Jewelry Box

Mastercam X9 for SOLIDWORKS

Base

A. Machine Type and Stock Setup.

Step 1. Open your **Base** file.

Step 2. Click Mastercam Toolpath Manager tab in the Property Manager, **Fig. 1**.

Step 3. If a Machine Group is **not** displayed in the Toolpath Manager, **Fig. 1**, click Tools Menu > Mastercam X9 > Mill Machine > Default.

Step 4. Expand **Properties** in the Toolpath Manager and click **Stock Setup** in the Toolpath Manager, **Fig. 1**.

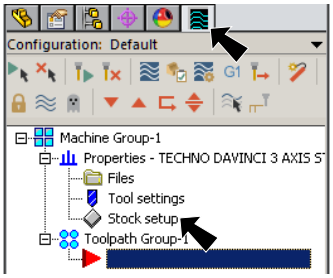

Fig. 1

Step 5. Confirm Stock Plane is **Mastercam Top**, **Fig. 2**.

Step 6. Confirm **Display** is checked.

Step 7. Key-in for X, Y and Z stock dimensions:

X 8
Y 8
Z .75

Step 8. Confirm Stock Origin coordinates:

X 0
Y 0
Z 0

Step 9. Click OK in the Machine Group Properties.

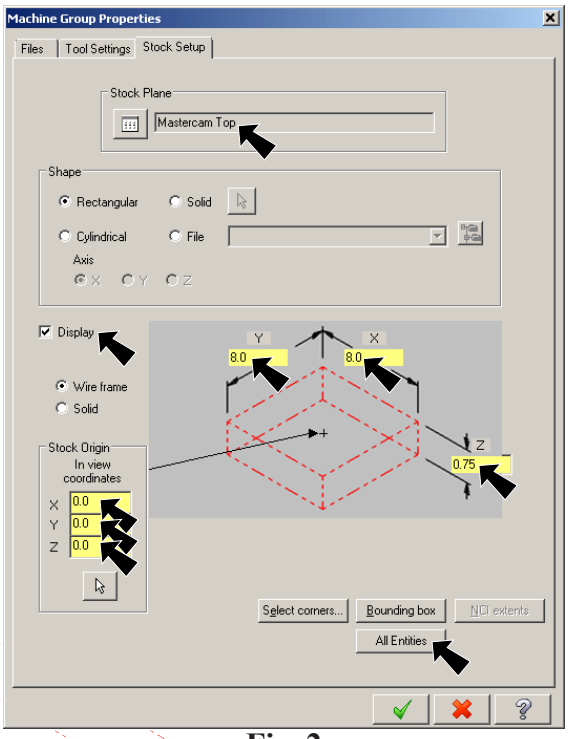

Fig. 2

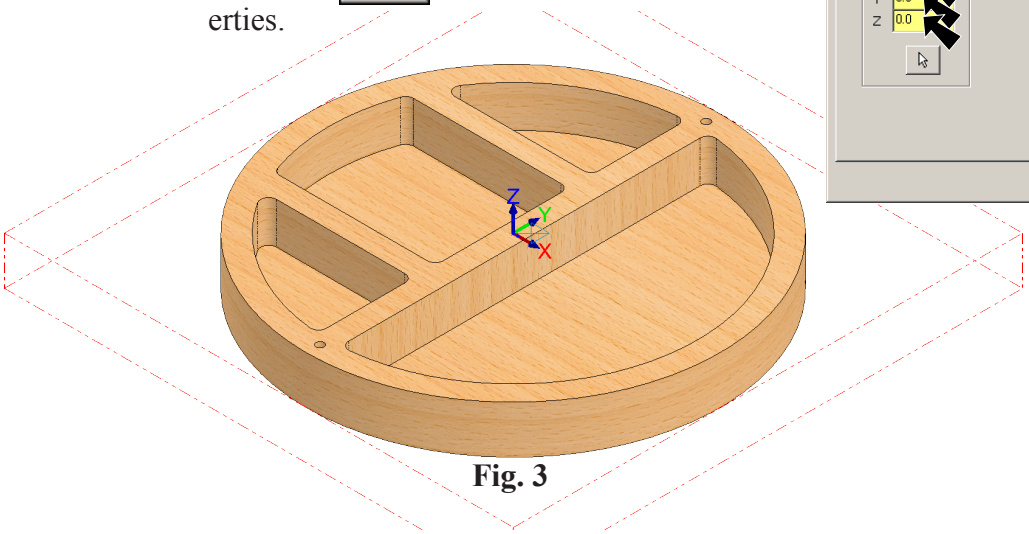

Fig. 3

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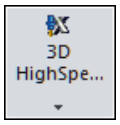
B. OptiRough Toolpath.

Step 1. Click **3D High Speed Toolpaths** 

on the Mastercam toolbar and **Dynamic OptiRough** from the menu.

Step 2. Click OK in the NC name dialog, **Fig. 4**.

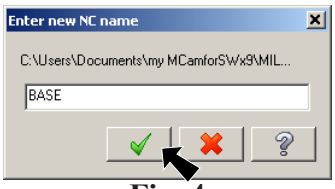


Fig. 4

Step 3. In the Selection Manager set:
under Faces and Bodies, **Fig. 5**

select **Solid body**
click the **solid body**, **Fig. 6**

expand Containment Boundary

select **Feature**
click **pocket Cut Extrude feature** in graphics area, **Fig. 6**
click OK .

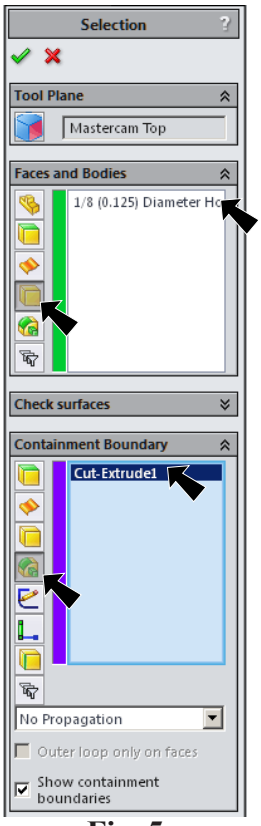


Fig. 5

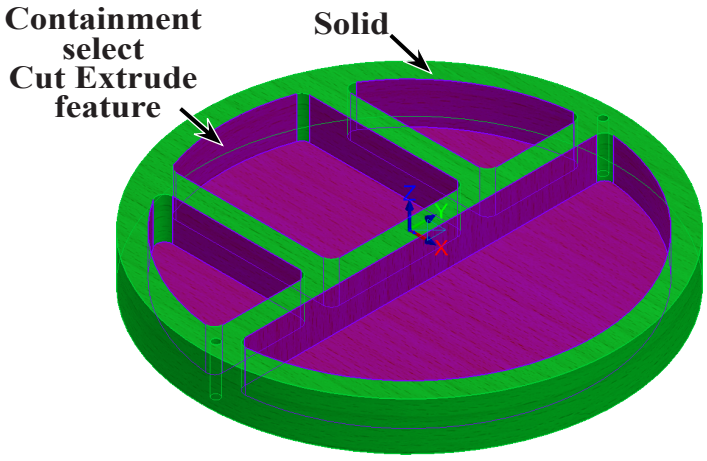


Fig. 6

Step 4. Select **Toolpath Type** from the tree control and confirm:
Dynamic OptiRough toolpath
Drive surfaces
Containment boundary
Fig. 7.

Step 5. Select **Tool** from the tree control and:

Click **Select library tool** button
Fig. 8.

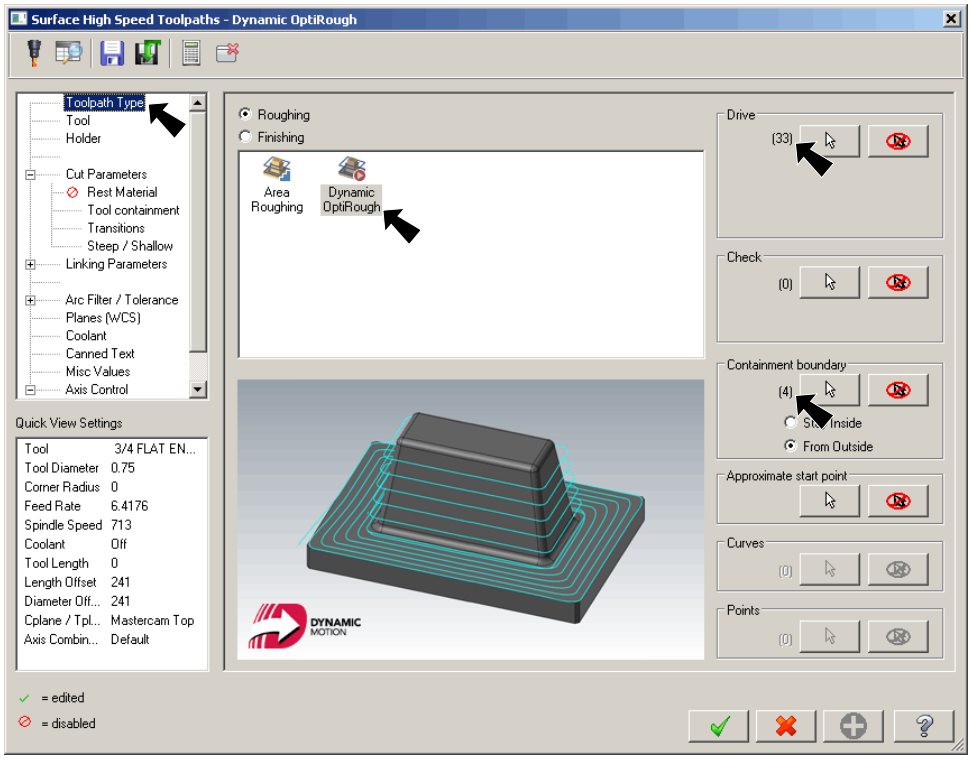


Fig. 7

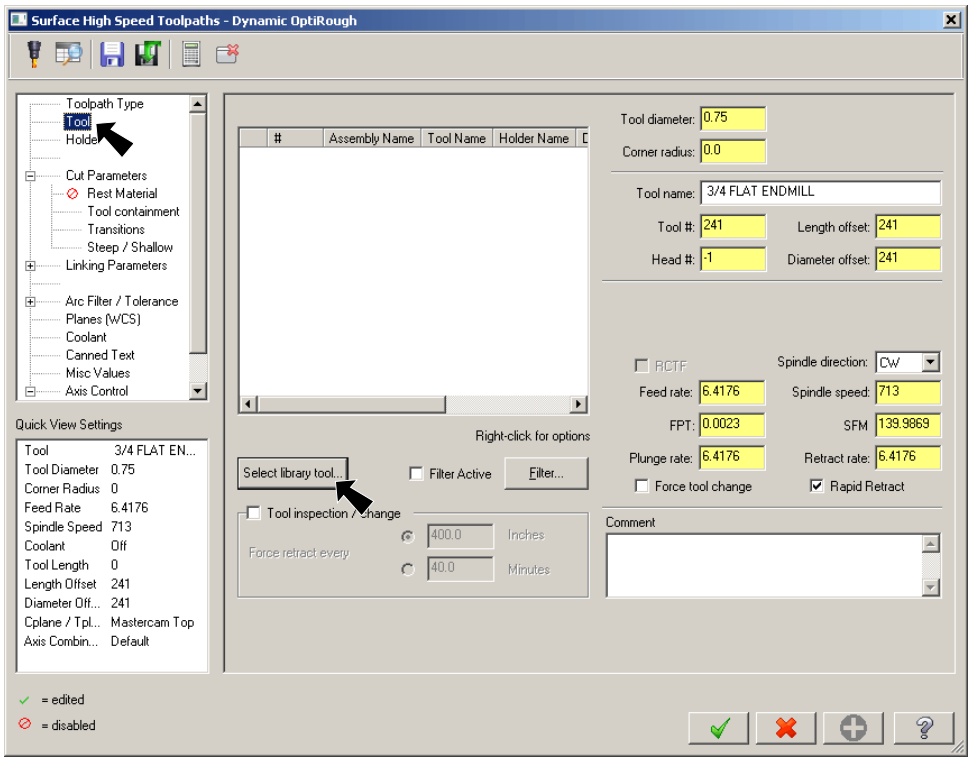


Fig. 8

Step 6. Click **285 1/4 FLAT ENDMILL** and click OK, **Fig. 9**.

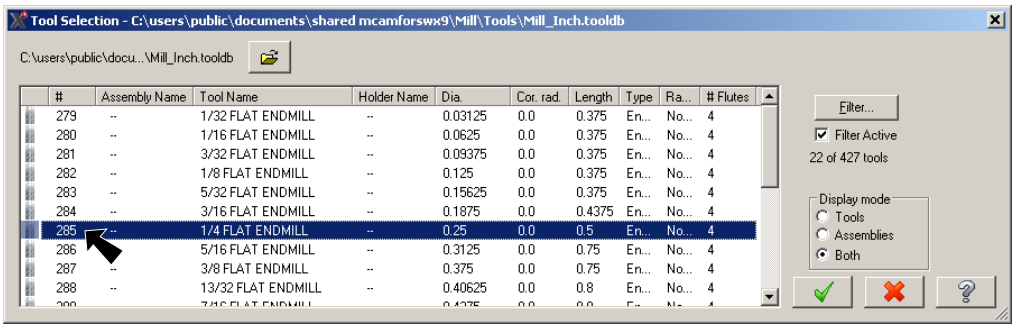


Fig. 9

Step 7. Back in **Tool** page set:

Feed rate 40

Plunge rate 20
Fig. 10.

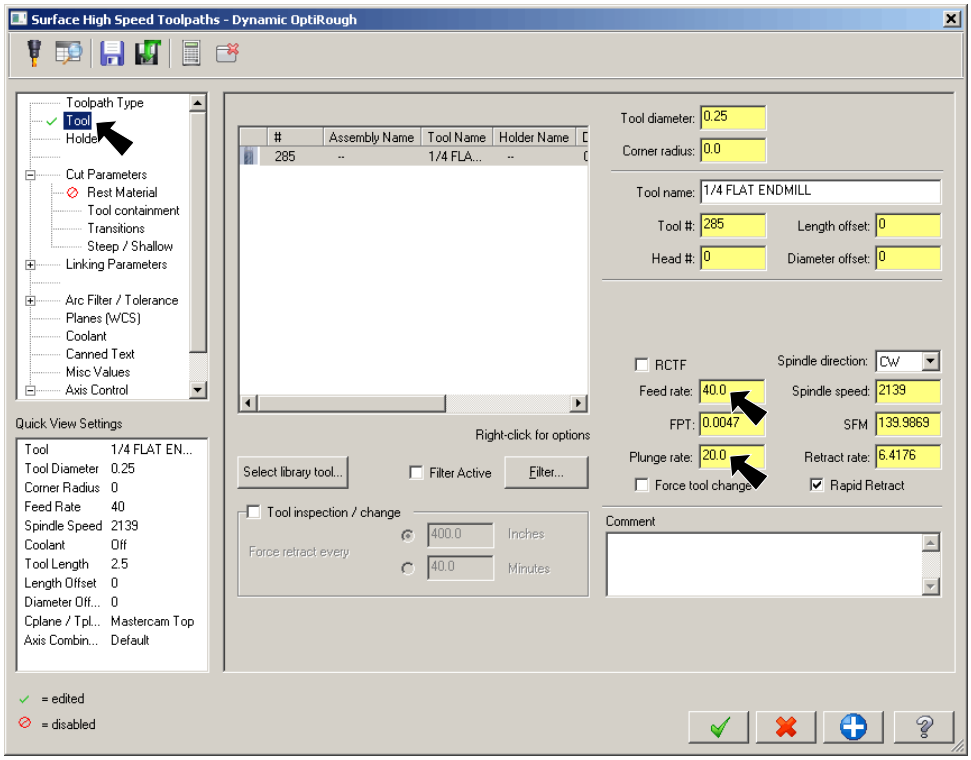


Fig. 10

Step 8. Select **Cut Parameters** from tree control and set:

Stepdown 60

Minimum toolpath radius 5

Stock to leave on Walls and Floors 0
Fig. 11.

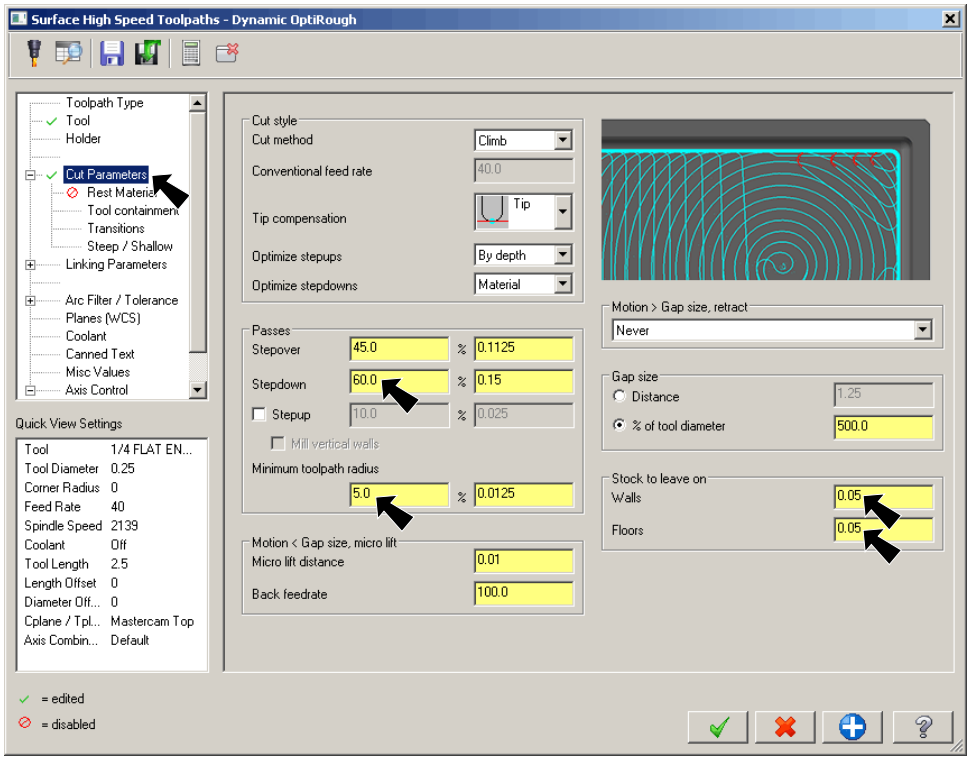


Fig. 11

Step 9. Select **Transitions** from tree control and set:

Plunge angle 10
Fig. 12.

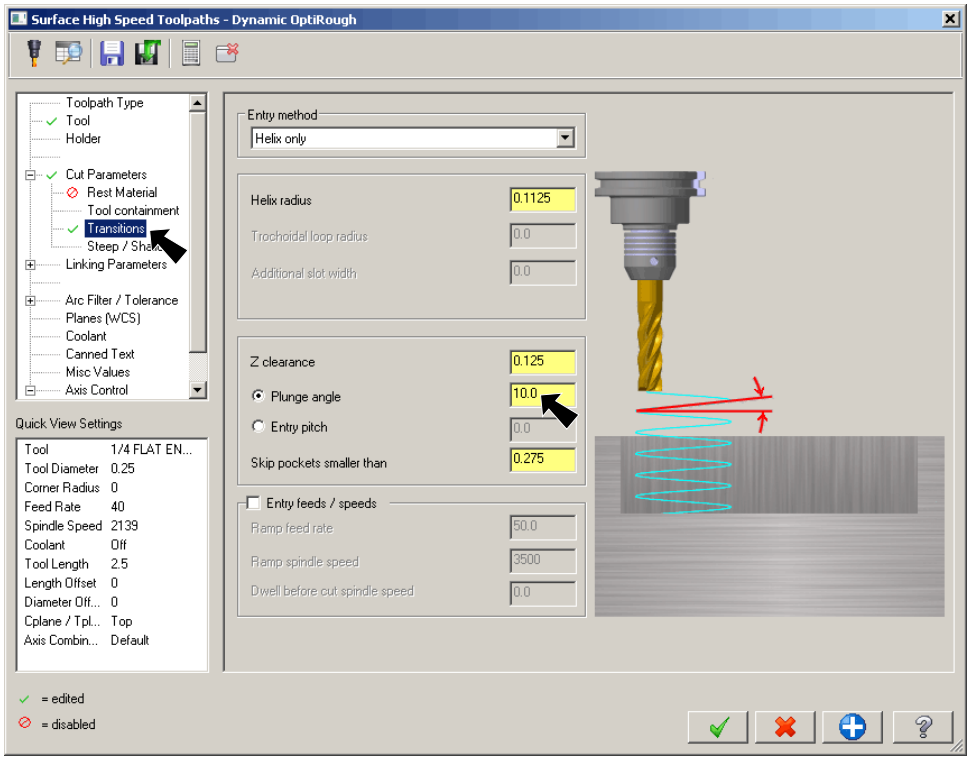


Fig. 12

Step 10. Select **Linking Parameters** from tree control and set:

Clearance plane 1

All leads 0 Fig. 13.

Step 11. Click OK in Dynamic OptiRough dialog box.

Step 12. Allow Mastercam to calculate toolpath.

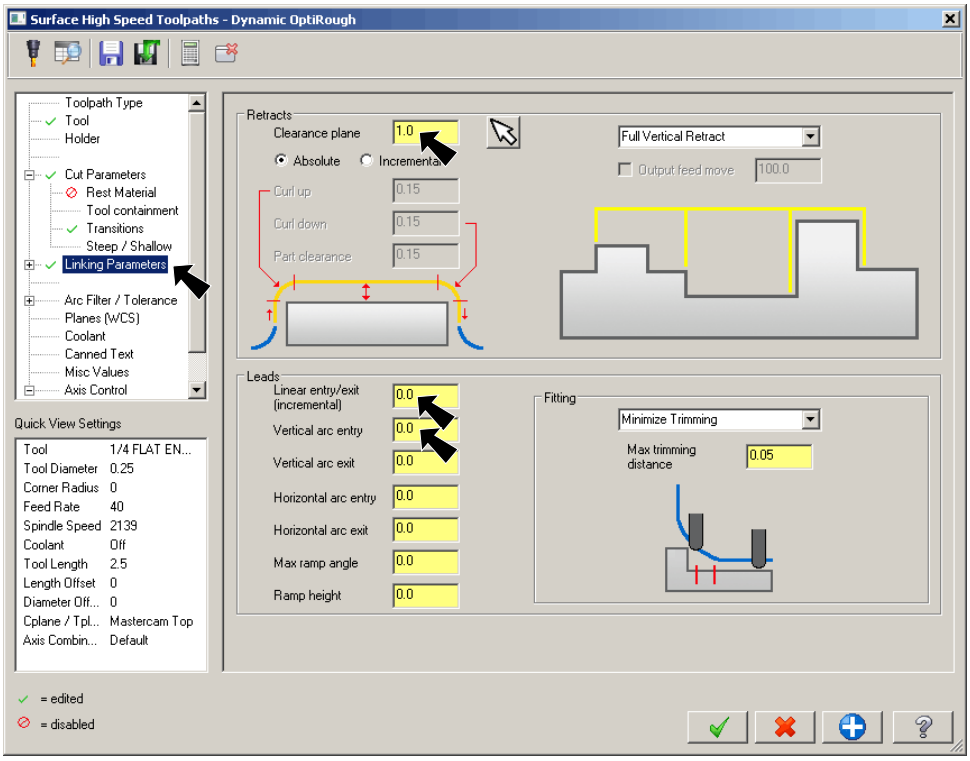


Fig. 13

Step 13. Save. Use **Ctrl-S**.

Step 14. In the Toolpath Manager use **Toggle Toolpaths** to hide toolpath, **Fig. 15**.

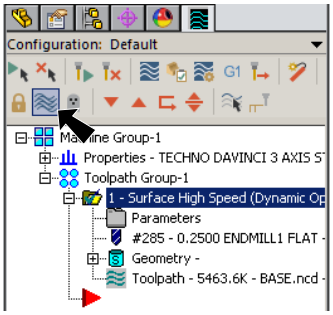


Fig. 15

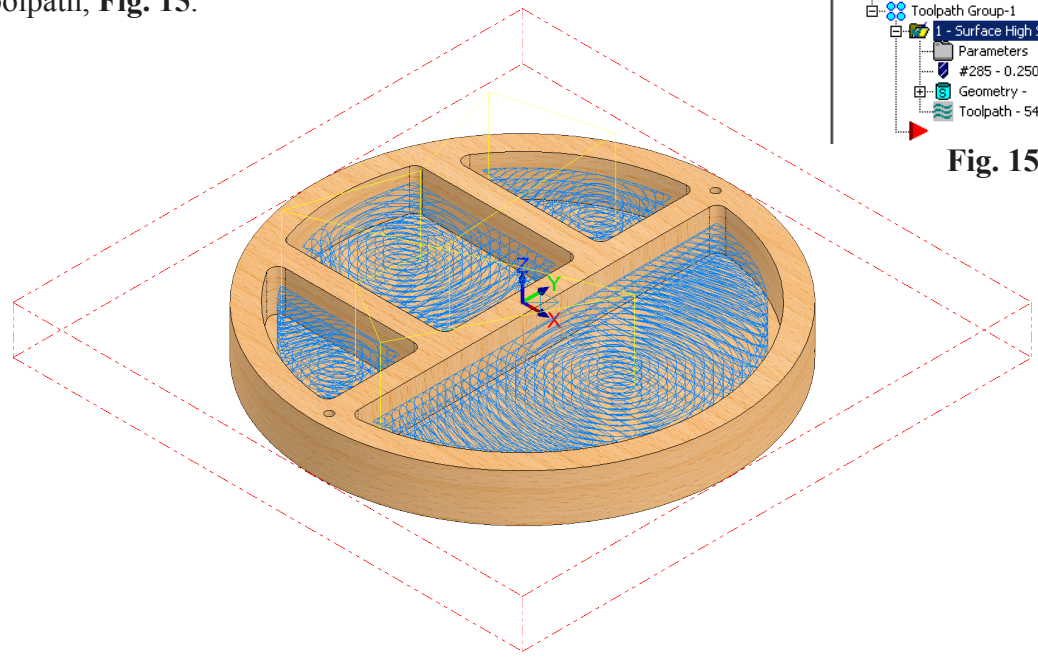
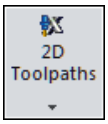


Fig. 14

C. Contour Toolpath.

Step 1. Click **2D Toolpaths** 

on the Mastercam toolbar and **Contour** from the menu.

Step 2. In the Chain Manager set:

under Selection, **Fig. 16**

select **Edge**

click **top outside edge of Base**, **Fig. 17**

click **Chains tab**

, **Fig. 18**

under Chains

click **Chain #1**

The chain arrow should point **clockwise** around the chain, **Fig. 19**. If chaining directions arrow is pointing in the opposite direction, click **Reverse Chain button** , **Fig. 18**

click OK .

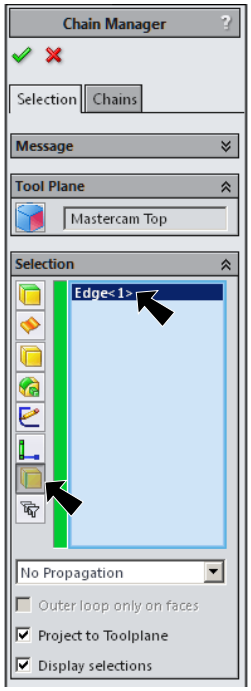


Fig. 16

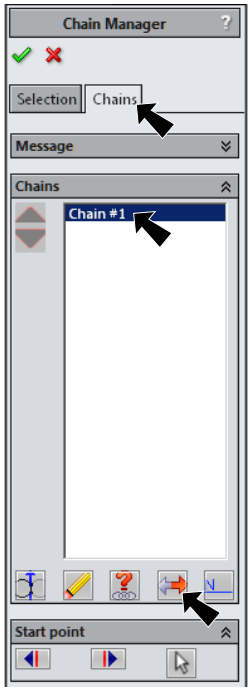


Fig. 18

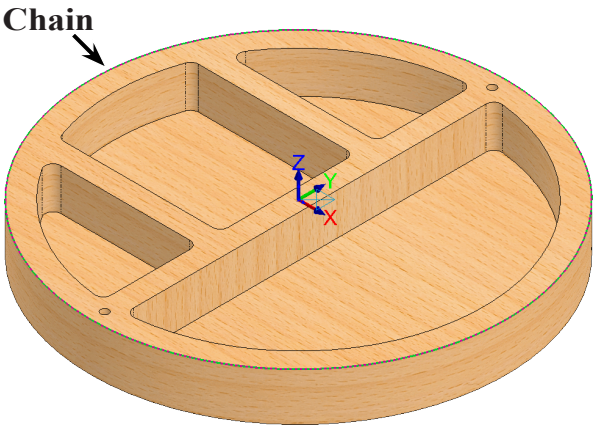


Fig. 17

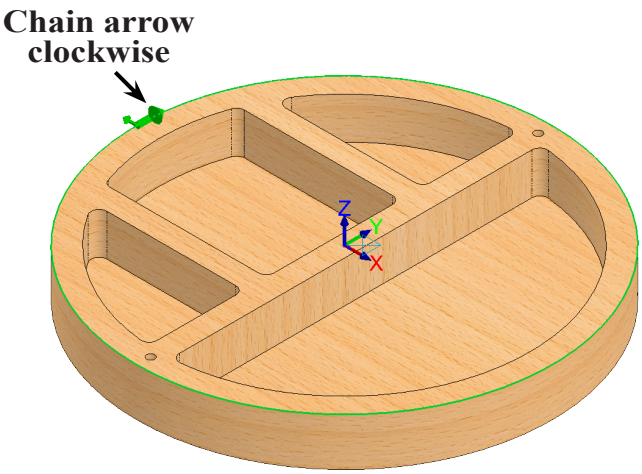


Fig. 19

Step 3. In the 2D Toolpaths Contour dialog box confirm **1 Chain** is selected **Fig. 20**.

Step 4. Select **Tool** from the tree control and: Confirm **285 1/4 FLAT ENDMILL**

Feed rate 40

Plunge rate 20 Fig. 21.

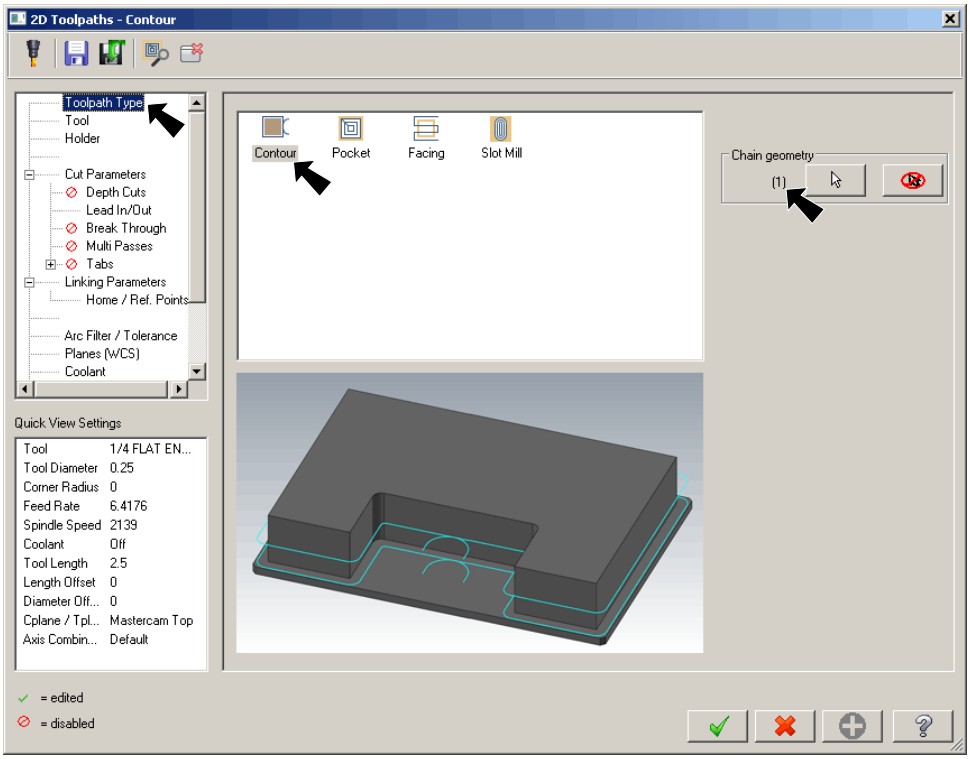


Fig. 20

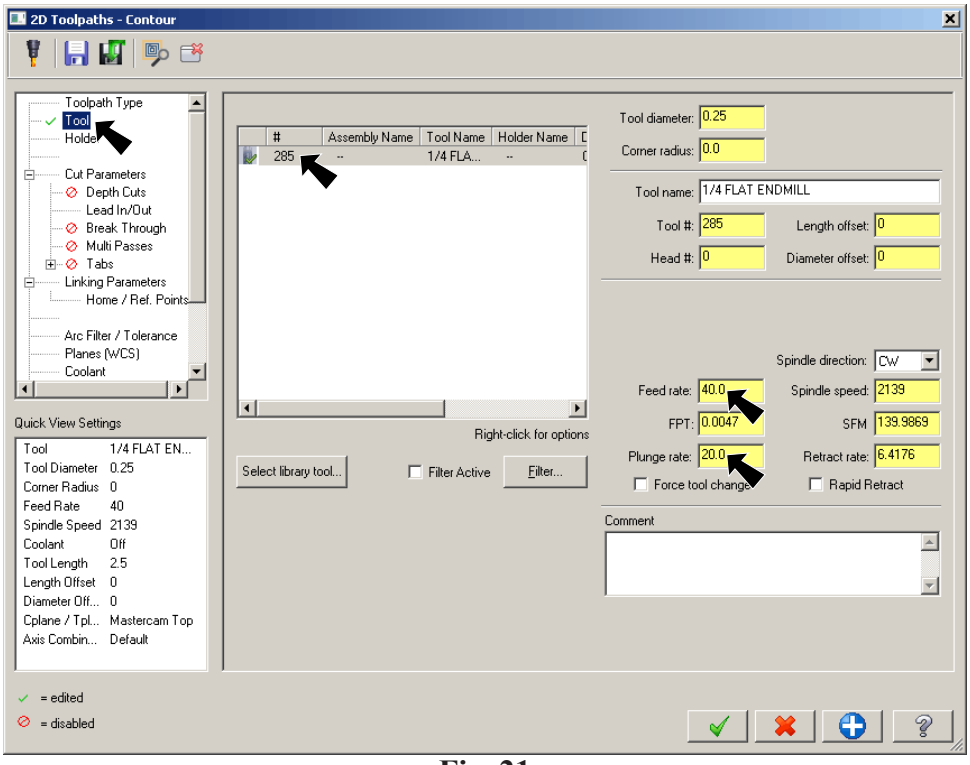


Fig. 21

Step 5. Select **Cut Parameters** from tree control and set:

Compensation type Wear

Compensation direction Left

Tip comp: Tip

Stock to leave on walls and floors 0
Fig. 22.

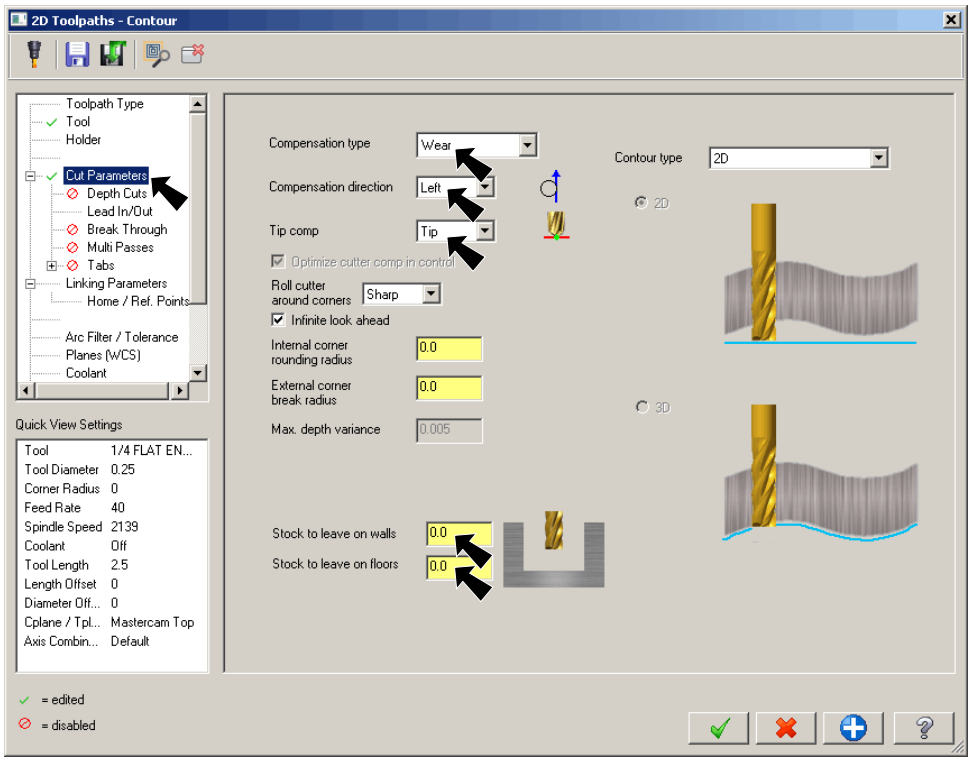


Fig. 22

Step 6. Select **Depth Cuts** from tree control and set:

Check **Depth cuts**

Max rough step .2

Check **Keep tool down**
Fig. 23.

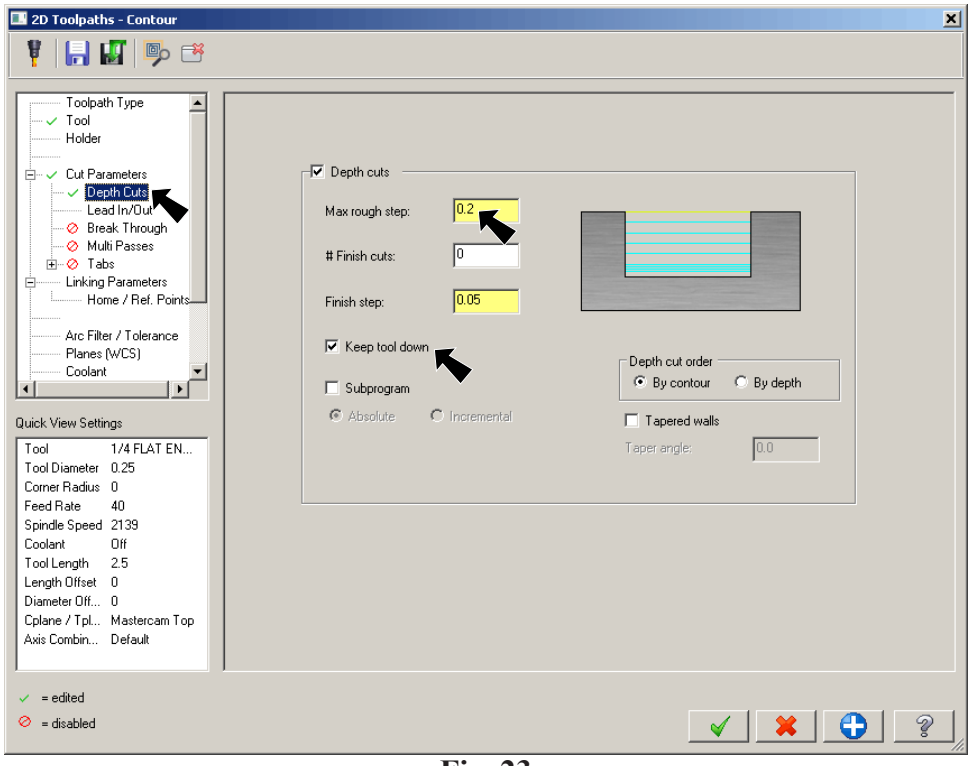


Fig. 23

Step 7. Select **Lead In/Out** from tree control and set:

Uncheck **Lead In/Out**
Fig. 24.

Step 8. Select **Break Through** from tree control and set:

Check **Break through**

Break through amount .01
Fig. 25.

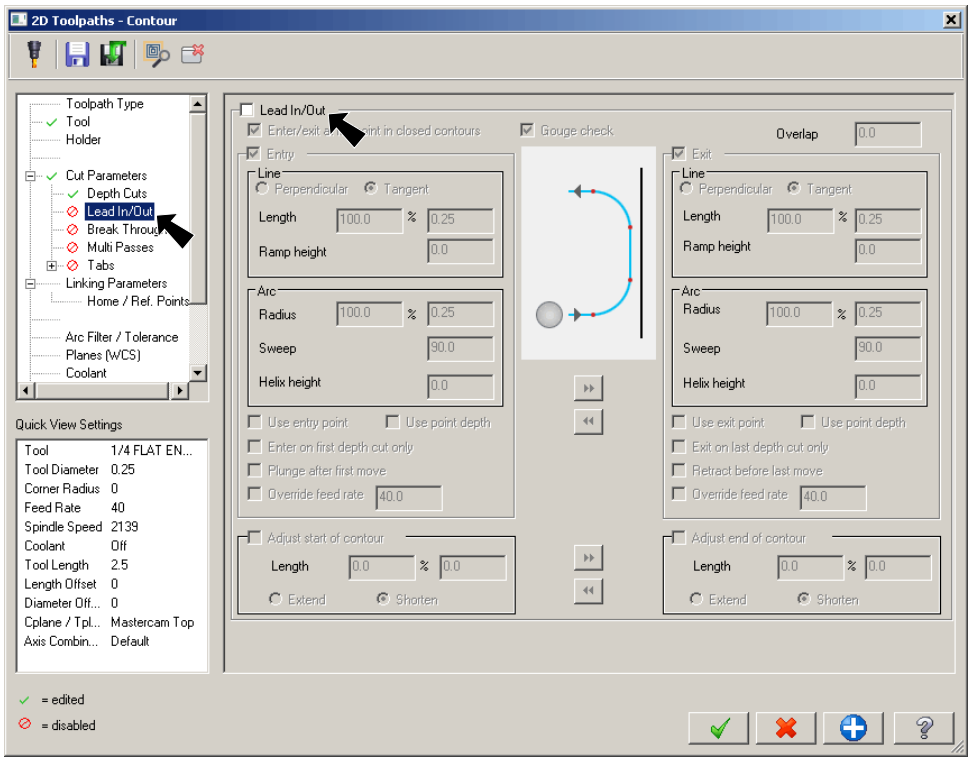


Fig. 24

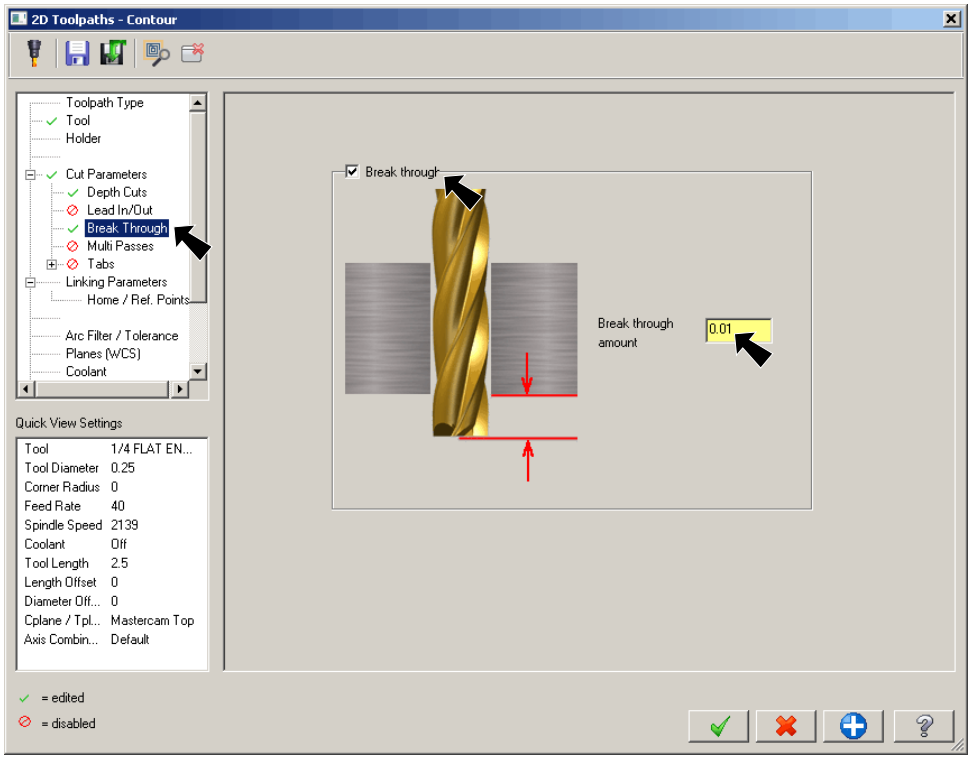


Fig. 25

Step 9. Select **Linking Parameters** from tree control and set:

Depth -.75
Fig. 26.

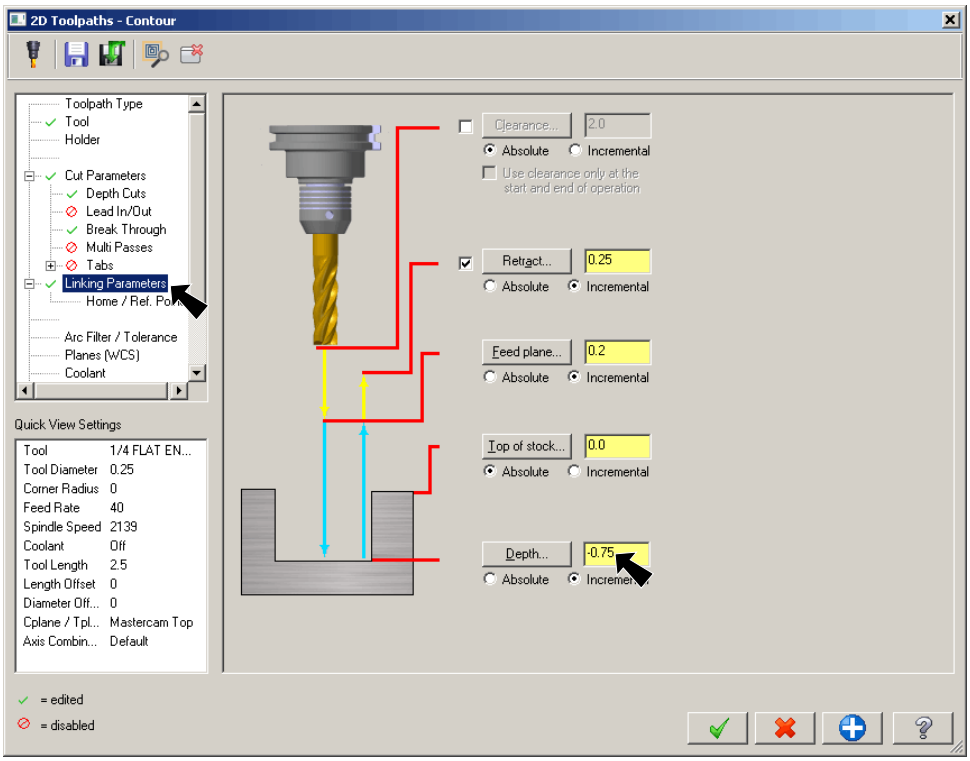


Fig. 26

Step 10. Click OK .

Step 11. Save. Use **Ctrl-S**.

D. Verify Toolpaths.

Step 1. Click **Toolpath Group-1** in the Toolpath Manager to select **OptiRough and Contour** toolpaths, **Fig. 27**.

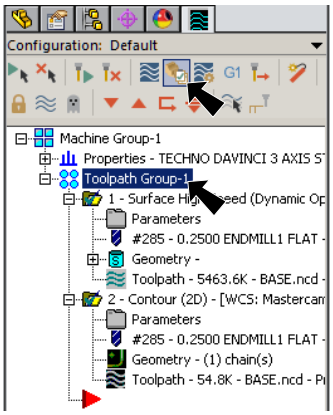


Fig. 27

Step 2. Click **Verify** in the Toolpath Manager, **Fig. 27**.

Step 3. Click **Play** **(R)** in VCR bar.

Step 4. Note **Total Time** to run program under Toolpath Info in the Move List panel (**roughly 30 minutes**), **Fig. 28**.

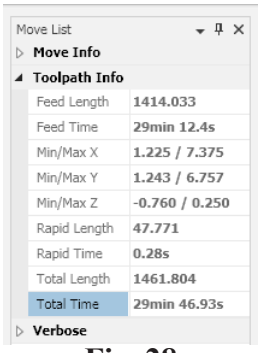


Fig. 28

Step 5. Switch back to Mastercam (**Alt-Tab**).

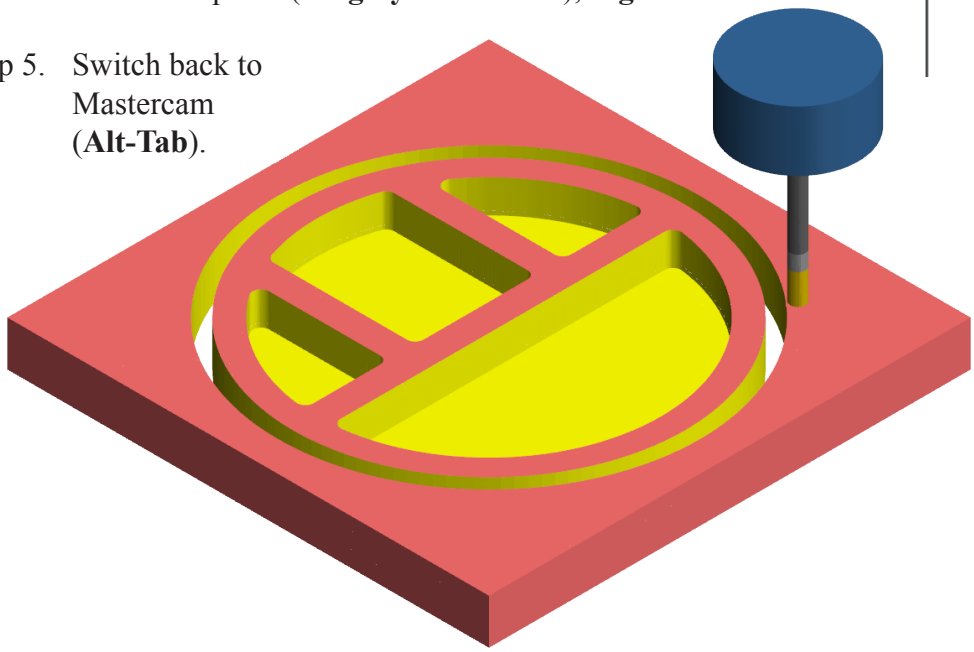
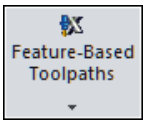


Fig. 29

E. FBM Drill Toolpath.

Step 1. Click **Feature-BasedToolpaths** 

on the Mastercam toolbar and **FBM Drill** from the menu.

Step 2. Select **Hole Detection** from the tree control and set:

Limit search to plane **Mastercam Top**
Fig. 30.

Step 3. Select **Spot Drilling** from the tree control set:

Uncheck **Spot Drilling** check box
Fig. 31.

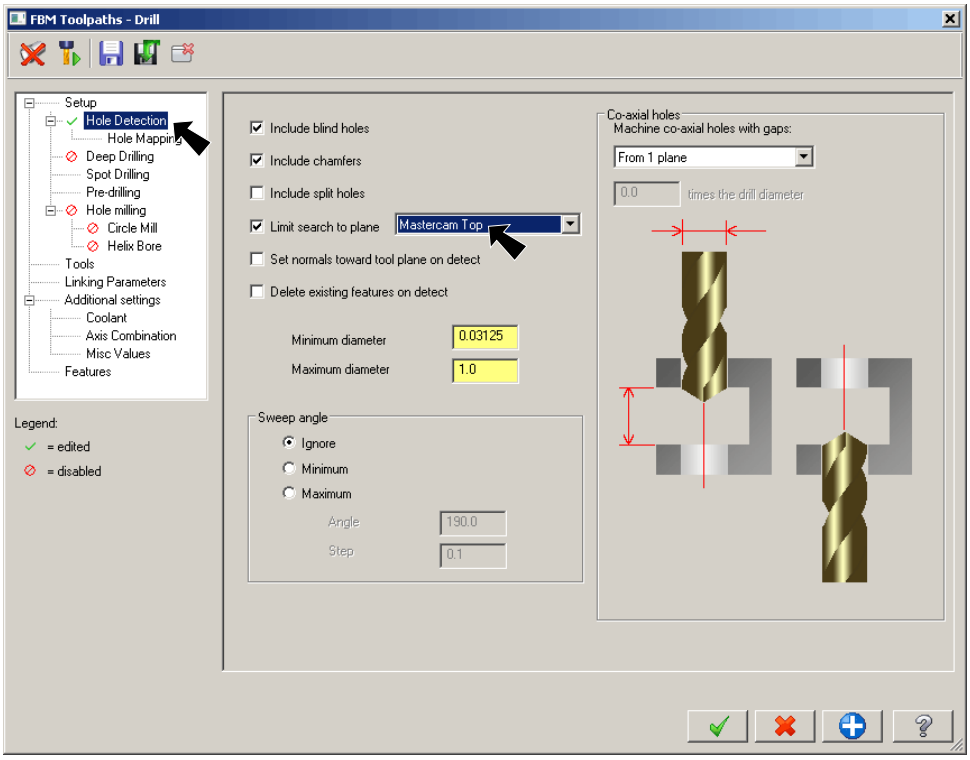


Fig. 30

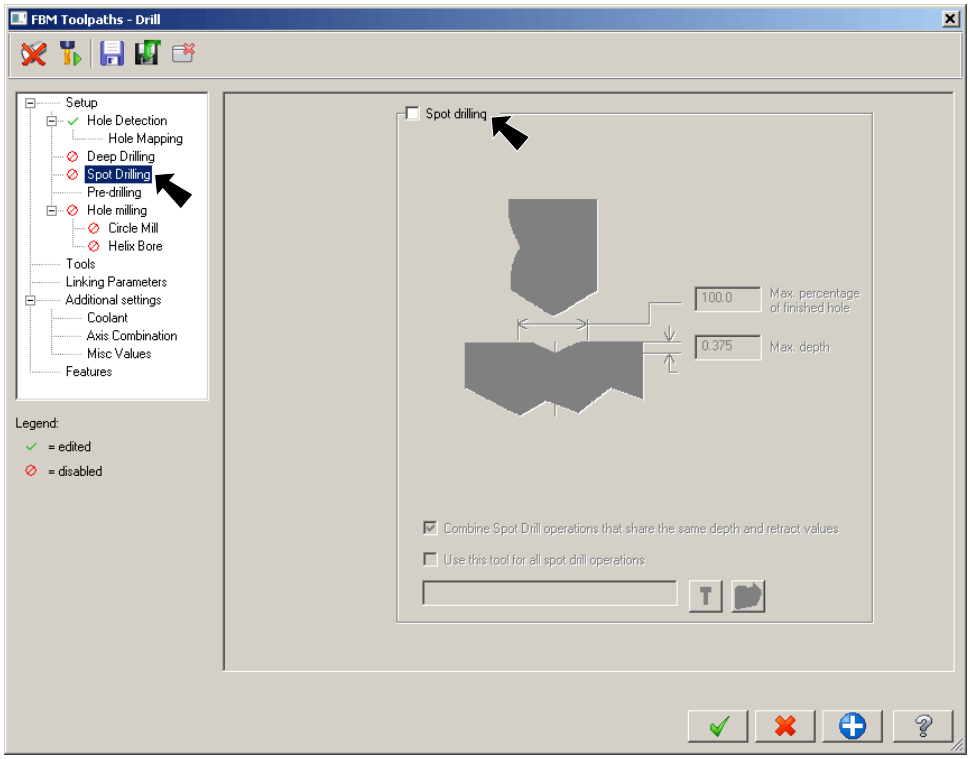


Fig. 31

Step 4. Select **Pre-drilling** from the tree control set:

Uncheck **Pre-drilling** check box **Fig. 32**.

Step 5. Click **Detect** button at the top of the dialog box to detect the holes **Fig. 32**.

Step 6. Confirm: **2 holes** **.75** depth.

Click OK **Fig. 33**.

Step 7. Save. Use **Ctrl-S**.

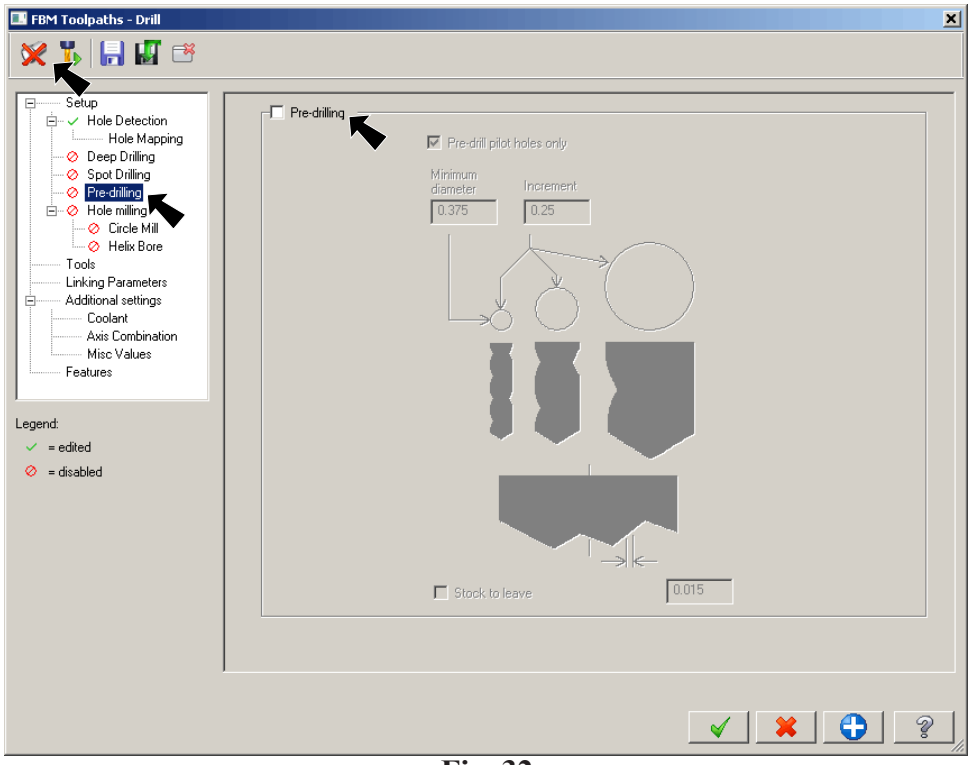


Fig. 32

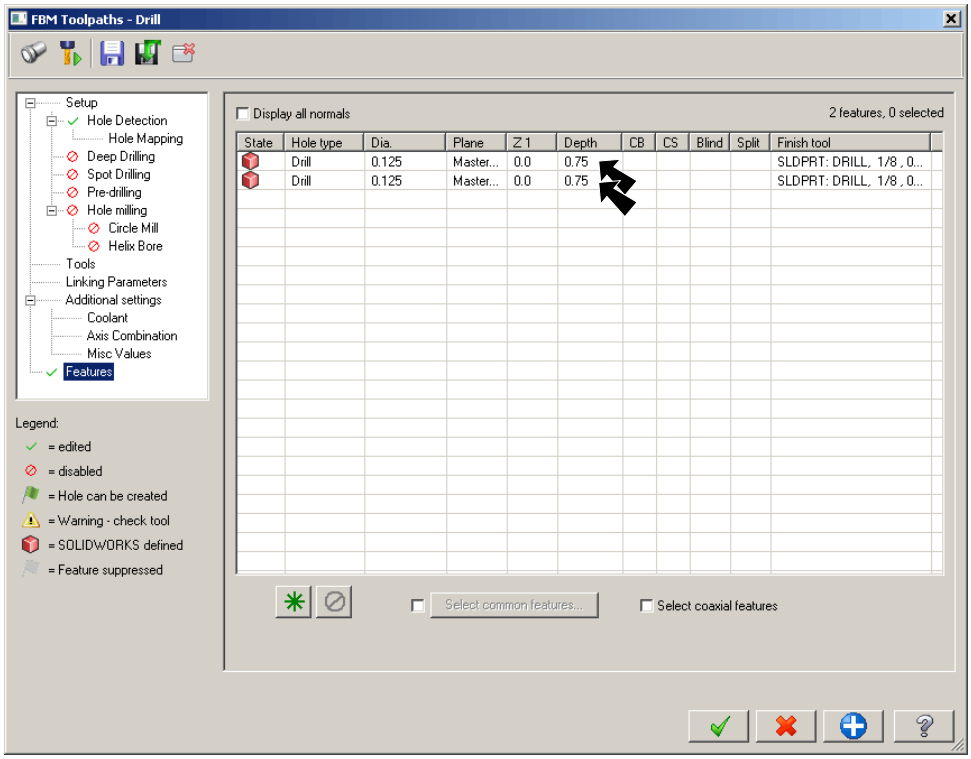


Fig. 33

F. Backplot.

Step 1. Click **Wireframe** on the View toolbar.

Step 2. In Toolpath Manager click **FBM Drill** to select toolpath group, **Fig. 34**.

Step 3. In the Toolpath Manager use **Toggle Toolpaths** to hide toolpath, **Fig. 34**.

Step 4. Confirm all Drill toolpaths use the **Mastercam Top WCS**, **Fig. 34**.

Step 5. Click **Backplot** in Toolpath Manager, **Fig. 34**.

Step 6. Click **Play** in the Backplot VCR bar.

Step 7. Click OK to close Backplot.

Step 8. Click **Shaded With Edges** on the View toolbar.

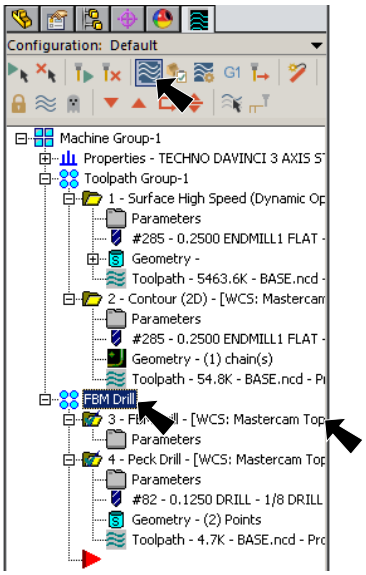


Fig. 34

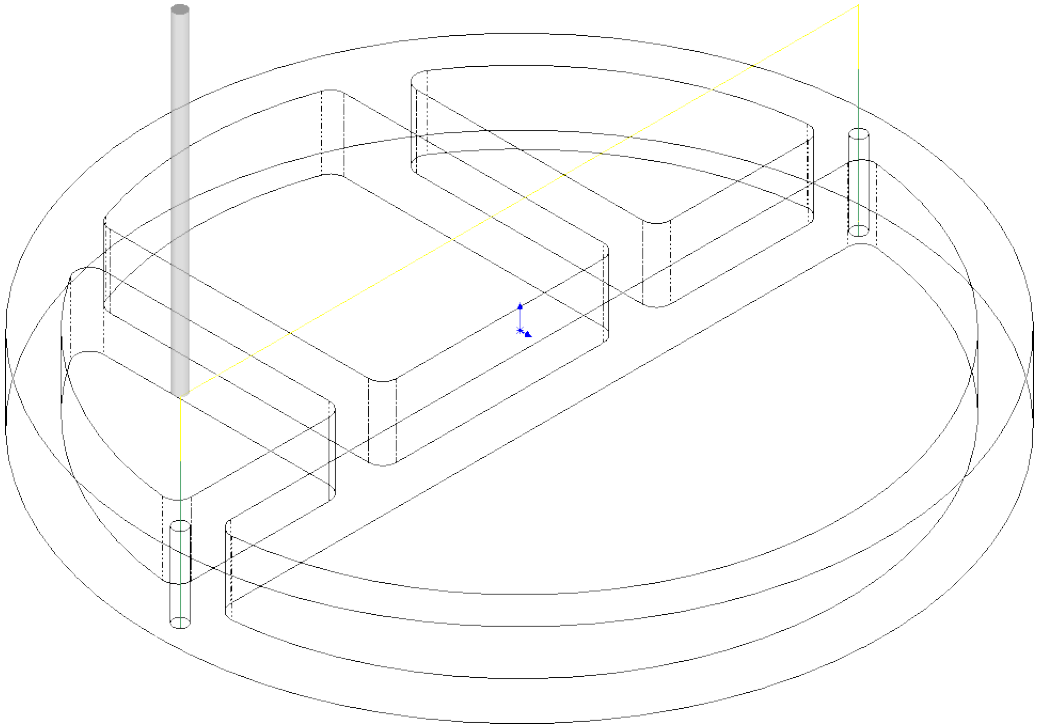


Fig. 35