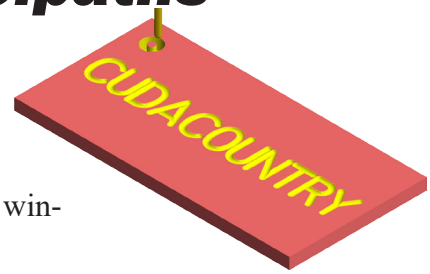
Chapter 16 Letters & Hole Toolpaths



A. Stock Setup.

Step 1. If necessary, open your Letters file from Chapter 15.

Step 2. Change to the Isometric View. **Right click** in the graphics window and click Isometric (WCS) (**Alt-7**).

Step 3. If necessary, display Toolpaths Manager. On the View tab VIEW click Toolpaths (**Alt-O**).

Step 4. If Machine Group is **not** displayed in the Toolpaths Manager, **Fig. 1**, on the Machine tab MACHINE, click Machine Mill > Default from the menu.

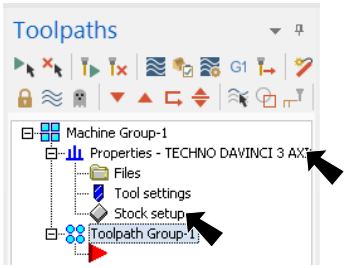


Fig. 1

Step 5. Expand **Properties** (click +) in the Toolpaths Manager, **Fig. 1**.

Step 6. Click **Stock Setup** in the Toolpaths Manager, **Fig. 1**.

Step 7. 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 8. Click **All Entities box** button in the Stock Setup dialog box, **Fig. 2**.

Step 9. Set **Z dimension .125**, **Fig. 2**.

Step 10. Confirm **Display** check box is checked, **Fig. 2**.

Step 11. Click OK in Machine Group Properties, **Fig. 2**.

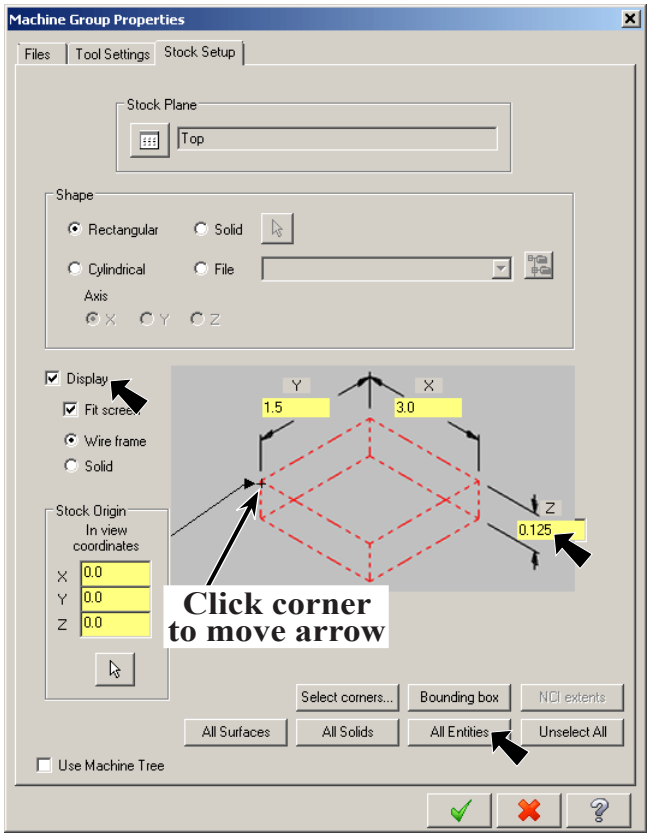


Fig. 2

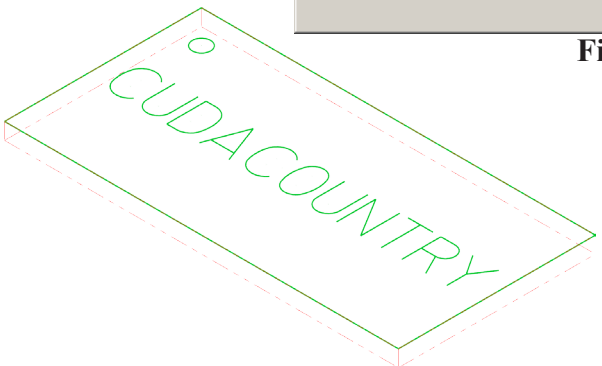


Fig. 3

B. Contour Toolpath for Letters.

Step 1. Change to the Top View. **Right click** in the graphics window and click Top (WCS) (**Alt-1**).

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

Step 3. Click OK in the NC name dialog, **Fig. 4**.

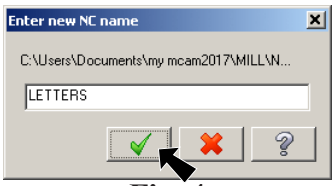


Fig. 4

Step 4. Click the **Window** in Chaining dialog box, **Fig. 5**.

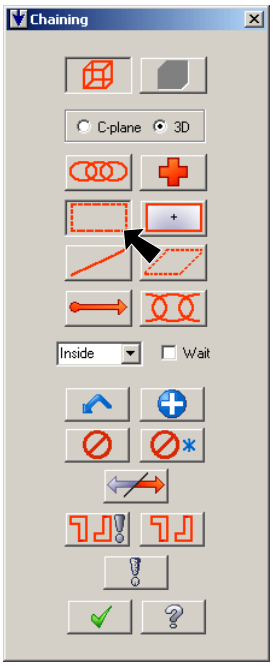


Fig. 5

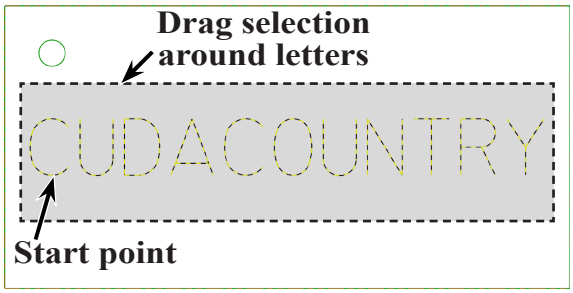


Fig. 6

Step 5. Drag a selection around letters, **Fig. 6**.

Step 6. Click **first letter** for **Approximate Start Point**, **Fig. 6**.

Step 7. Click OK in Chaining dialog box.

Step 8. Select **Tool** from tree control and set:

Feed rate: 15
Plunge rate: 7

Click **Select library tool** **Fig. 7**.

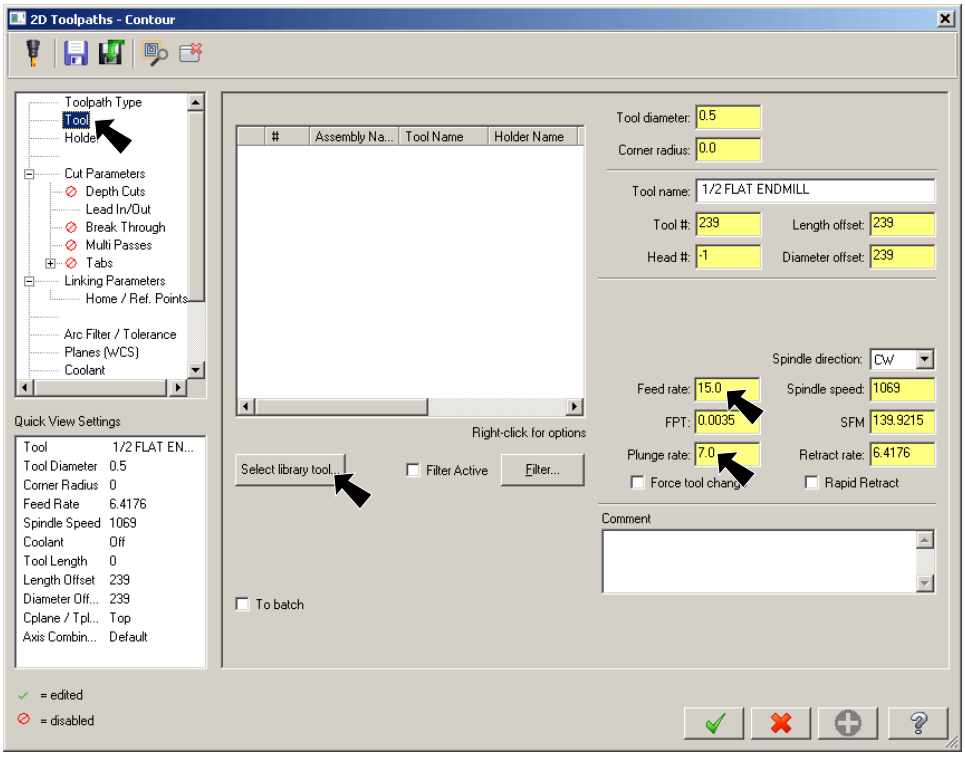


Fig. 7

Step 9. Click **Filter**, **Fig. 8**.

Step 10. Click **None** under **Tool Types**, **Fig. 9**.

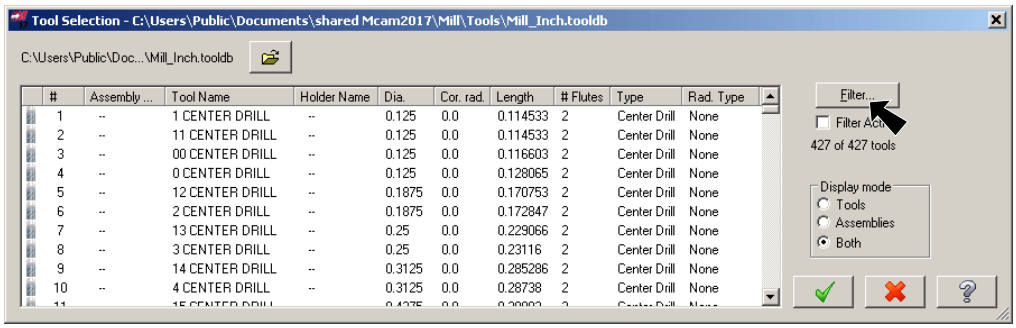


Fig. 8

Step 11. Click **Endmill2 Sphere** (second button top row) and click OK, **Fig. 9**.

Step 12. Click **302 1/16 BALL ENDMILL** and click OK **Fig. 10**.

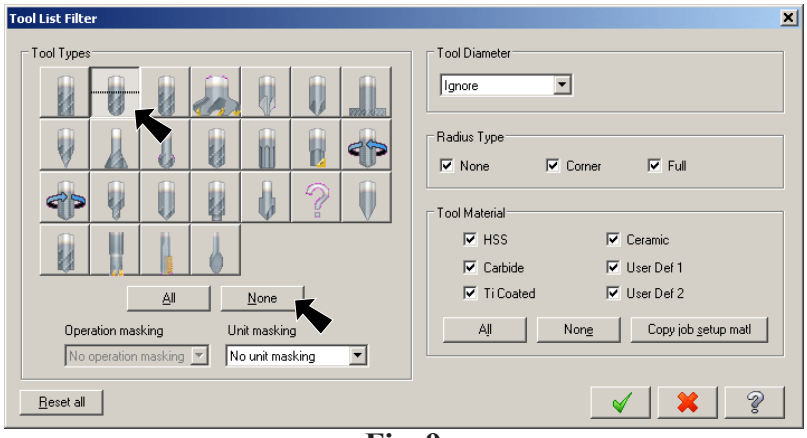


Fig. 9

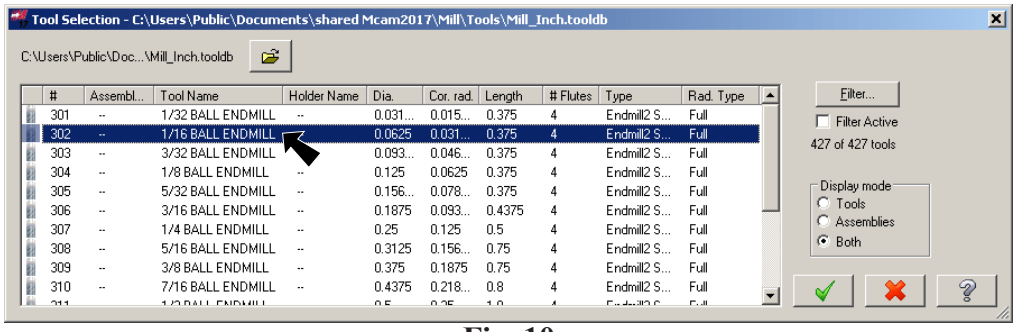


Fig. 10

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

Compensation type: **Off**
Fig. 11

Step 14. Select **Lead In/Out** from tree control and:

Uncheck **Lead In/Out**
Fig. 12.

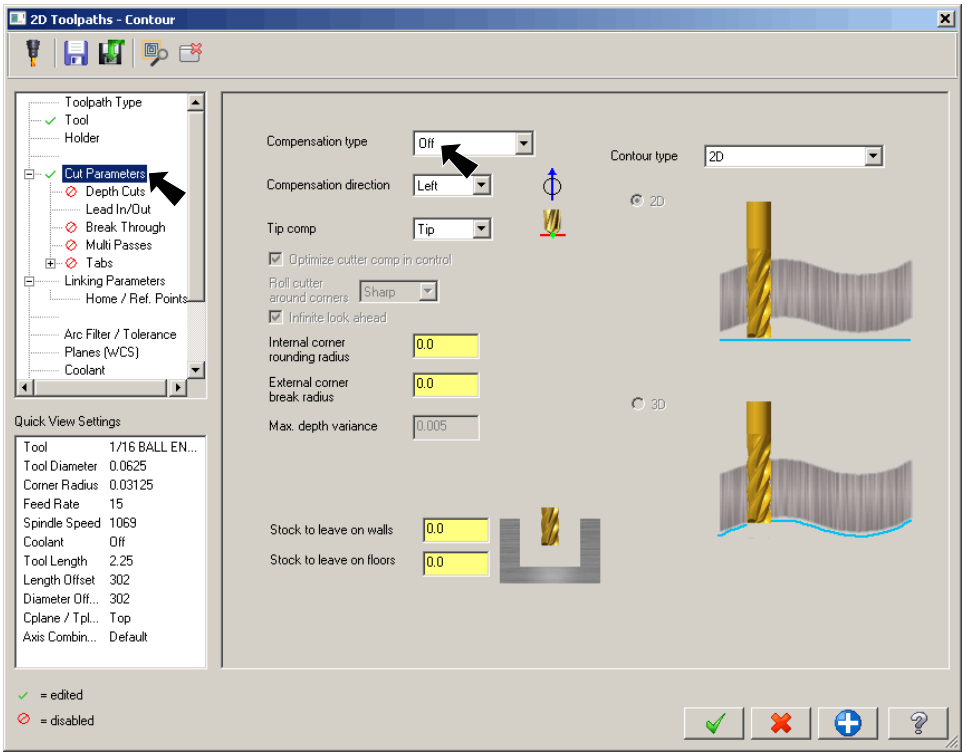


Fig. 11

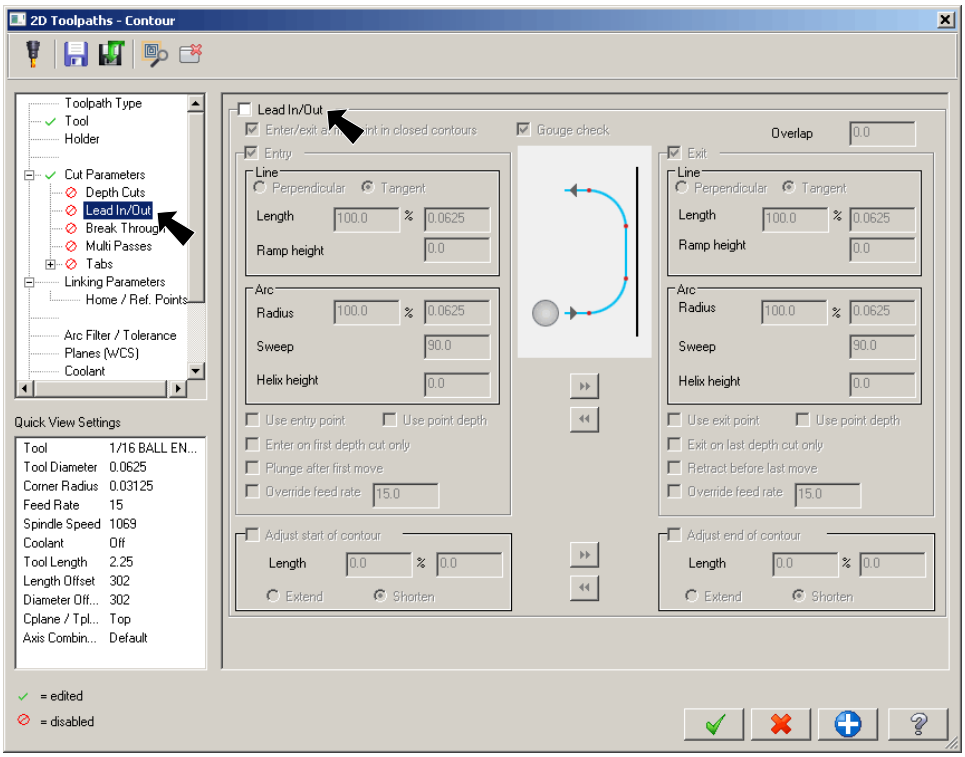


Fig. 12

Step 15. Select **Linking Parameters** from tree control and set:

Uncheck **Clearance**

Check **Retract .1 Absolute**

Depth -.02
Fig. 13.

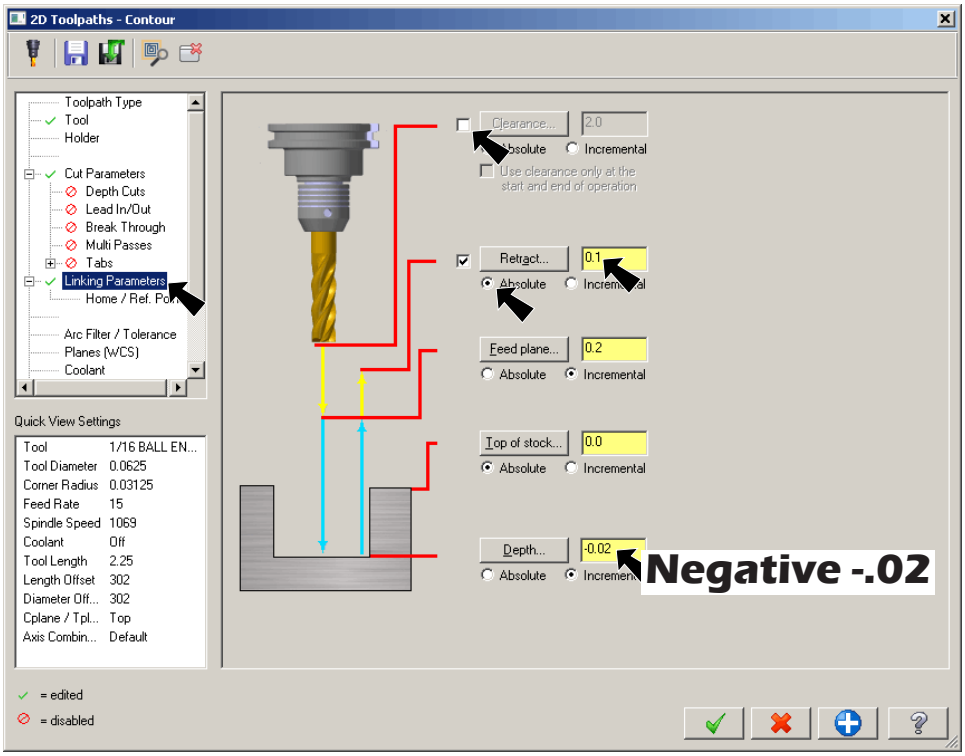


Fig. 13

Step 16. Click OK  .

Step 17. Change to the Isometric View. **Right click** in the graphics window and click 

(**Alt-7**).

Step 18. Save  (**Ctrl-S**).

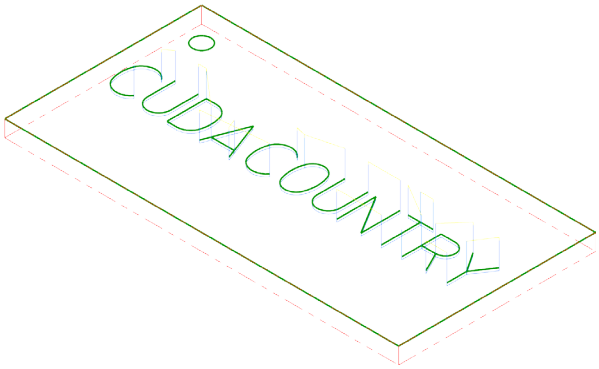
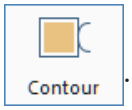


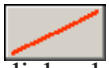
Fig. 14

C. Toolpath For Hole.

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

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

.

Step 3. Click the **Single**  in Chaining dialog box, **Fig. 15**.

Step 4. Click circle, **Fig. 16**.

Step 5. Click OK  in Chain dialog box.

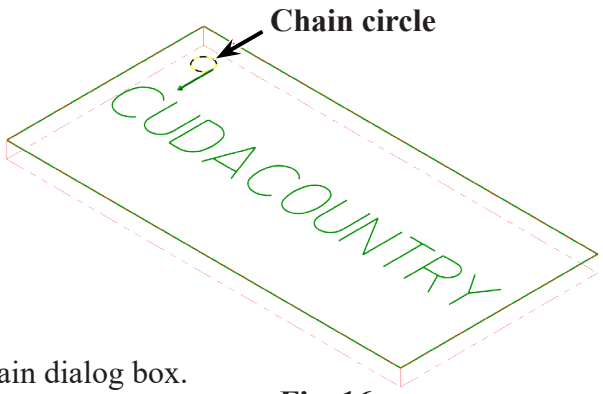


Fig. 16

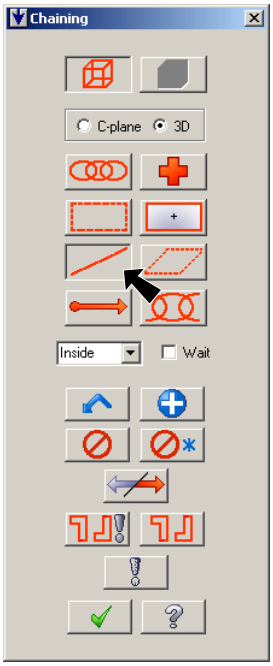


Fig. 15

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

Check **Depth cuts**

Max rough step: **.03**
Fig. 17.

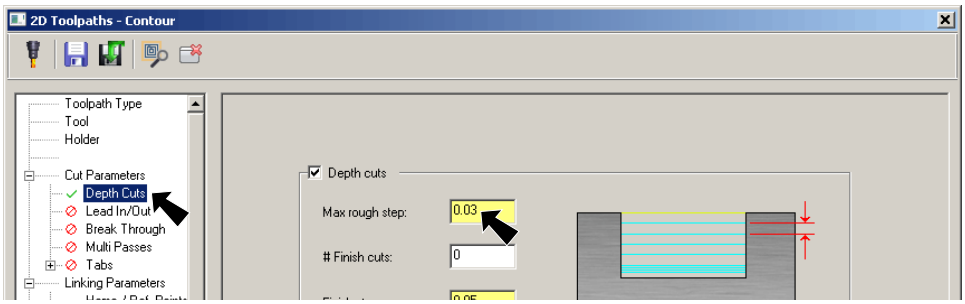


Fig. 17

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

Retract .1

Depth -.14
Fig. 18.

Step 8. Click OK 
.

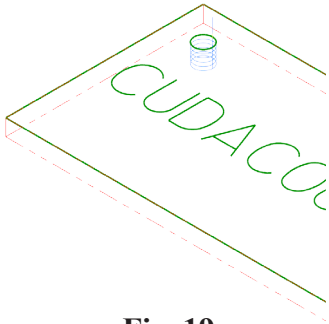


Fig. 19

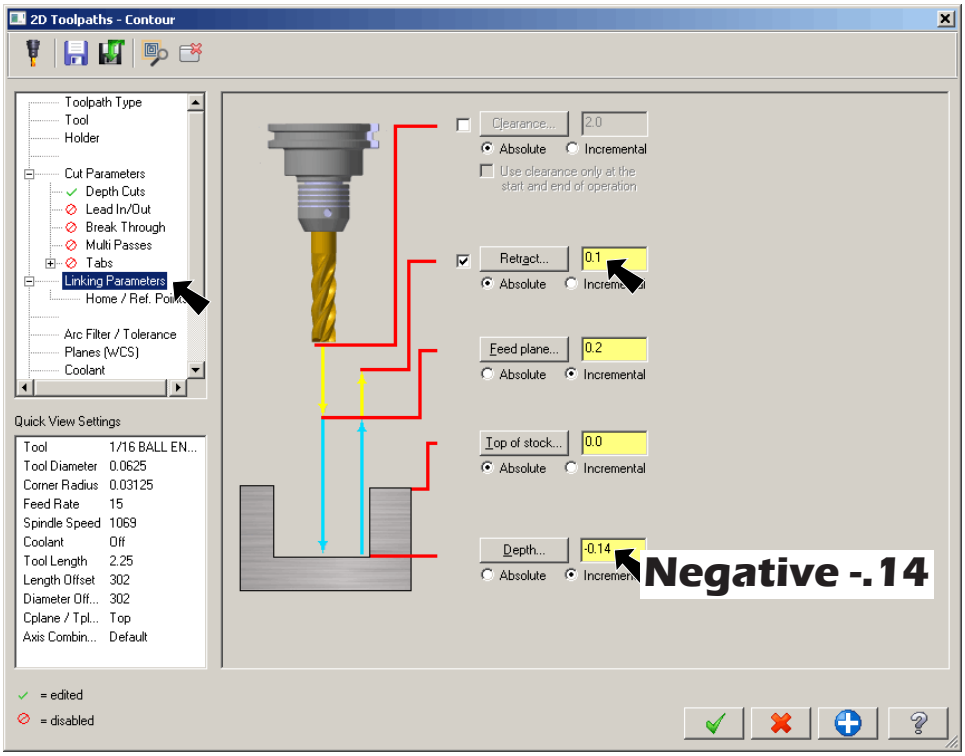


Fig. 18

D. Verify.

Step 1. Click **Toolpath Group-1** in the Toolpaths Manager to select **both** toolpaths, **Fig. 20**.

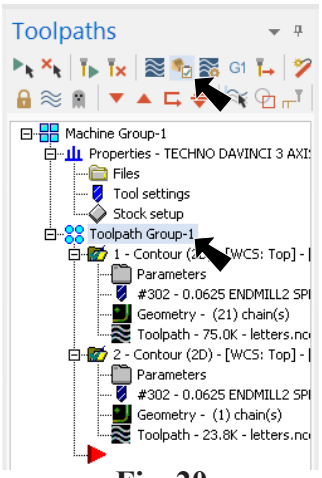


Fig. 20

Step 2. Click **Verify**  in the Toolpaths Manager, **Fig. 20**.

Step 3. Click **Verify**  in Mastercam Simulator home ribbon bar to select Verify mode and uncheck **Wireframe**, **Fig. 21**.

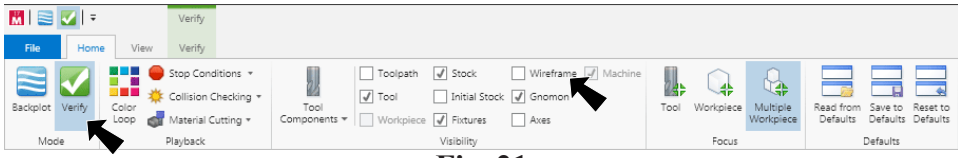


Fig. 21

Step 4. Click **Play**  **(R)** in VCR bar along bottom of the window, **Fig. 22**.

Fig. 22

Step 5. Note **Total Time** to run program under Toolpath Info in the Move List panel (**1min 33.38s**), **Fig. 24**.

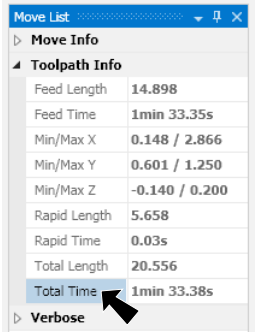


Fig. 24

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

Step 7. Save  **(Ctrl-S)**.

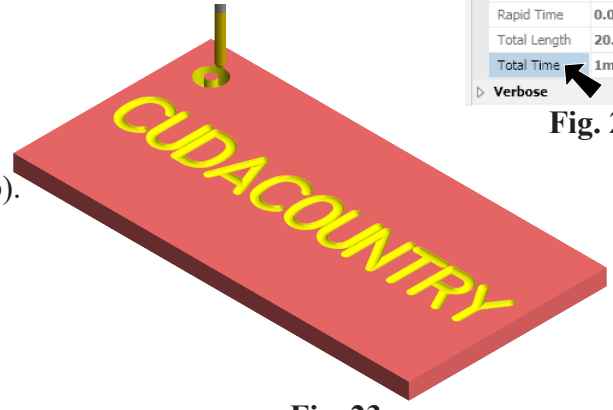


Fig. 23