MDX-650 &ZCL-650

Making a Sample
Shoe Sole

December 2001

Introduction

- This guide is the process of making a sample of shoe sole. Please refer the Users manual for the details of installation and operation of the ZCL-650 and MDX-650.

Items --Tool

- Surfacing & Rough cutting:
  - \> 6 mm dia. Straight endmill,
  - \> Min.100 mm or longer tool is recommended. (Ref. Nisshin Kogu LS-NC-2, 130mm length)
- Finishing:
  - \> 1.5R Ball endmill,
  - \> Min.80 mm or longer tool is recommended.
  - \> (Ref. Nisshin Kogu MSBL230, 80mm length)

Items --Material software etc.

- Material
  - > Size: 370mm×125mm×50mm
  - > San Modur 7K or SanModur MH,
- Modela Player (ver. 3.3 or upper)
  (RSP-009 Ver. 1.6G or upper)
- Cutting data
  - > shoe_sole.stl
- Users Manual MDX-650, ZCL-650
  - > This guide is the flow of demonstration process only. Please refer the Users manual for the details of installation and operation of the ZCL-650 and MDX-650.

Preparation

1) Install ZCL-650 in MDX-650. Start MDX-650 with RML-1 mode. Before making this sample, please carry out Y axis and Z axis offset adjustment and also Y axis center alignment. Please refer ZCL-650 Users manual for the detail.

2)Draw lines with pencil at the center of workpiece horizontally. This line will be a guide to set the workpiece at the center of chuck.

1. Install workpiece

– Set the workpiece in ZCL-650 so that the center of workpiece (Y axis direction) should fit to the center of ZCL-650.

– Be sure each center of both side chucking parallel to the center line of workpiece.
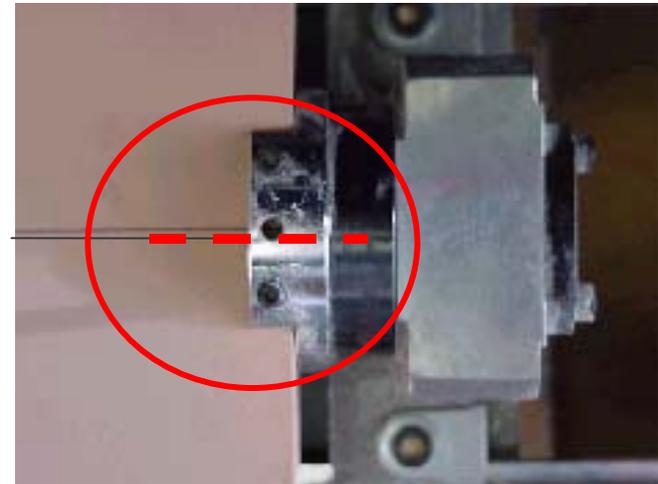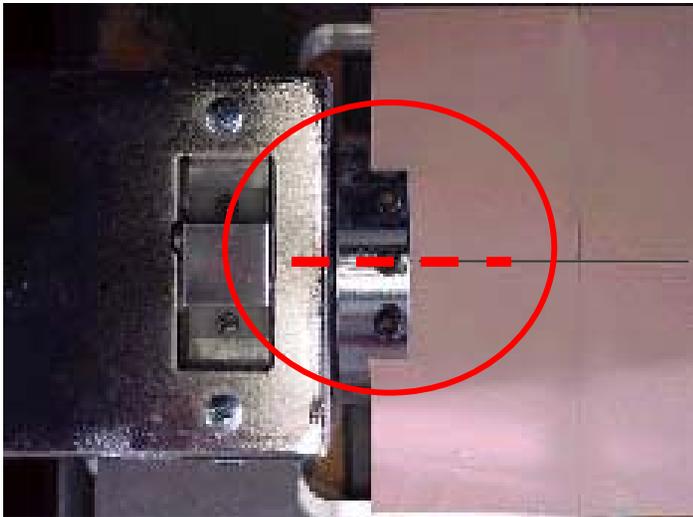
NOTE: If the center of either chucking cannot fit to the center of workpiece, the workpiece might turn eccentricity.
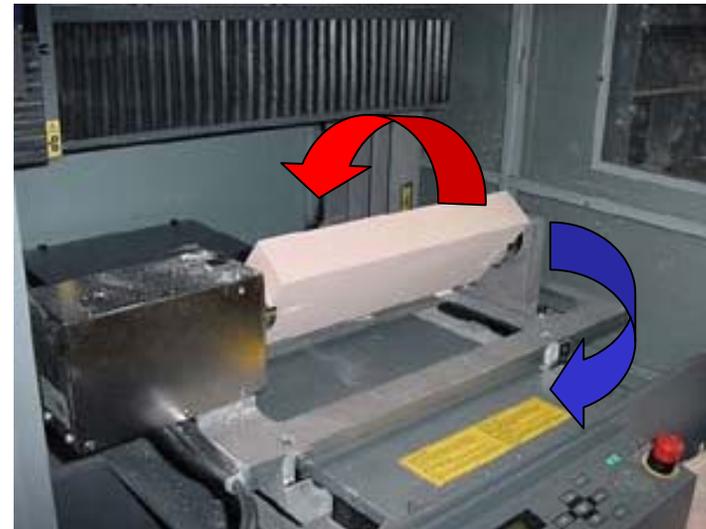
2. Setting up A axis

Turn A axis and set the workpiece horizontal as possible as you can.
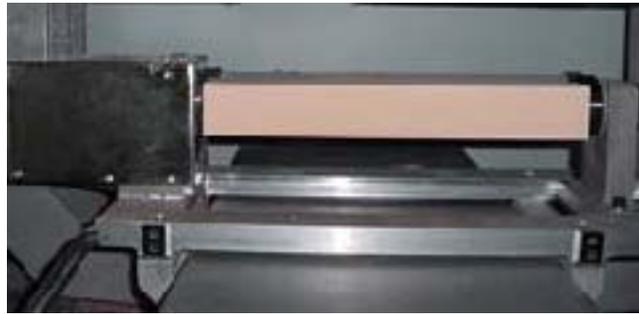
Note:
The A axis may not be at proper angle.
Please correct it before setting A axis horizontally.
1)Rotate A axis to the negative direction to the limit of rotation.
2)Then, turn A axis about 540 degree to the positive direction.
3)Set A axis horizontally.

3.Installing Endmill

– Install 6 mm. straight endmill. Refer below picture
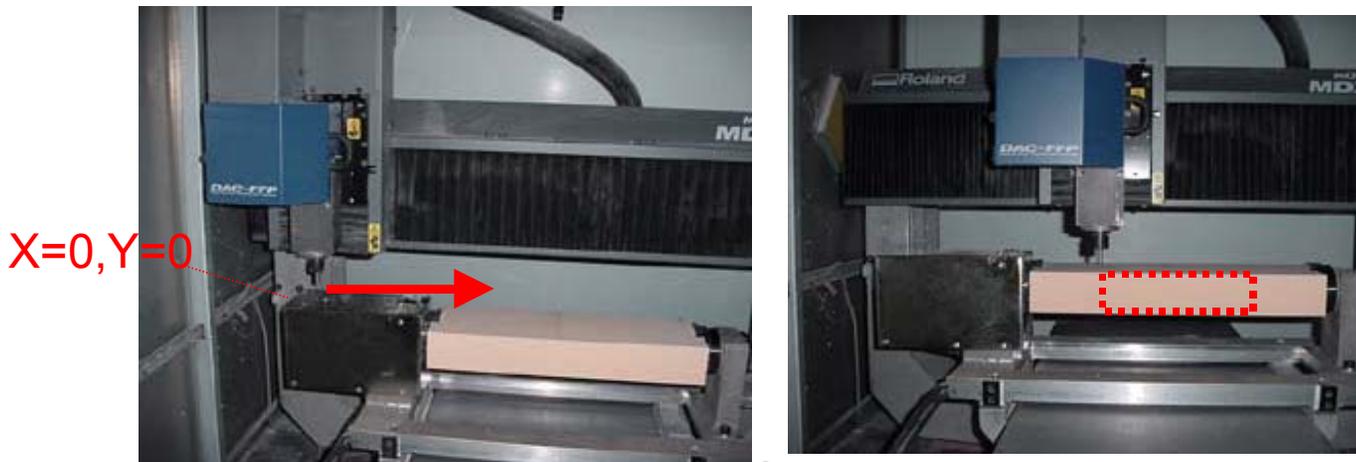and install correctly.
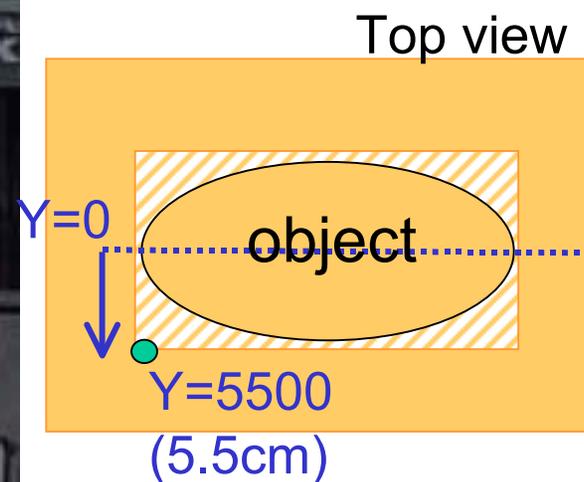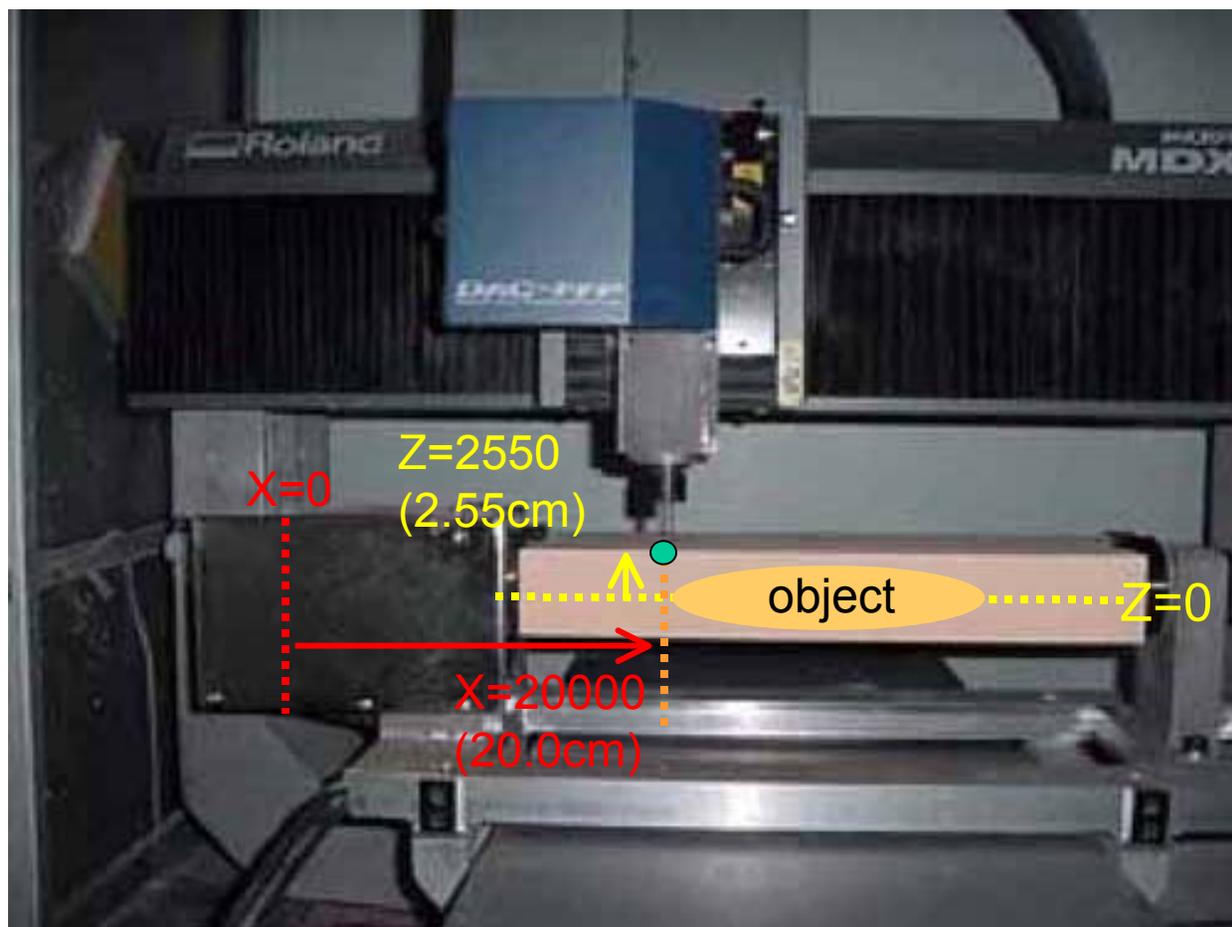

55~60 mm
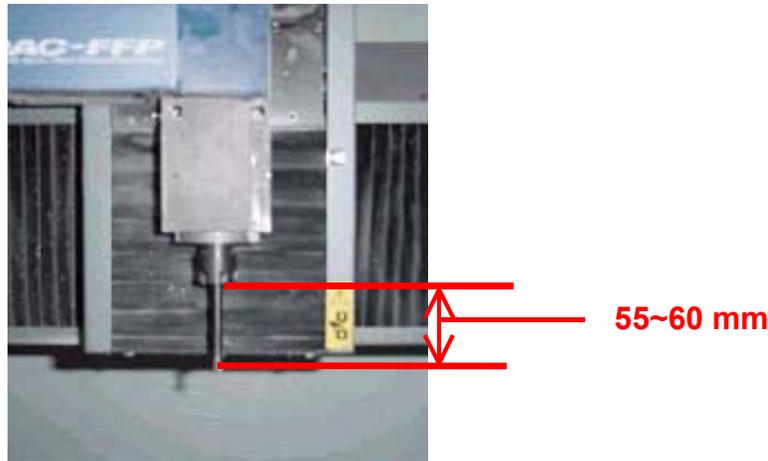
IMPORTANT

If the length of tool is too short nor too long, the collet might hit the
part of ZCL-650 during demonstration, or the cutting result will be no
good. Please install tool carefully.

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4.Setting X position and Z position.

- 1)Refer users manual of ZCL-650 and set Z center alignment.

- 2)Move Y axis to the position " 0"

- 3)Move X axis to the left side. (see below). Then set X origin point. The coordinate will be X=0, Y=0.

- 4)Move X, and Y axis to the position where the left side corner of the object will be. (Start position) In this case, you can move to X= "20000" from the origin. Then down Z axis to the surface of the material. Take a memo of X, Y and Z coordinate shown on the display. (see next page)

  > ex. X=20000, Y=-5500, Z=2550

X=0,Y=0

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Start position

Top view

Z=2550
(2.55cm)

X=0

object

Z=0

X=20000
(20.0cm)

Y=0

object

Y=5500
(5.5cm)

● Start position

Please refer the User's manual ZCL-650, 6-2 Tool Management Range for Modela Player and also 6-5, step3 Operation of Modela Player for the following pages.

5. Setting the Modela Player

– 1)Start Modela Player and open data shoe_sole.stl.

– 2)From Options, open "Machines" setting dialog. Select MDX-650 Rotary (RML-1)

– 3)Other setting.

> Direction : From "Top"

> Dimension :

- Height 46.3 mm, Length 110.8mm, Width 304.2mm

> Maximum cutting depth: (see next page)

- 0 degree   23 mm
- 90 degree   36 mm
- 180 degree   39 mm
- 270 degree   46 mm

> Tool dia. : 6mm Straight

> Material: Chemical Wood (Soft))

Maximum cutting Depth

23mm

0 degree

36mm

90 degree

39mm

180 degree

46mm

270 degree
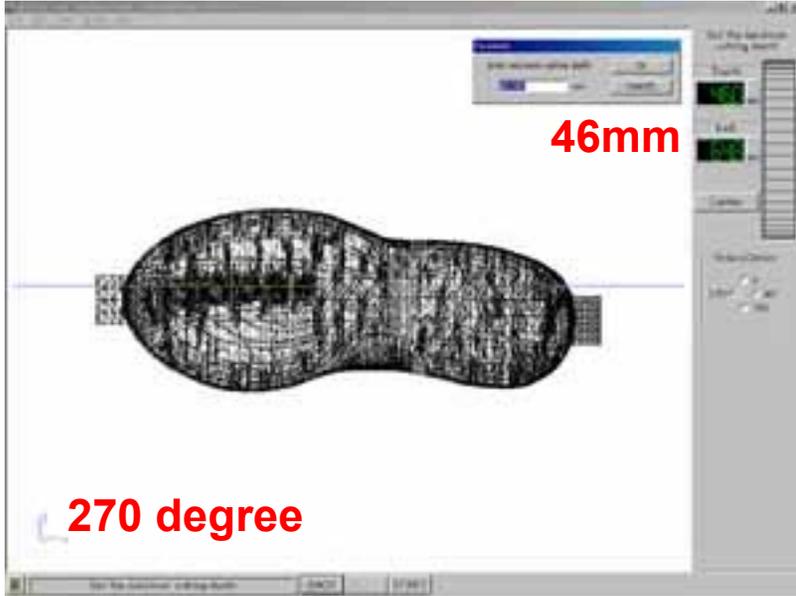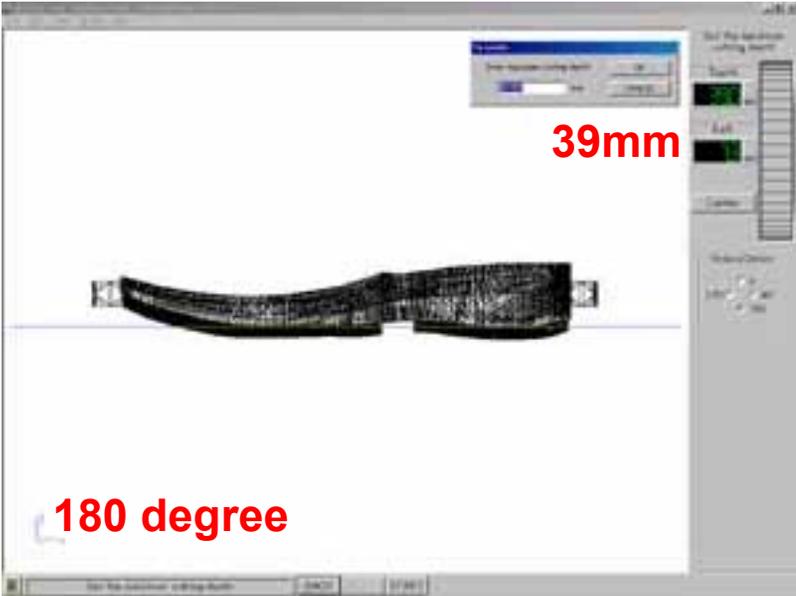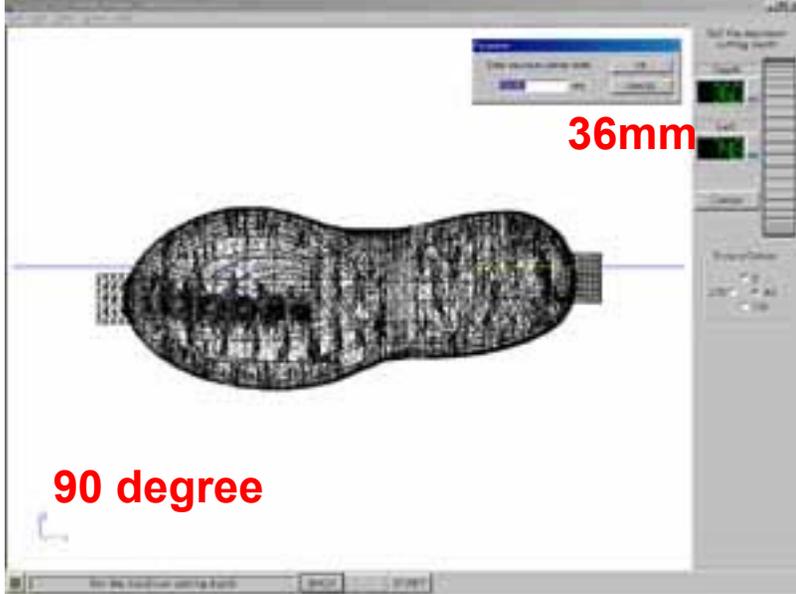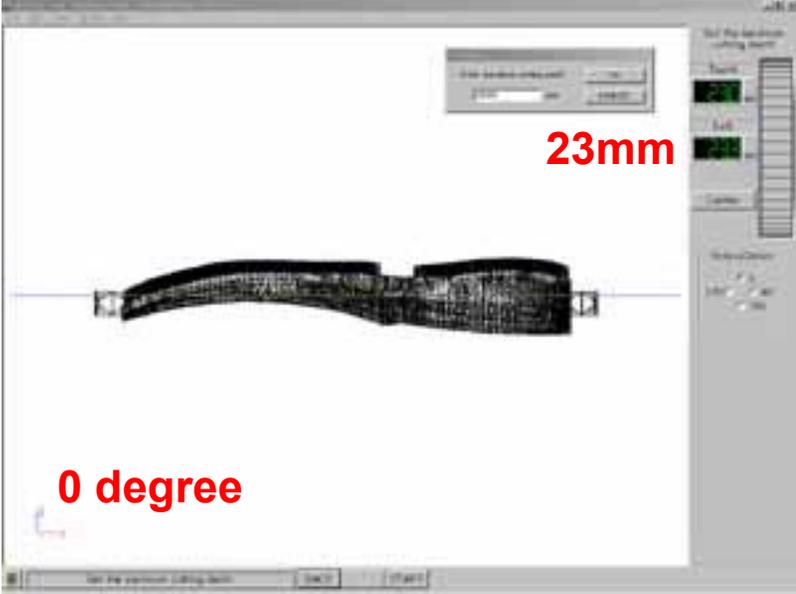
5. Setting the Modela Player

– 4)Click Start. Setting wizard of Multiple-surface cutting will be shown.

Note: You cannot skip the process of Surfacing. Please carry out in order 1. Surfacing, 2, Draft , 3. Finishing.
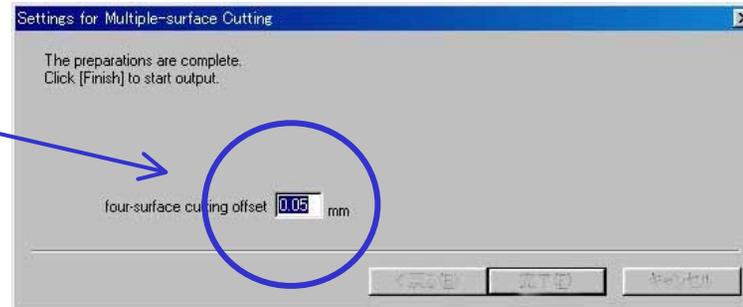
5. Setting the Modela Player

~Continue~

- Cutting surface and process:
  - > Four surface, Surfacing
- Size of the workpiece :
  - > Width: 360mm*, Length: 125mm, Height:50mm**
  - > *Subtract margin of chuck (about 5 mm x 2)
    - ex. 370mm – 10mm =360mm
  - > **Measure the exact height of workpiece with calipers.
- Object cutting location:
  - > Input the start point (left center of object) coordinates.
    - ex. X=20000, Y = -5500, Z=2550
- Object cutting location (Rotate 90 degree):
  - > Input the start point (left center of object) coordinates.
    - ex. Y=-2315, Z=6250

6. Start Cutting

– 5)Start Surfacing

– 6)When finishing the Surfacing, click "Start" of Modela Player [step (4)]. Setting wizard will be shown again.

> Cutting Surface and process:
- Four surface, Draft cutting

> Maximum cutting depth:
- The depth you input at Modela Player will be displayed. (When you do not set the depth Modela Player , you can set the depth at this process)

> Four surface cutting offset
- Default is 0.05mm. Put larger value if the result is not good.
- See 6-4 and 6-5 of Users manual ZCL-650 about the cutting offset.

6. Start Cutting ~continue~

6)Four-surface cutting offset

- 7)Start Draft cutting

- 8)Change tool to 1.5R for Finishing and set Z position.

- 9)Change the setting of Modela Player (Tool dia, Tool path etc.) to Finishing process.

6. Start Cutting ~continue~

– 10)Follow the setting wizard for Finishing. (Refer the process of Surfacing and Drafting.)