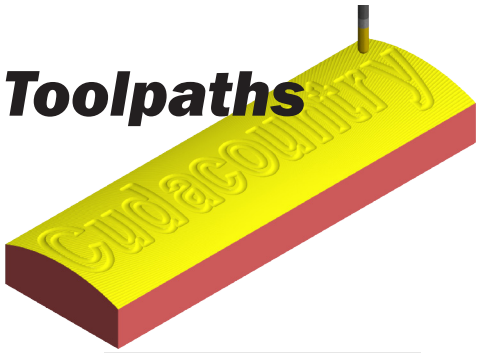
Cudacountry Radial Toolpaths



A. Stock Setup.

Step 1. If necessary, open your Cudacountry Radial file.

Step 2. If necessary, display Toolpaths Manager. On the View tab VIEW click Toolpaths (**Alt-O**).

Step 3. If Machine Group is **not** displayed in the Toolpaths Manager, **Fig. 1**, on the Machine tab MACHINE, click Machine Mill > Default from the menu.

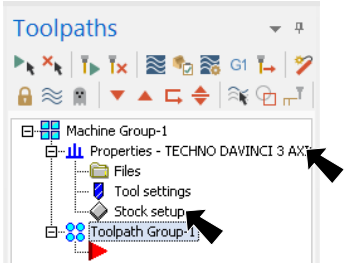


Fig. 1

Step 4. Expand **Properties (click +)** in Toolpaths Manager, **Fig. 1**.

Step 5. Click **Stock Setup** in Toolpaths Manager, **Fig. 1**.

Step 6. Click **left front top corner** of the stock to move the origin, **Fig. 2**. After you click corner the arrow will point to corner.

Step 7. Click **All Entities** in Stock Setup dialog box, **Fig. 2**.

Step 8. Set **X dimension 1.8**, **Fig. 2**.

Step 9. Confirm **Display** check box is checked, **Fig. 2**.

Step 10. Click OK in Machine Group Properties, **Fig. 3**.

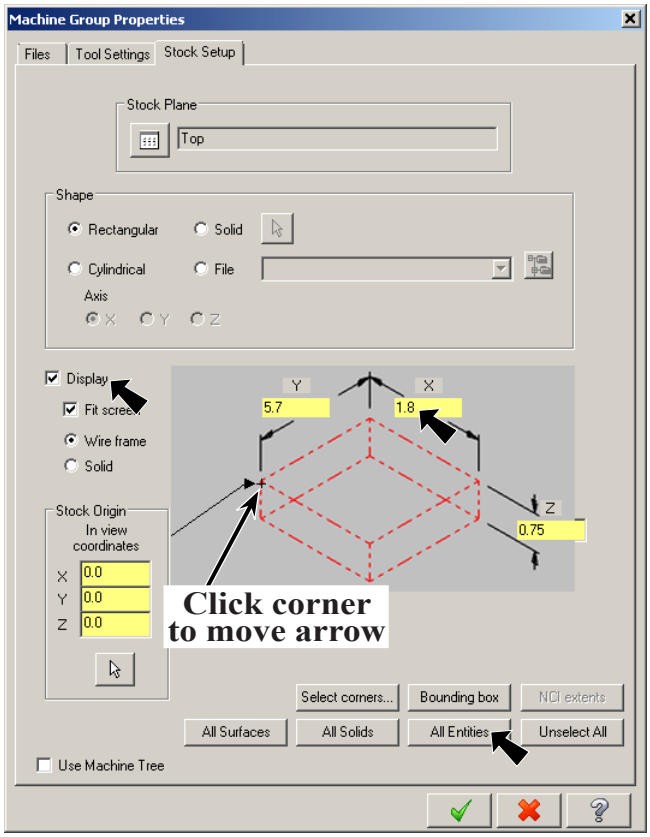


Fig. 2

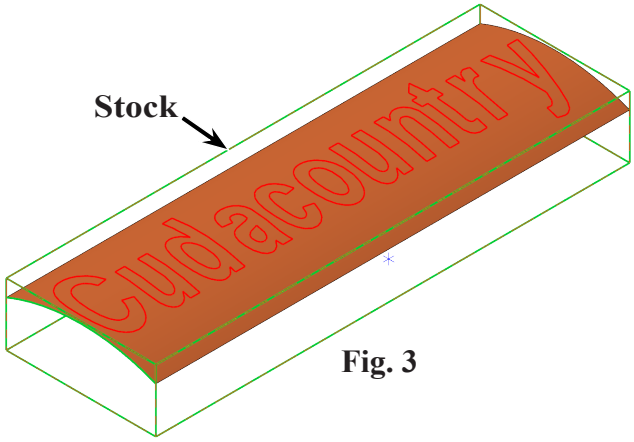


Fig. 3

B. OptiRough Toolpath.

Step 1. On the Toolpaths tab TOOLPATHS in the 3D group click **OptiRough** OptiRough.

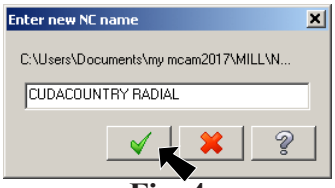


Fig. 4

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

Step 3. Click the **surface** to select as Drive Surfaces and click **End Selection** End Selection **(ENTER)**, **Fig 5**.

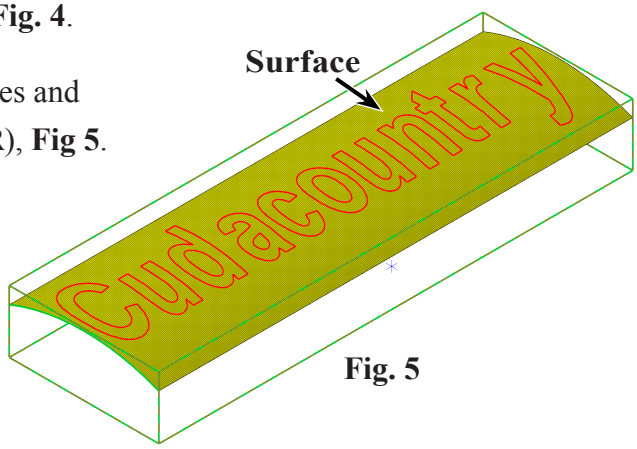


Fig. 5

Step 4. Click **Containment Select** button in the Toolpath/surface selection dialog box, **Fig. 6**.

Step 5. Select **C-plane** in the Chaining dialog box, **Fig. 7**.

Step 6. Click **Chain** button in the Chaining dialog box, **Fig. 7**.

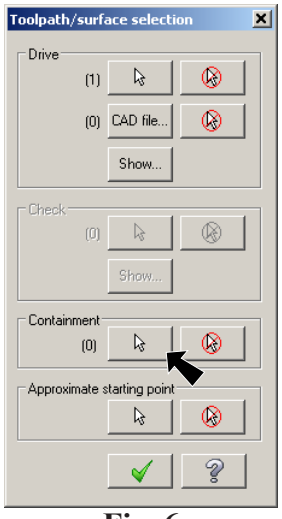


Fig. 6

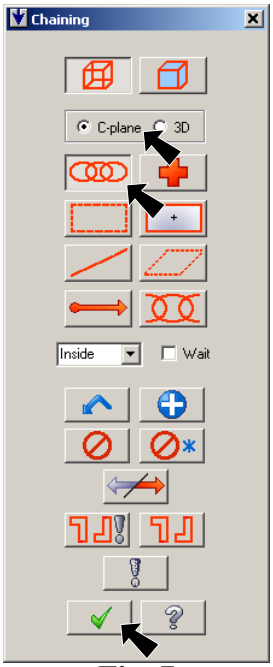


Fig. 7

Step 7. Click a **line of top rectangle** to chain the top rectangle, **Fig. 8**. Click the OK button in the Chaining dialog box.

Step 8. Click OK in the Toolpath/surface selection dialog box, **Fig. 9**.

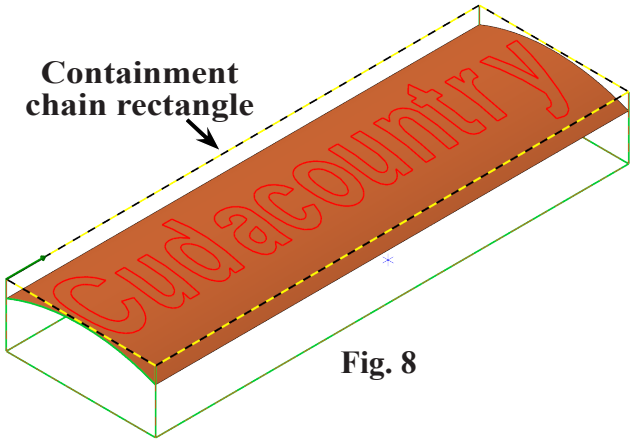


Fig. 8

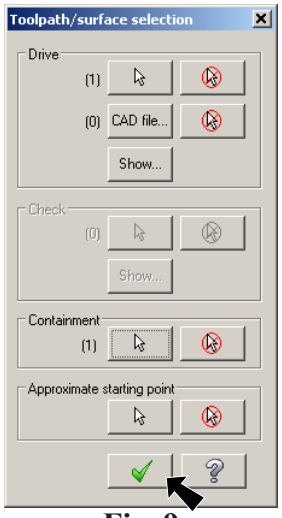


Fig. 9

Step 9. Select **Toolpath Type** from the tree control and confirm:

OptiRough toolpath
Drive surfaces and Containment
Fig. 10.

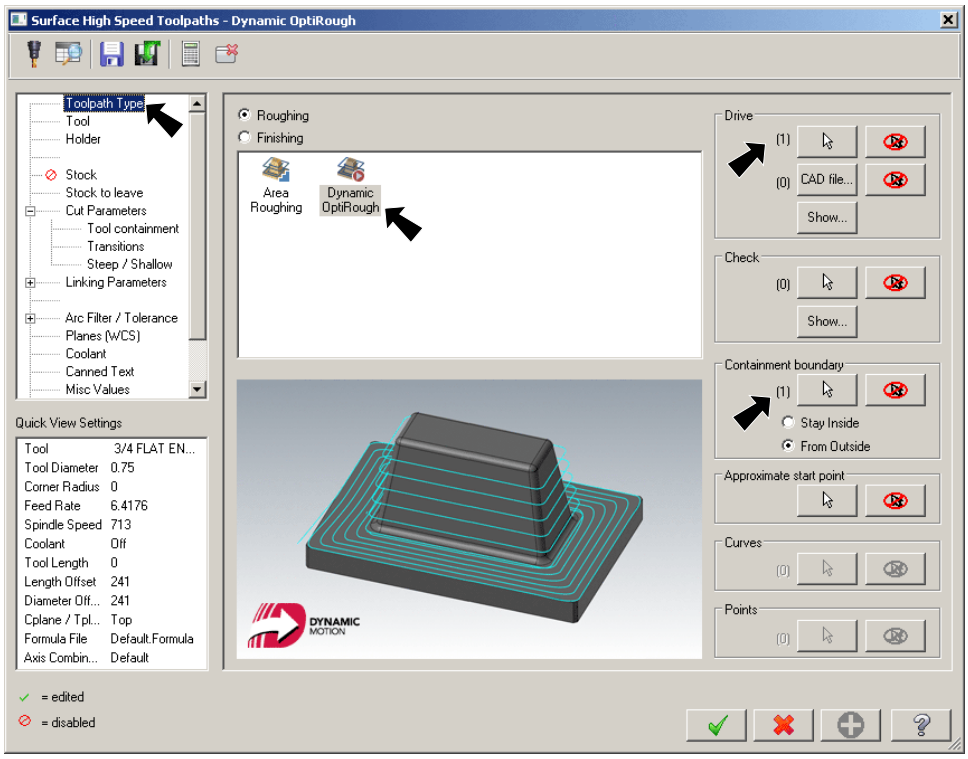


Fig. 10

Step 10. Select **Tool** from the tree control and:

click **Select library tool** button, **Fig. 11**.

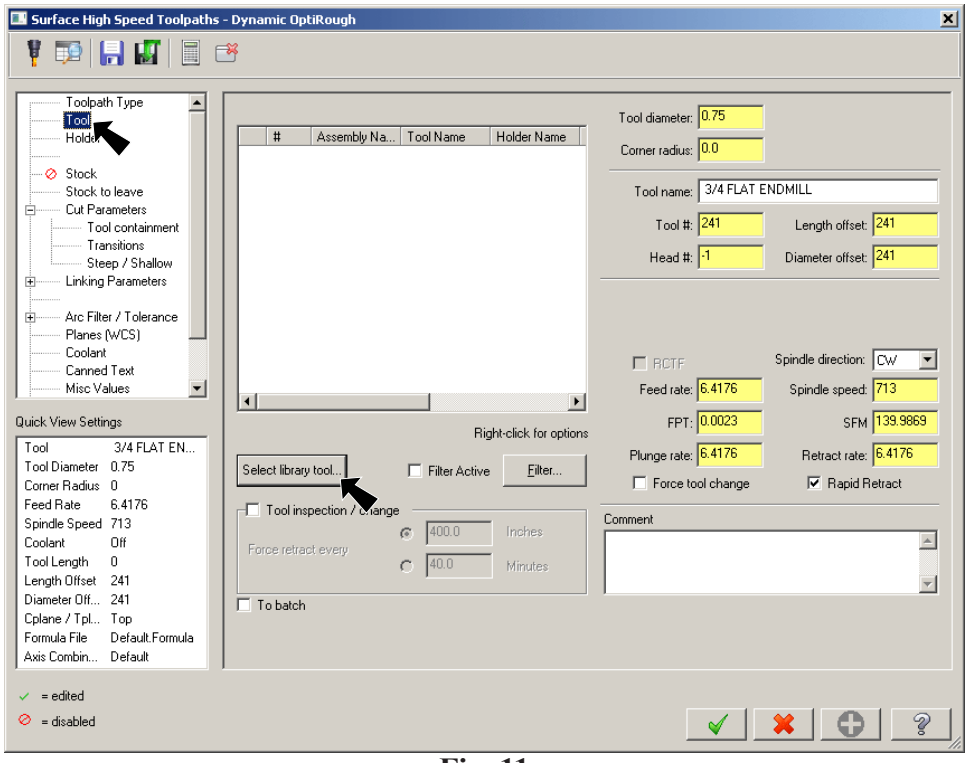


Fig. 11

Step 11. Click the **Filter** button, **Fig. 12**.

Step 12. Click **None button under Tool Types**, **Fig. 13**.

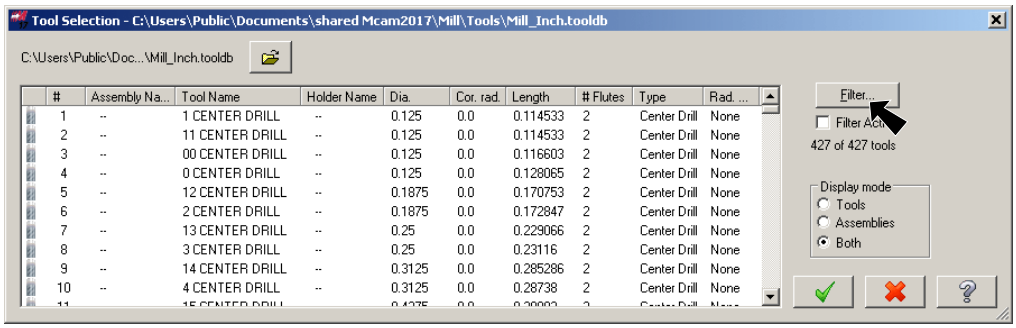


Fig. 12

Step 13. Click **Endmill2 Sphere** button second button top row), **Fig. 13** and click OK.

Step 14. Click **304 1/8 Ball Endmill**, **Fig. 14** and click OK.

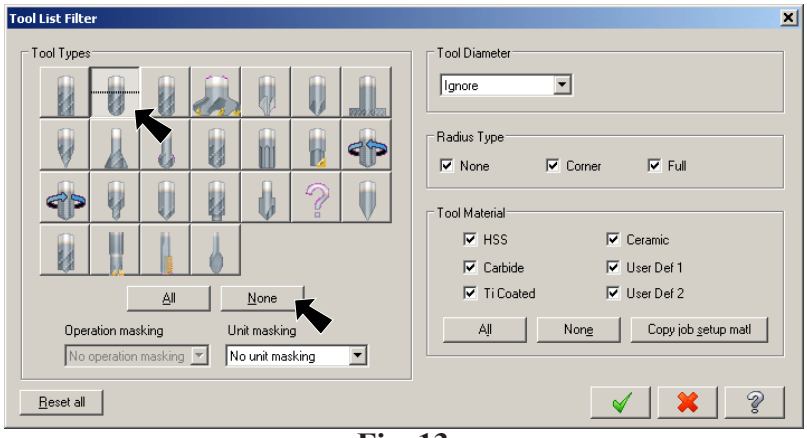


Fig. 13

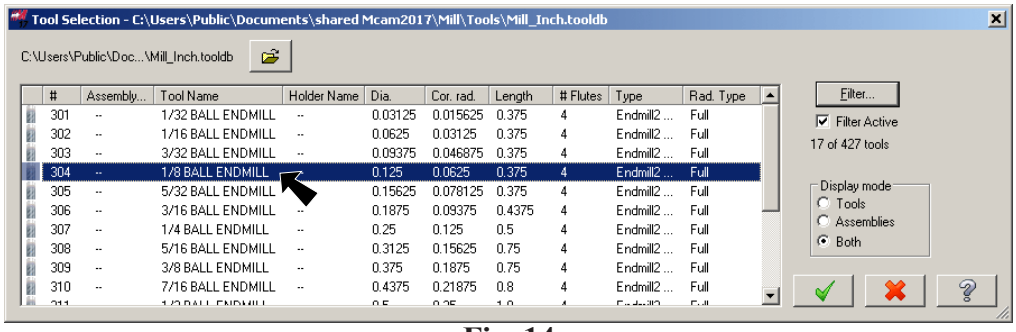


Fig. 14

Step 15. Back in **Tool** page set:

Feed rate 40
Plunge rate 20
Fig. 15.

Step 16. Select **Stock to leave** from the tree control and set:

Leave stock on Drive walls and floors
.03
Fig. 16.

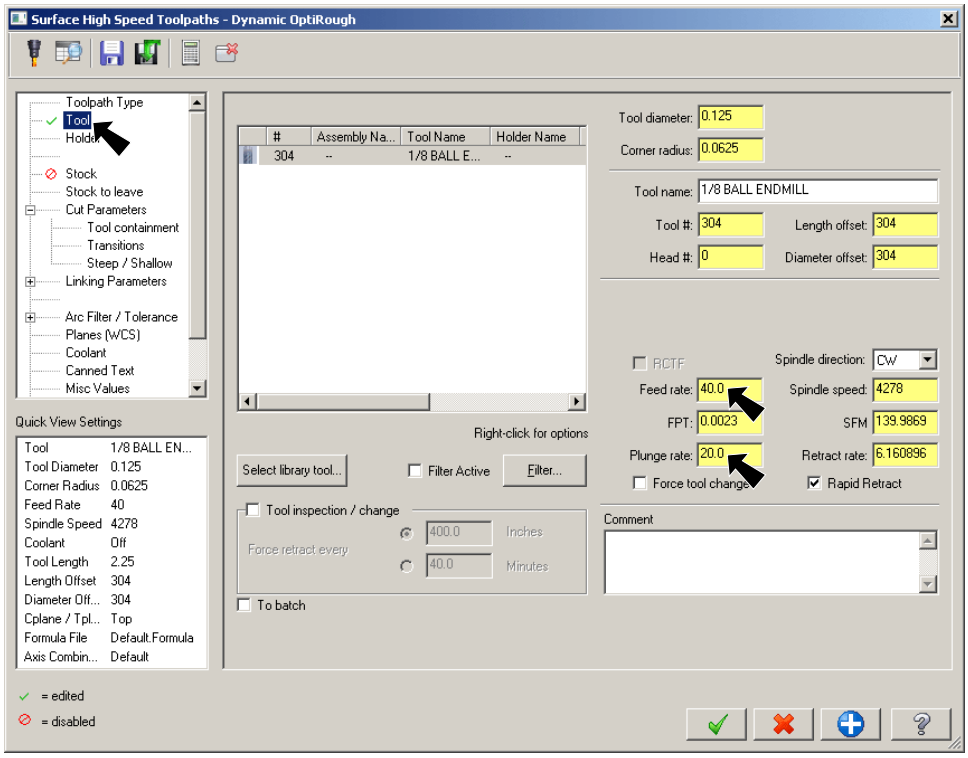


Fig. 15

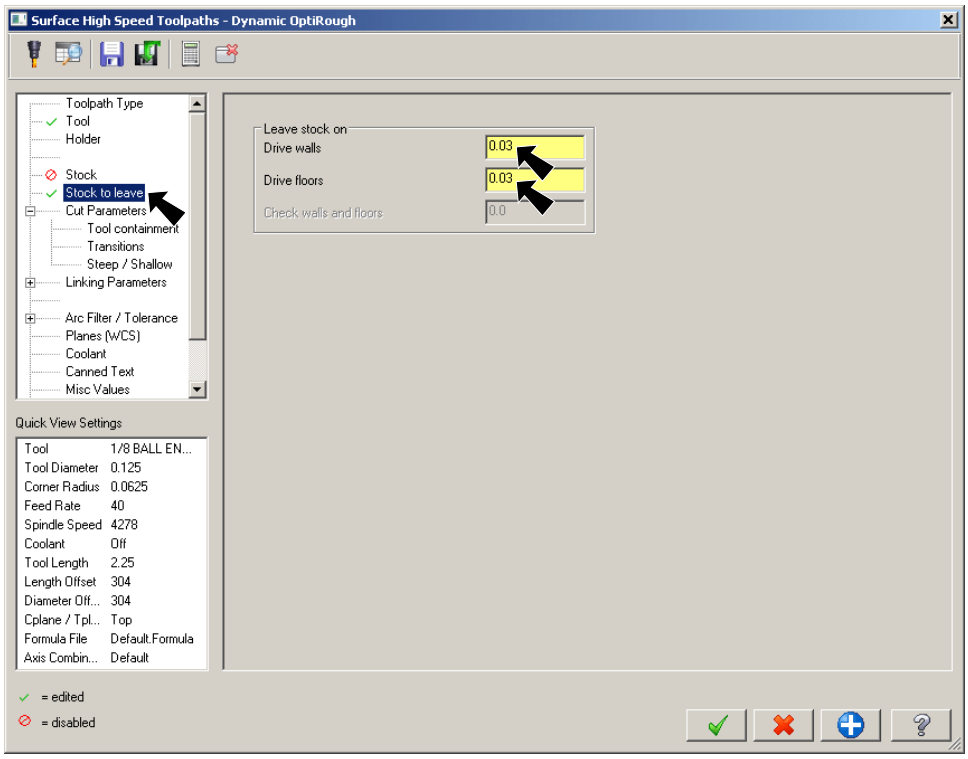


Fig. 16

Step 17. Select **Cut Parameters** from the tree control and set:

Cutting method Climb

Stepdown .1
Fig. 17.

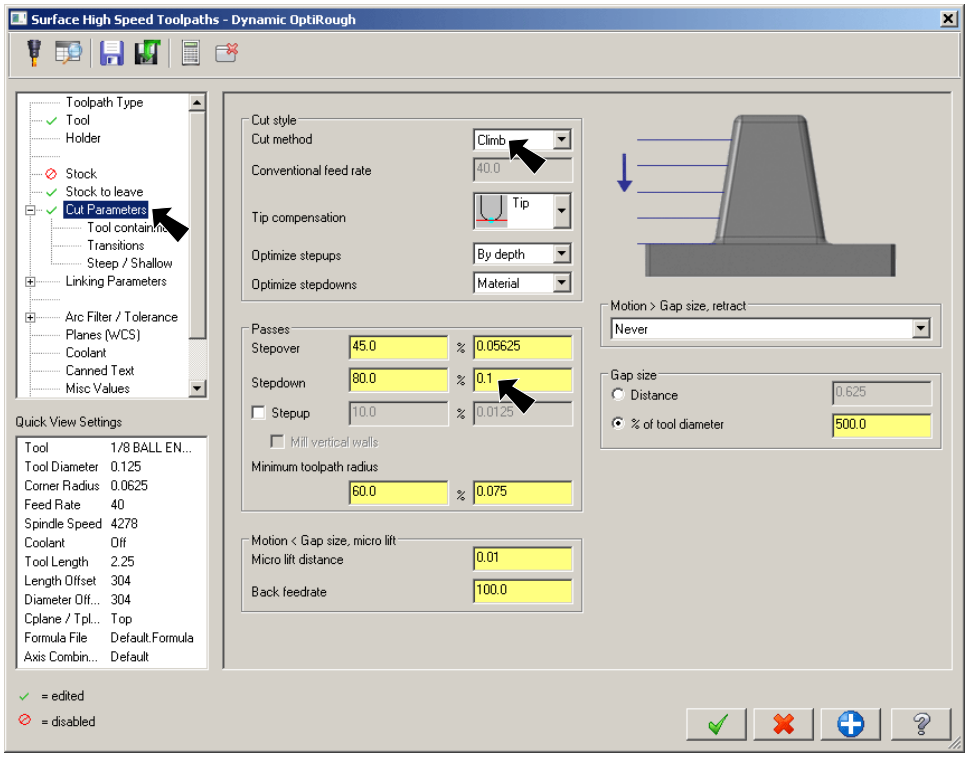


Fig. 17

Step 18. Select **Linking Parameters** from the tree control and set:

Clearance plane .1

All Leads 0
Fig. 18.

Step 19. Click OK  in Opti Rough dialog box.

Step 20. Allow Mastercam to calculate the toolpath.

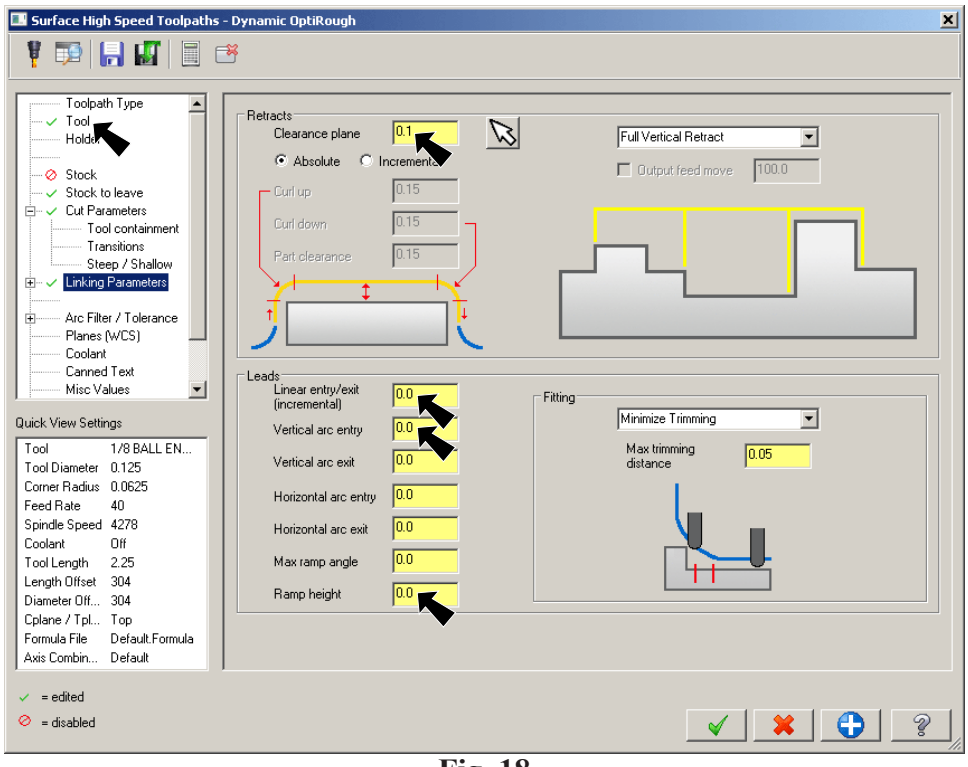


Fig. 18

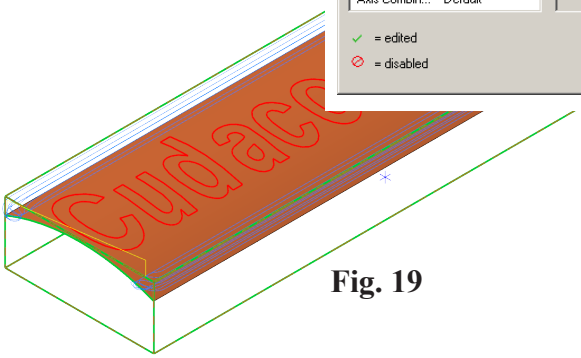


Fig. 19

C. Radial Toolpath.

Step 1. Use **Alt-T** to toggle off toolpath display.

Step 2. On the Toolpaths tab TOOLPATHS in the 3D group click **expand gallery** button and click **Radial** Radial, **Fig. 20**.

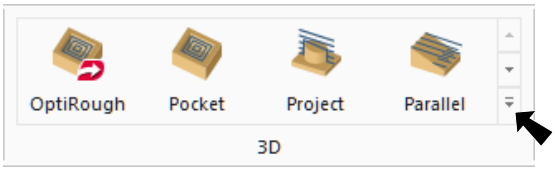


Fig. 20

Step 3. Click the **surface** to select as Drive Surfaces and click **End Selection** End Selection **(ENTER)**, **Fig 5**.

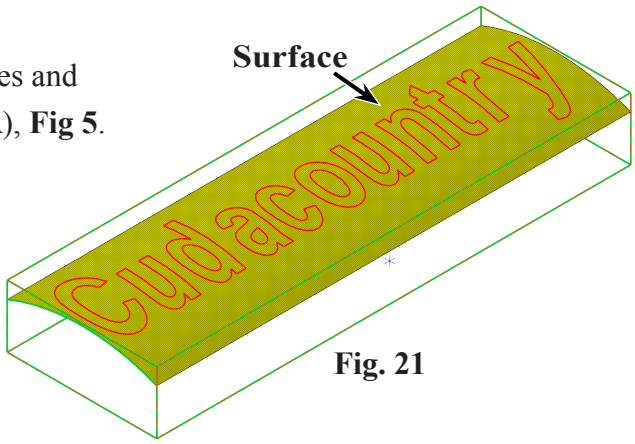


Fig. 21

Step 4. Click **Containment Select** button in the Toolpath/surface selection dialog box, **Fig. 6**.

Step 5. Select **C-plane** in the Chaining dialog box, **Fig. 7**.

Step 6. Click **Chain** button in the Chaining dialog box, **Fig. 7**.

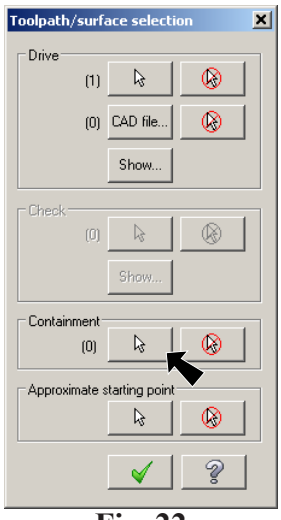


Fig. 22

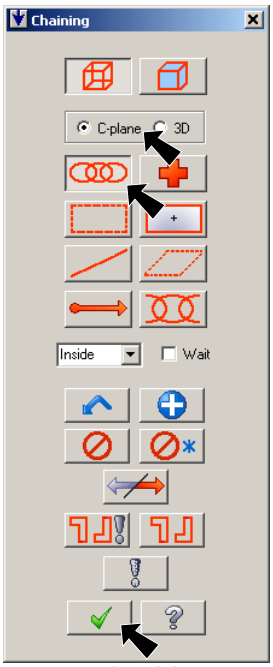


Fig. 23

Step 7. Click a **line of top rectangle** to chain the top rectangle, **Fig. 8**. Click the OK button in the Chaining dialog box.

Step 8. Click OK in the Toolpath/surface selection dialog box, **Fig. 9**.

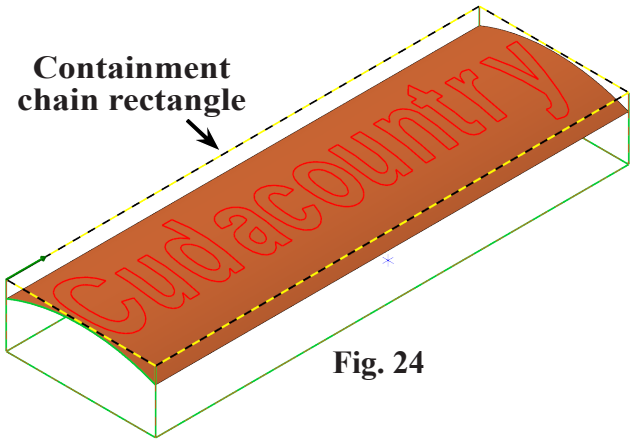


Fig. 24

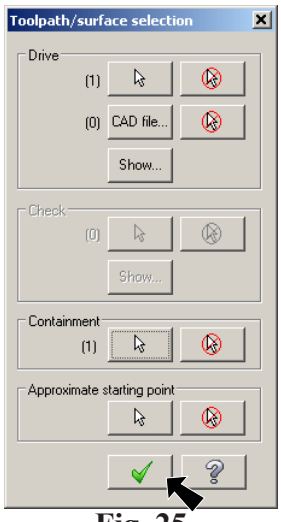


Fig. 25

Step 9. Select **Tool** from tree control and:

Feed rate 80
Plunge rate 40
Fig. 26.

Step 10. Select **Stock to leave** from the tree control and set:

Leave stock on Drive walls and floors
0
Fig. 27.

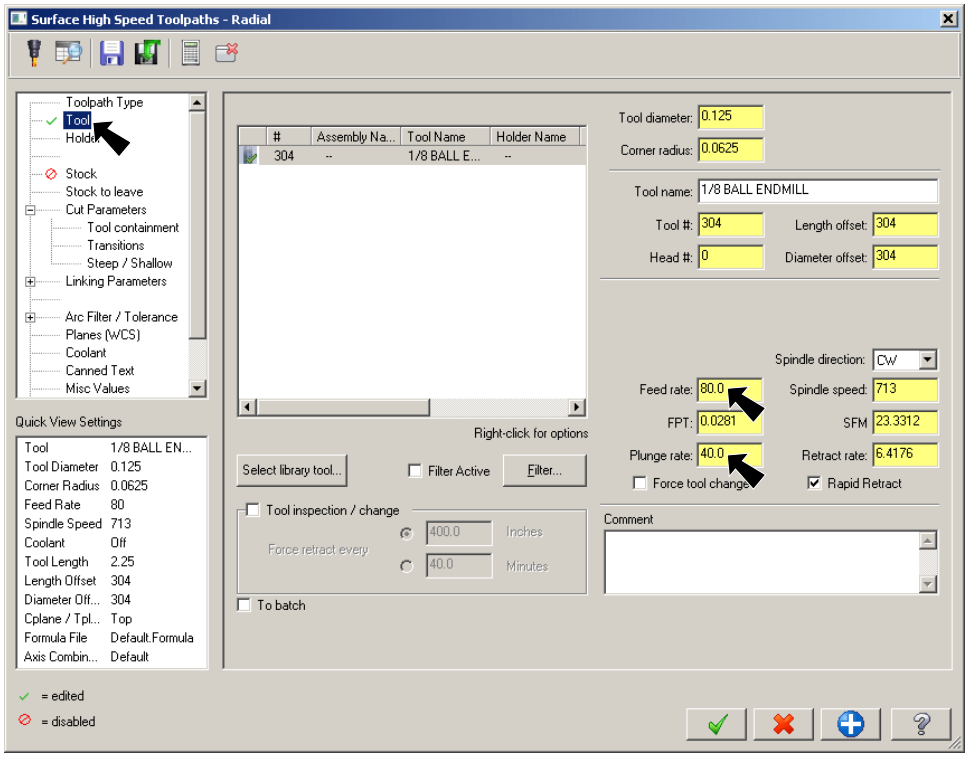


Fig. 26

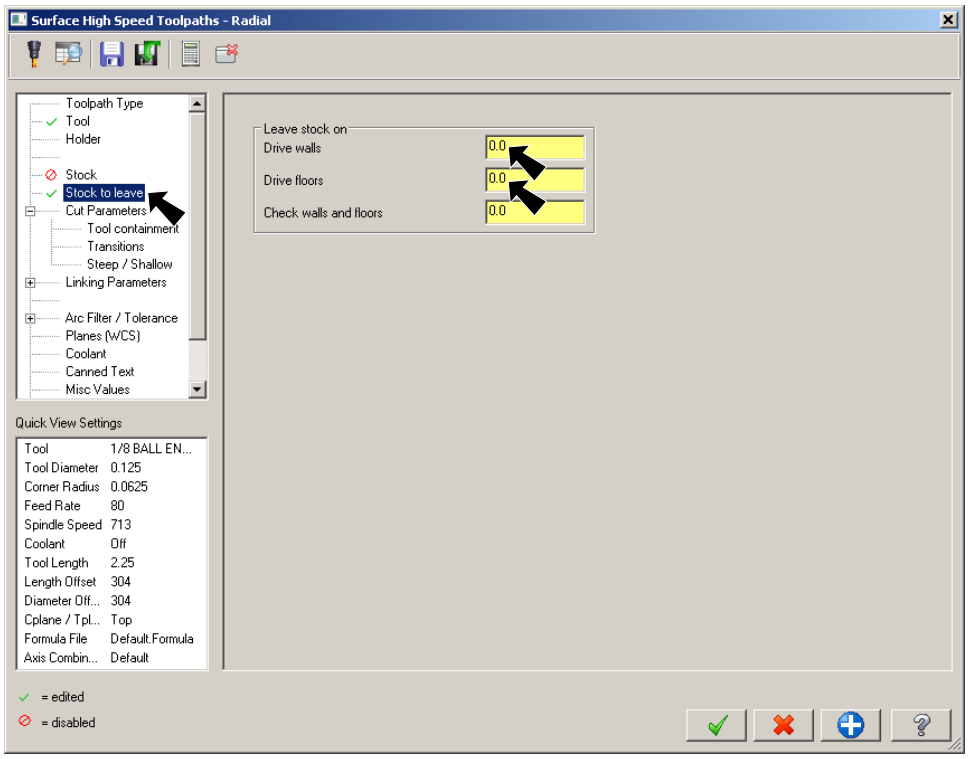


Fig. 27

Step 11. Select **Cut Parameters** from tree control and set:

Stepover .05

click the **Radial Point**  button **Fig. 28**.

Click **Point** in graphics window **Fig. 29**.

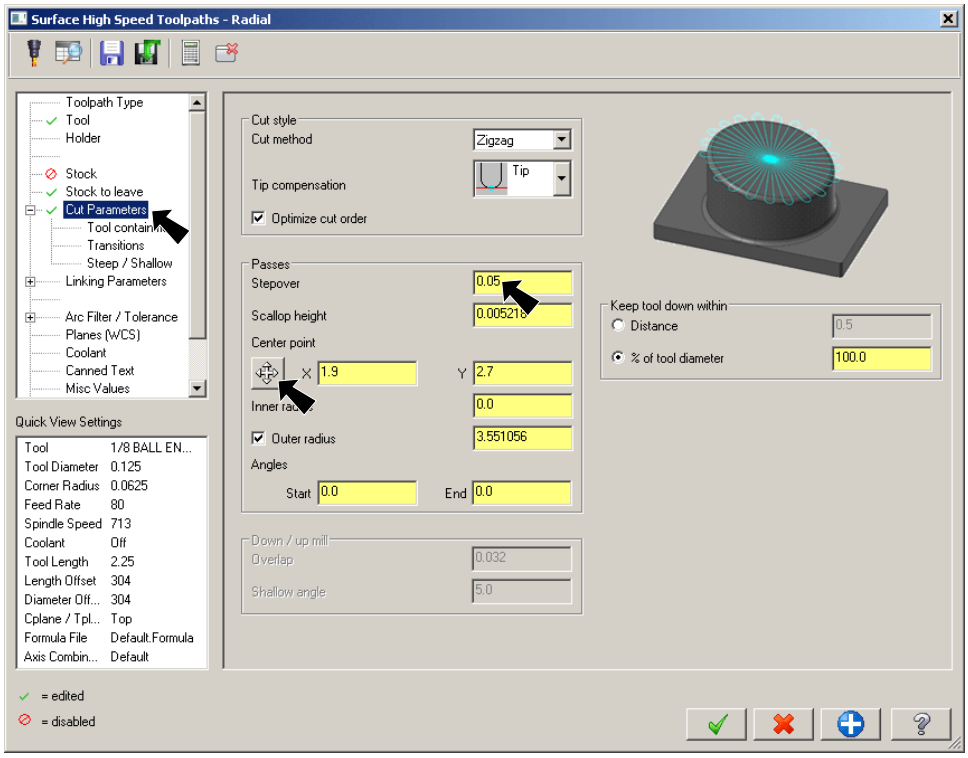


Fig. 28

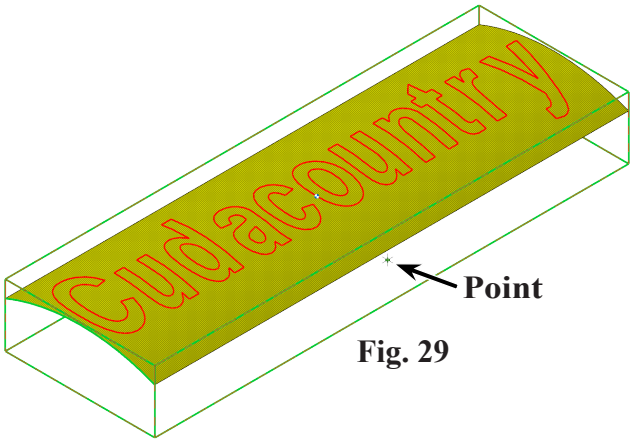


Fig. 29

Step 12. Select **Tool containment** from tree control and set:

Compensate to Outside Fig. 30.

Step 13. Select **Linking Parameters** from tree control and set:

Clearance plane .1

All leads 0 Fig. 31.

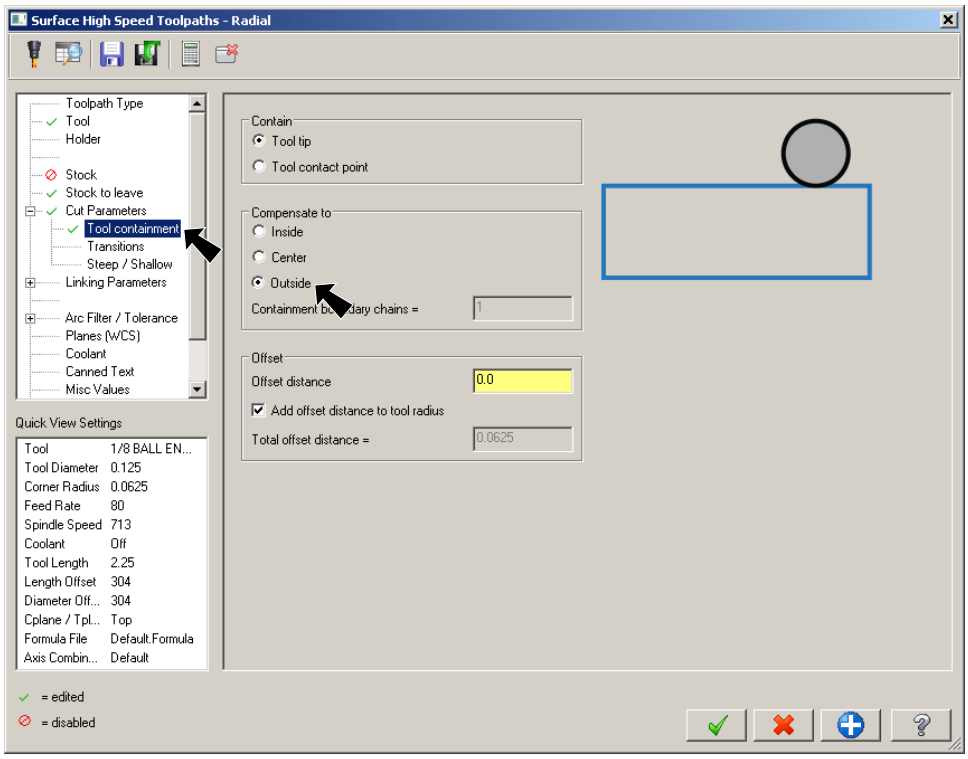


Fig. 30

Step 14. Click OK  in Radial dialog box.

Step 15. Save  (**Ctrl-S**).

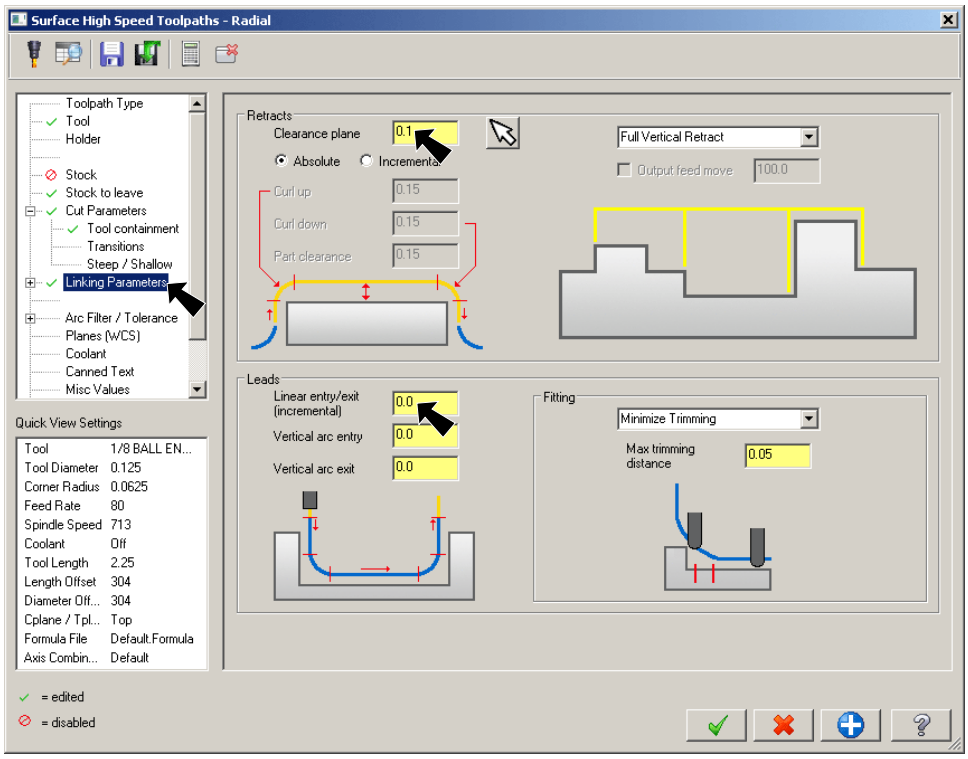


Fig. 31

D. Contour Toolpath for Letters.

Step 1. On the Toolpaths tab TOOLPATHS in the 2D group click **Contour** Contour.

Step 2. Click the **Polygon** in Chaining dialog box, **Fig. 32**.

Step 3. Click a **selection polygon around letters**, **Fig. 33**. Press ENTER when done.

Step 4. Click **first letter** for **Approximate Start Point**, **Fig. 33**.

Step 5. Click OK in Chaining dialog box.

Step 6. Select **Tool** from tree control and set:

Feed rate: 80
Plunge rate: 40
Fig. 34.

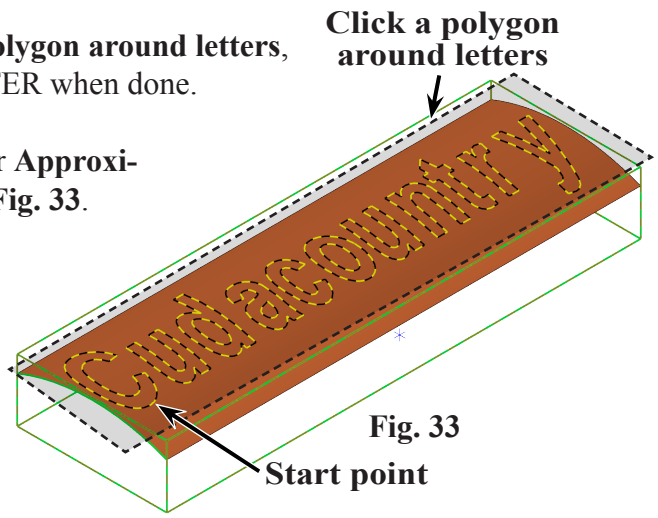


Fig. 33

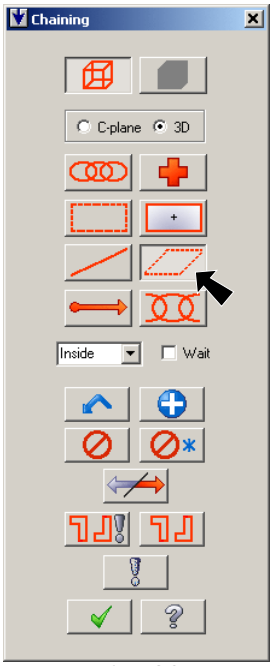


Fig. 32

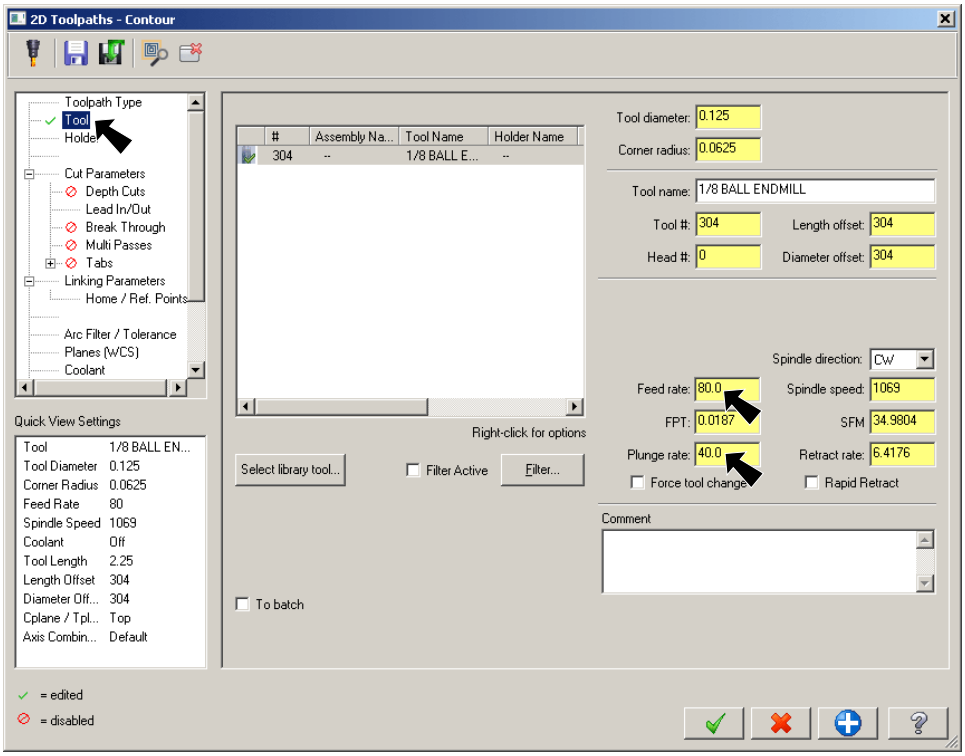


Fig. 34

Step 7. Select **Cut Parameters** from tree control and set:

Compensation type: **Off**
Fig. 35.

Step 8. Select **Lead In/Out** from tree control and:

Uncheck **Lead In/Out**
Fig. 36.

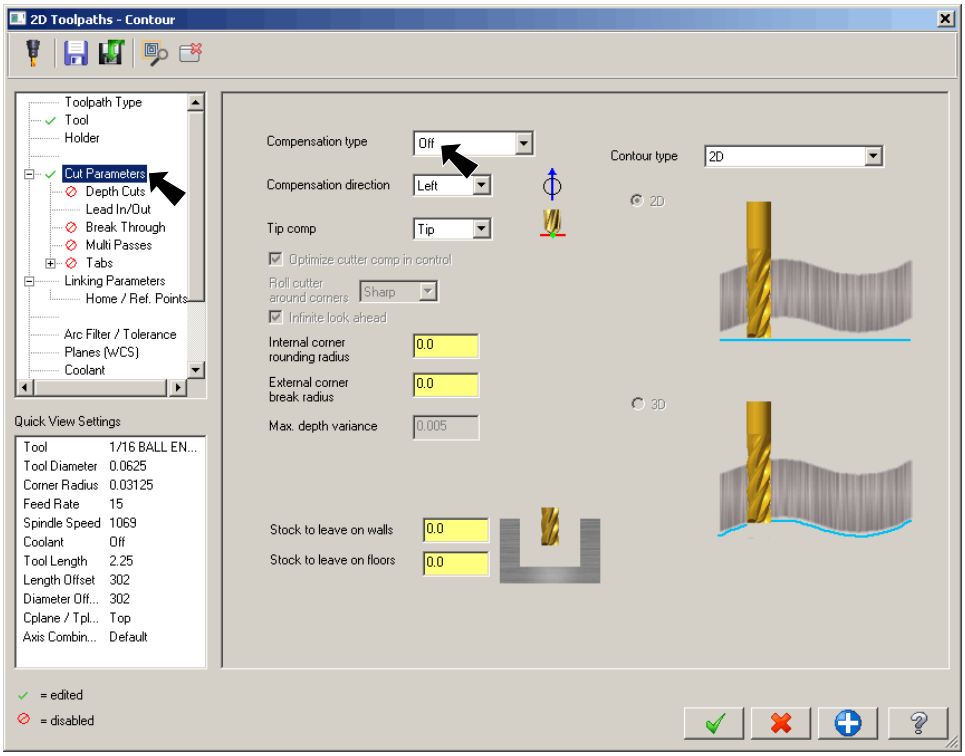


Fig. 35

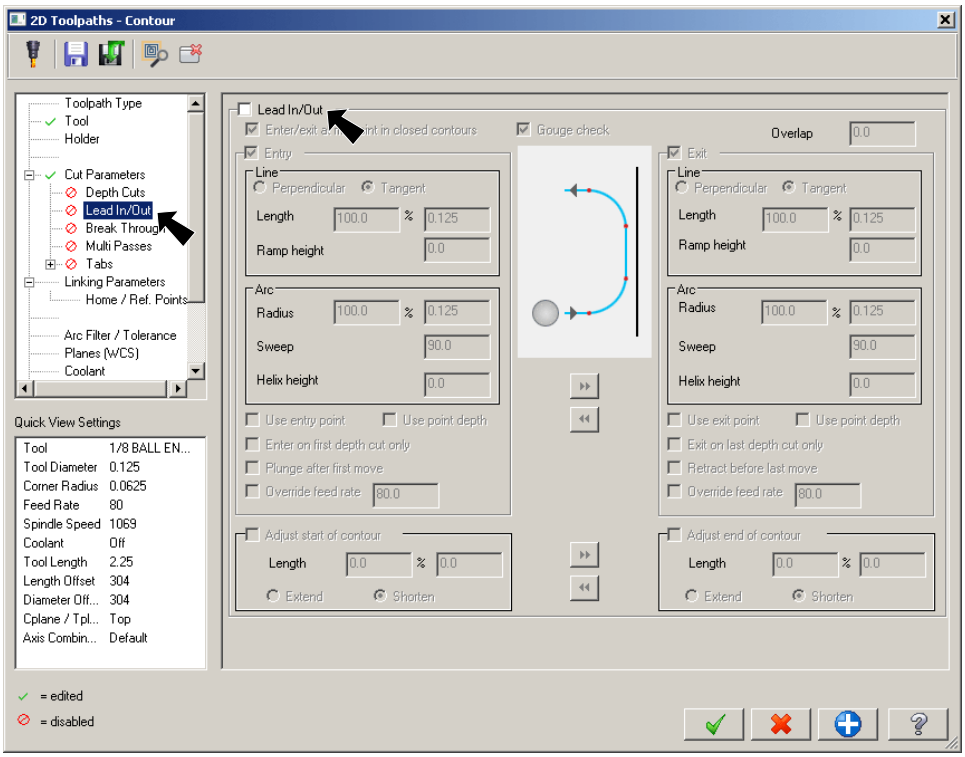


Fig. 36

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

Uncheck **Clearance**

Check **Retract .1**

Depth -.02 **Fig. 37**.

Step 10. Click OK  .

Step 11. Save  (**Ctrl-S**).

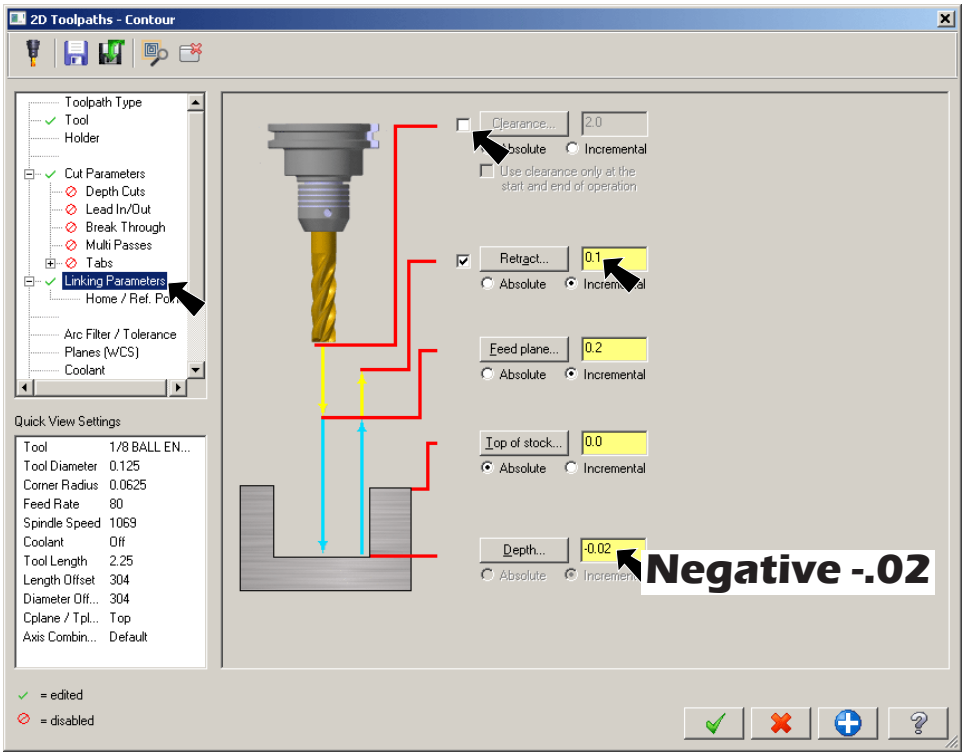


Fig. 37

E. Verify.

Step 1. Click **Toolpath Group-1** in the Toolpaths Manager to select **all three** toolpaths, **Fig. 38**.

Step 2. Click **Verify**  in the Toolpaths Manager, **Fig. 38**.

Step 3. Click uncheck **Wireframe** in Mastercam Simulator home ribbon bar, **Fig. 39**.

Fig. 39

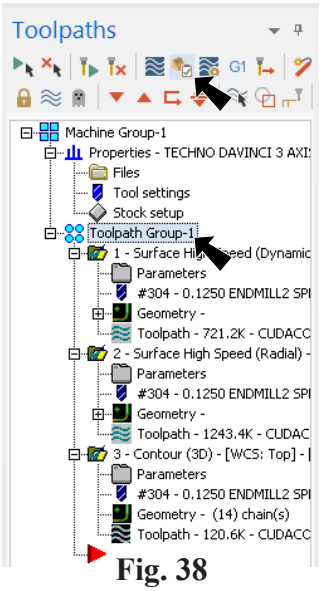


Fig. 38

Step 4. Click **Play**  **(R)** in VCR bar along bottom of the window.

Step 5. Note **Total Time** to run program under Toolpath Info in the Move List panel(**10min 28.05s**), **Fig. 42**.

Step 6. Switch back to Mastercam (**Alt-Tab**).

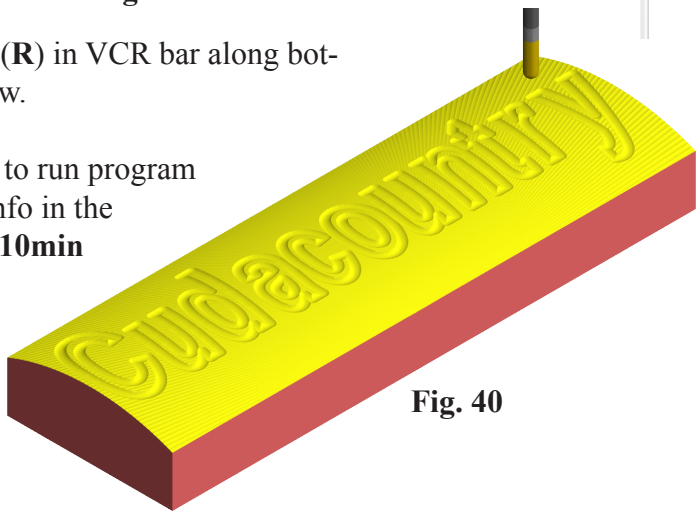


Fig. 40

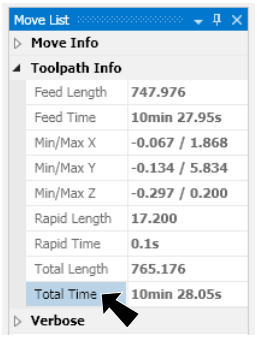


Fig. 41