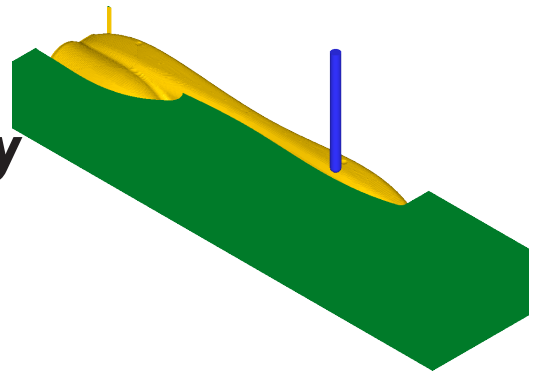


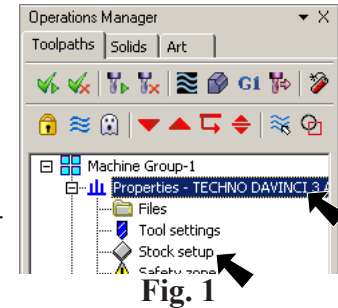
**HST Toolpaths Rail E Body**

**Cut Body (HST Scallop)**



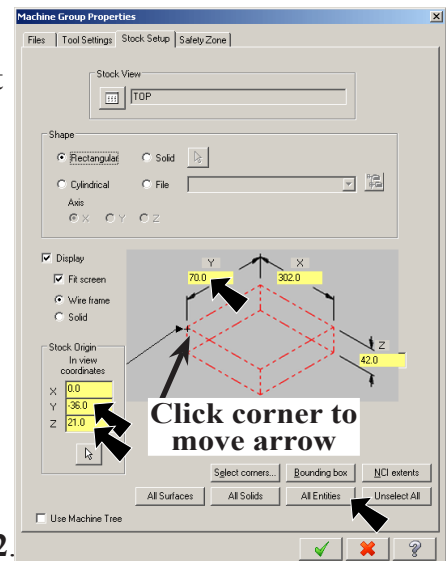
**A. Machine Type and Stock Setup.**

- Step 1. If necessary, open your file from Chapter 15.
- Step 2. If necessary, display Operations Manager. Use **Alt-O**.
- Step 3. If Machine Group is **not** displayed in the Operations Manager, **Fig. 1**, click Machine Type Menu > Mill > Default.
- Step 4. Expand **Properties** (click the +) in the Toolpaths Manager, **Fig. 1**.
- Step 5. Click **Stock Setup** in the Toolpaths Manager, **Fig. 1**.




**Fig. 1**

- Step 6. Click the **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** button in the Stock Setup, **Fig. 2**.
- Step 8. Set Stock Origin coordinates:  
**X 0**  
**Y -36**  
**Z 21**, **Fig. 2**.

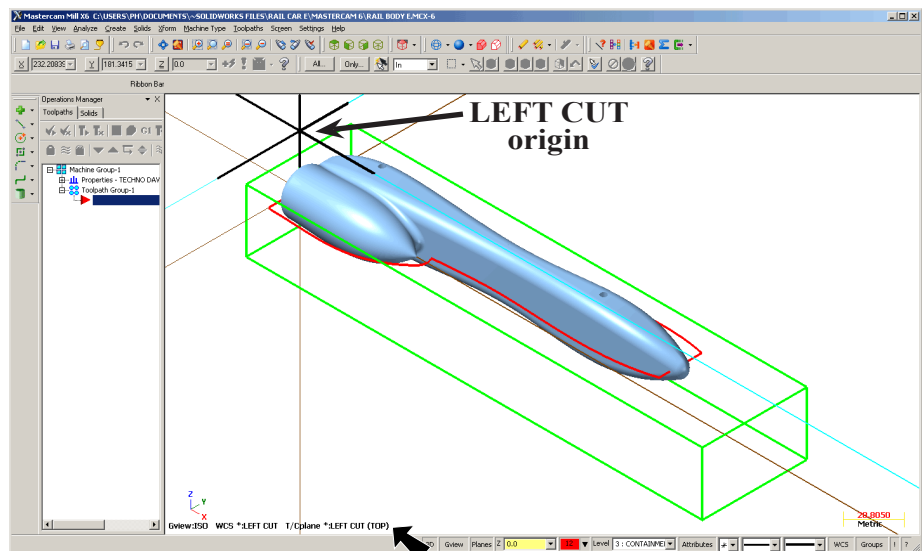


**Fig. 2**

- Step 9. Set **Y stock dimension 70**, **Fig. 2**.
- Step 10. Click OK  in the Machine Group Properties, **Fig. 2**.

**B. WCS LEFT CUT.**


- Step 1. In the bottom left corner of the display, make sure the Tool Plane (T/Cplane) is **LEFT CUT**, **Fig. 3**.
- Step 2. The origin should be **LEFT CUT**. Use **F9** to show and hide axes.

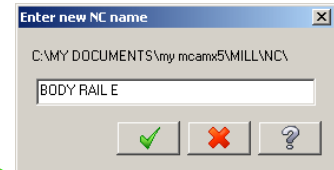


**Fig. 3**

### C. Left Cut Finish Scallop Toolpath.

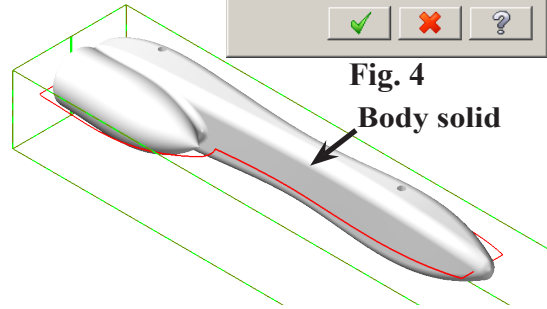
Step 1. Click Toolpaths Menu > Surface High Speed > Scallop.

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



**Fig. 4**  
**Body solid**

Step 3. Click the **body solid** to select as Drive surfaces/solid, **Fig. 5**. The solid will highlight when selected.

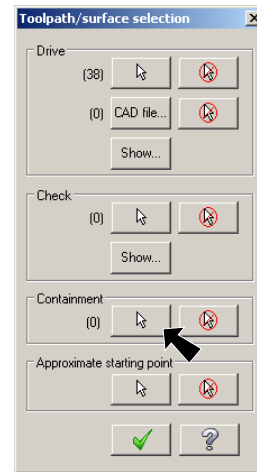


**Fig. 5**

Step 4. Press **ENTER** to accept solid selection as drives surfaces.

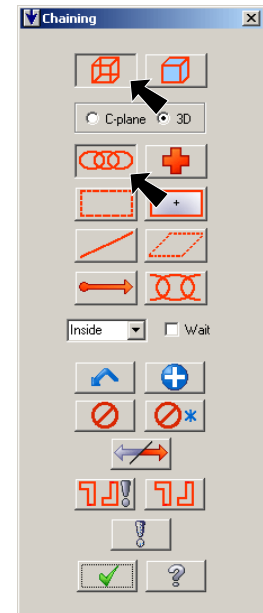
Step 5. Click **Containment Select** button in the Toolpath/surface selection dialog box, **Fig. 6**.

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



**Fig. 6**

Step 7. Click **Chain** button  (C) in the Chaining dialog box, **Fig. 7**.

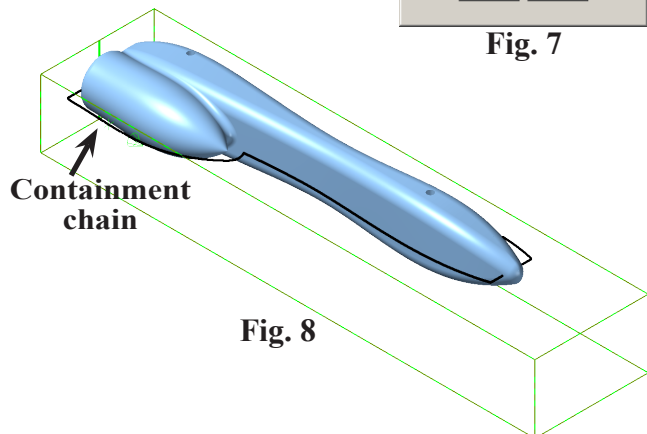


**Fig. 7**

Step 8. Click any **containment geometry**, **Fig. 8**. The containment geometry should chain all the way around the geometry. If all geometry doesn't chain, look for gaps, extra geometry or entities on top of entities. Any errors in the chain most likely occurred when trimming.

Step 9. Click OK  in Chain dialog box, **Fig. 7**.

Step 10. Click OK  in the Toolpath/surface selection dialog box, **Fig. 6**.



**Fig. 8**

Step 11. Select **Tool** from the tree control and:

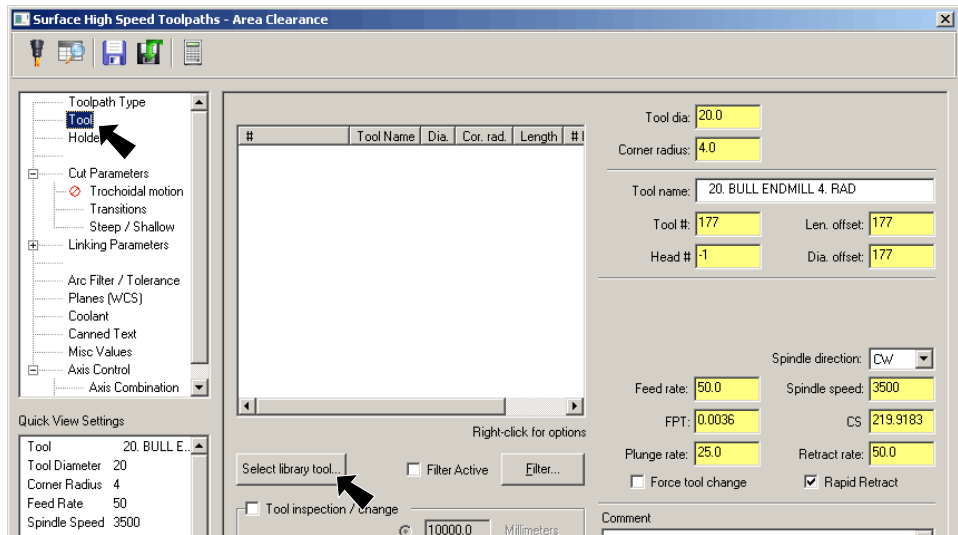
click **Select library tool** button, **Fig. 9**.

Step 12. Click the **Filter** button, **Fig. 10**.

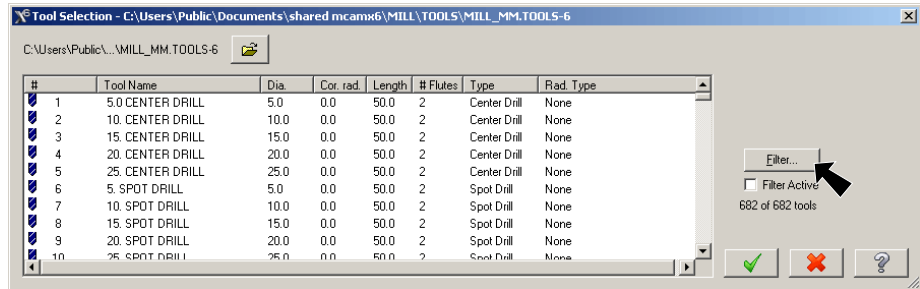
Step 13. Click **None** button under **Tool Types**, **Fig. 11**.

Step 14. Click **Endmill2 Sphere** button (second button top row), **Fig. 11** and click **OK**.

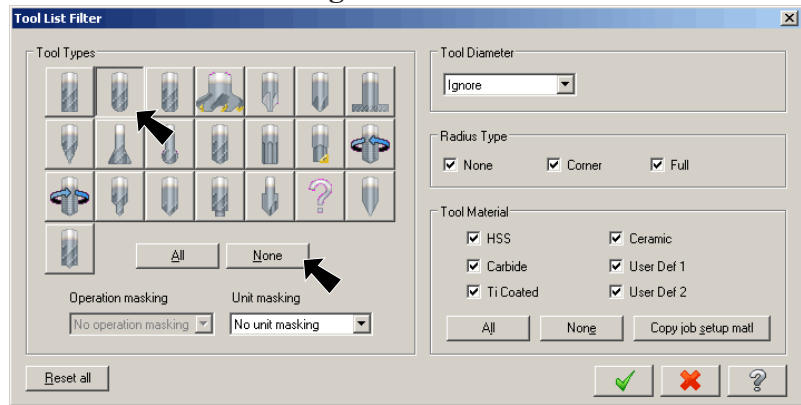
Step 15. Click **240 Ball Endmill 6mm**, **Fig. 12** and click **OK**.



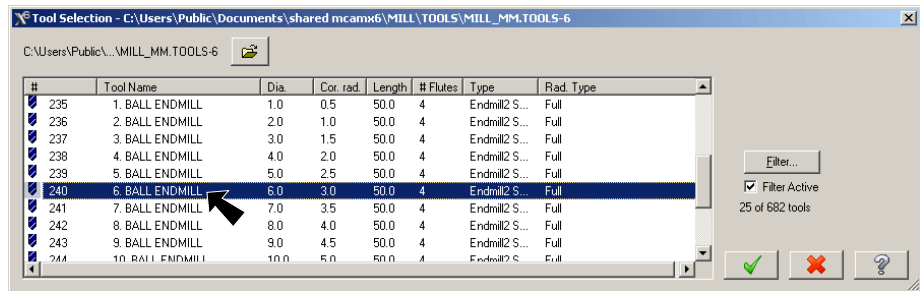
**Fig. 9**



**Fig. 10**



**Fig. 11**



**Fig. 12**

Step 16. Back in Tool page set:

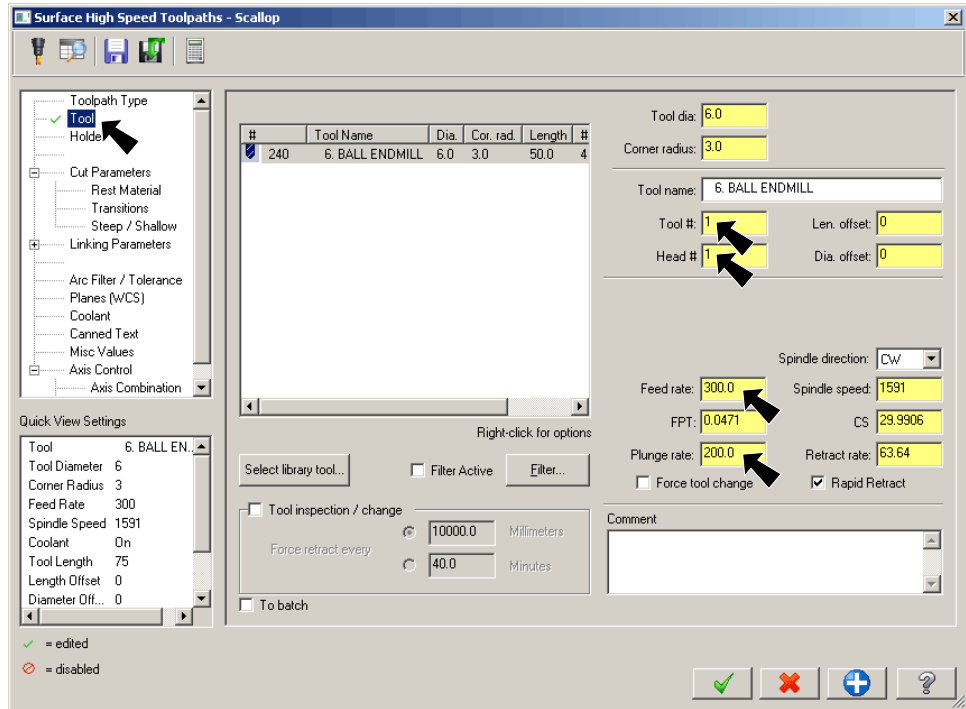
**Tool # 1**

**Head # 1**

**Feed rate 300**

**Plunge rate 200**

**Fig. 13.**



**Fig. 13**

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

**Cutting method Zigzag**

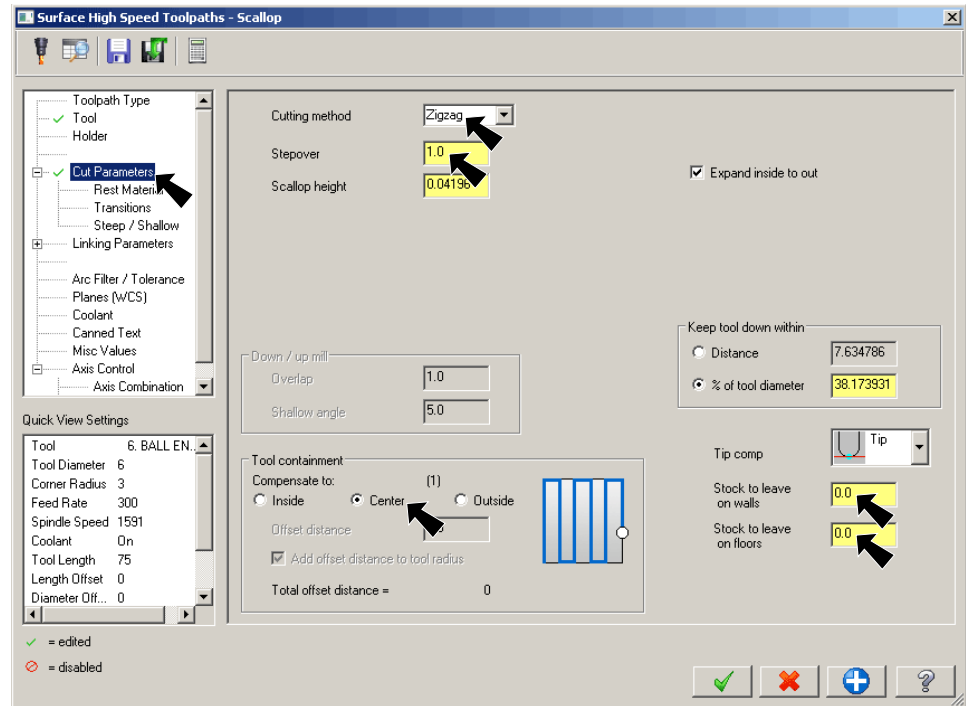
**Stepover 1**

**Tool containment Compensate to: Center**

**Stock to leave on walls 0**

**Stock to leave on floors 0**

**Fig. 14.**



**Fig. 14**

Step 18. Select **Steep/ Shallow** from the tree control and set:

**Check Use Z depths**

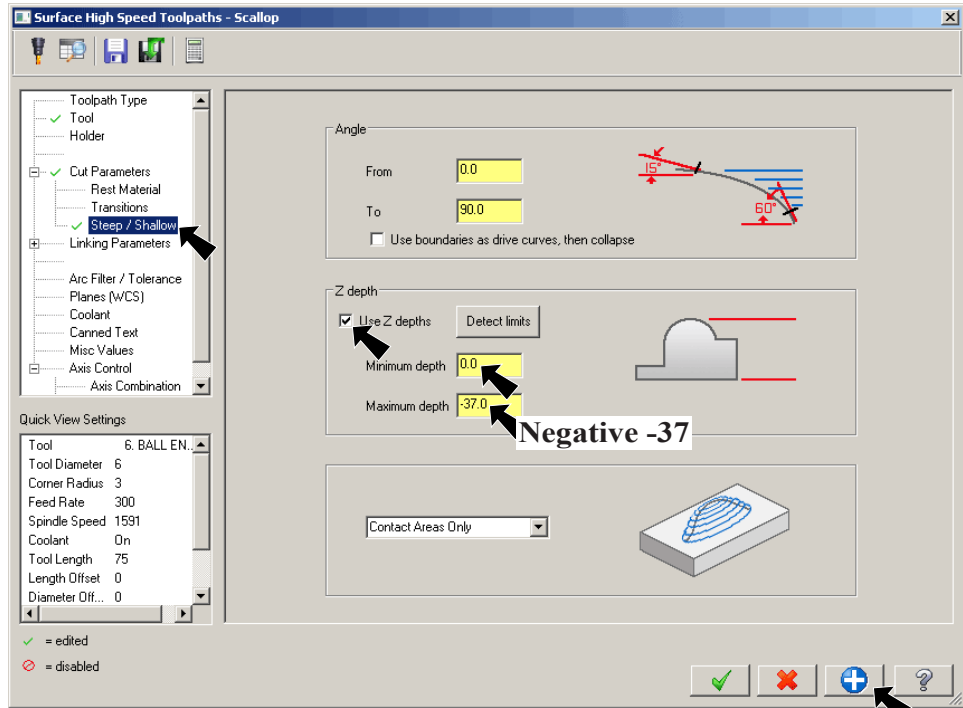
**Minimum depth 0**

**Maximum depth -37**

Click **Apply**



**Fig. 15.**



**Fig. 15**

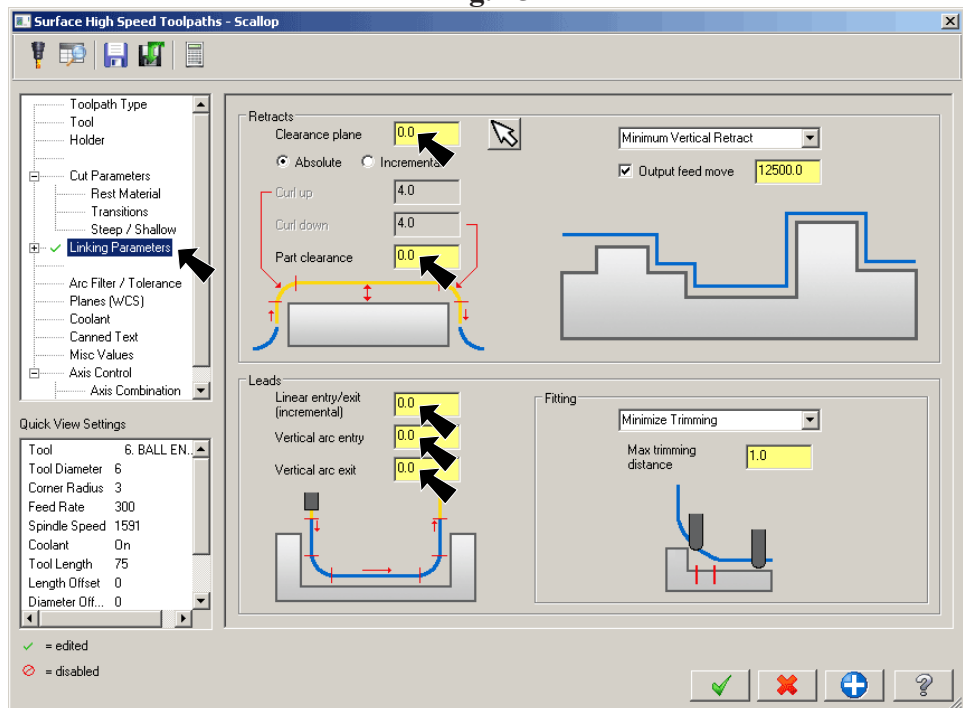
Step 19. Select **Linking Parameters** from the tree control and set:

**Clearance plane 0**

**Part clearance 0**

**Leads 0**

**Fig. 16.**

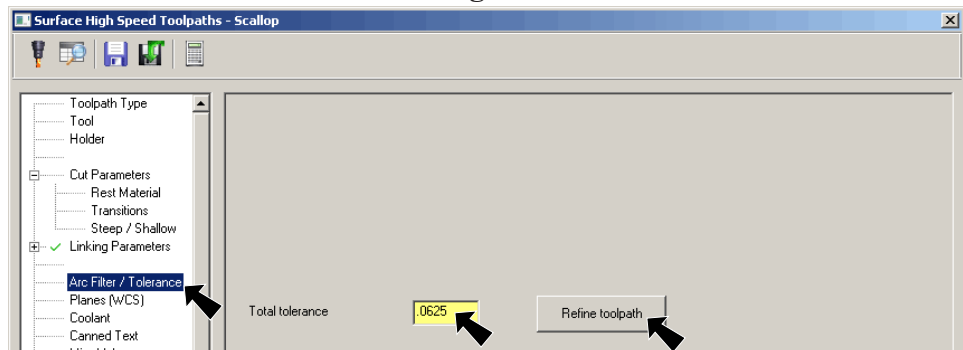


**Fig. 16**

Step 20. Select **Arc Filter/Tolerance** from the tree control and set:

**Total tolerance .0625**

click **Refine toolpath** button, **Fig. 17.**



**Fig. 17**

Step 21. In the **Refine Toolpath** dialog box:

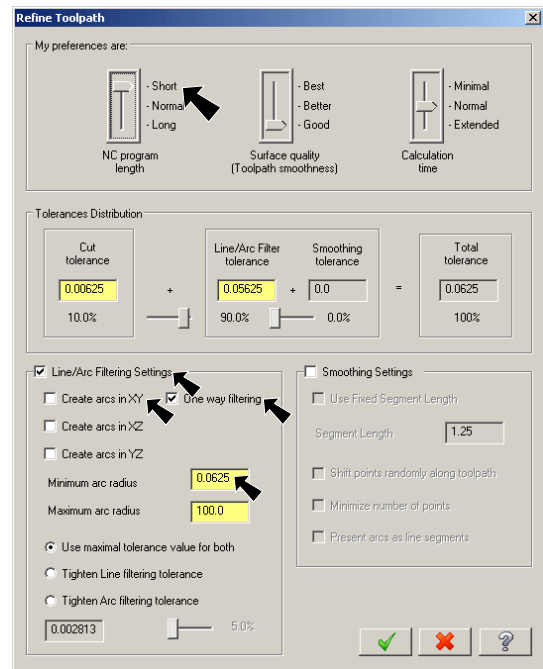
check **Line/Arc Filtering Setting**, **Fig. 18**

set **Minimum arc radius .0625**

uncheck **Create arcs XY** check box

check **One way filtering**

move **NC program length slider to Short**.



**Fig. 18**

Step 22. Click OK  in Refine Toolpath dialog box.

Step 23. Click OK  in Scallop dialog box.

Step 24. Allow Mastercam to calculate the toolpaths.

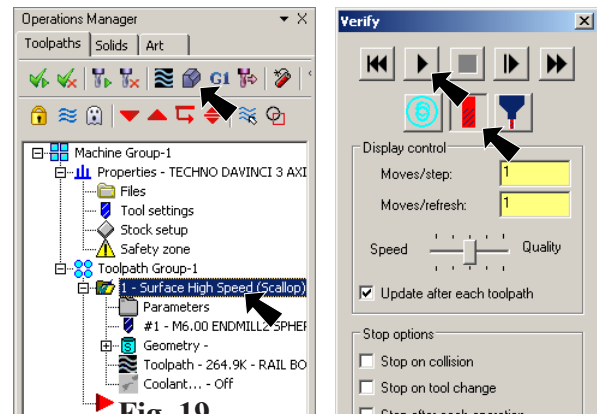
Step 25. Save . Use **Alt-F S**.

### **D. Verify Left Cut.**


Step 1. In the Toolpaths Manager, click the **Scallop toolpath** to select toolpath, **Fig. 19**.


Step 2. Click **Verify**  in the Toolpaths Manager, **Fig. 19**.

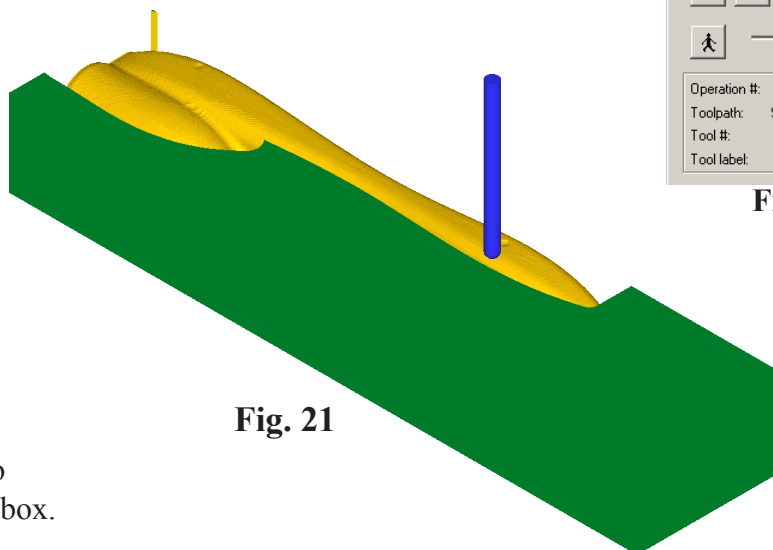
Step 3. Click **Machine quickly** , **Fig. 20**.



**Fig. 19**

Step 4. Turn on (button depressed) **Simulate tool** .

Step 5. Click the **Machine**  in the Verify dialog box to start the machining, **Fig. 21**.



**Fig. 21**

Step 6. Click OK  to close Verify dialog box.

**Fig. 20**

## E. Mirror LEFT CUT to RIGHT CUT Body Toolpaths.

Step 1. Click Toolpaths Menu > Transform.

Step 2. Under Type, select **Mirror**, Fig. 22.

Step 3. Under Source operations, select **Surface High Speed (Scallop)**, Fig. 22.

Step 4. Click the **Mirror** tab at the top of the dialog box, Fig. 22.

Step 5. Under Mirror, select **Mirror about X axis** , Fig. 23.

Step 6. Click OK  in the Transform Operation Params dialog box.

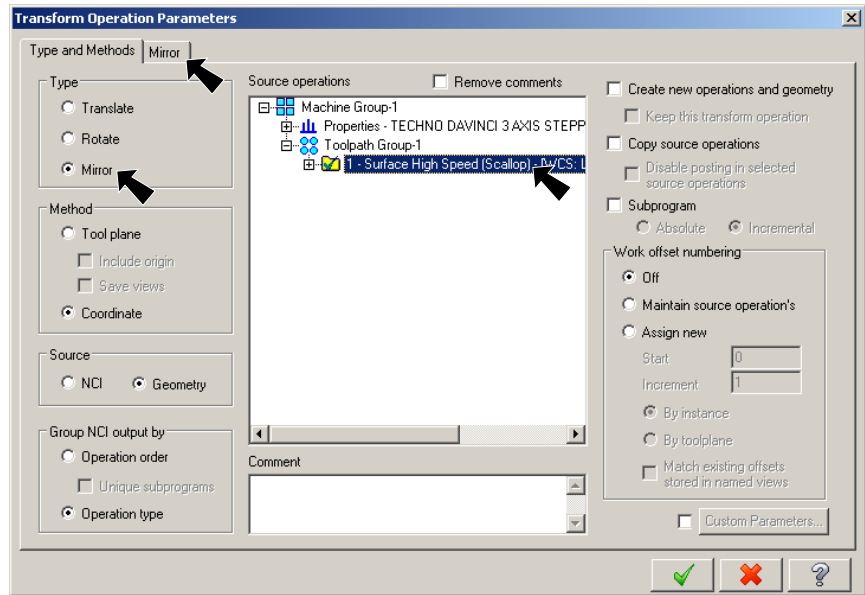


Fig. 22

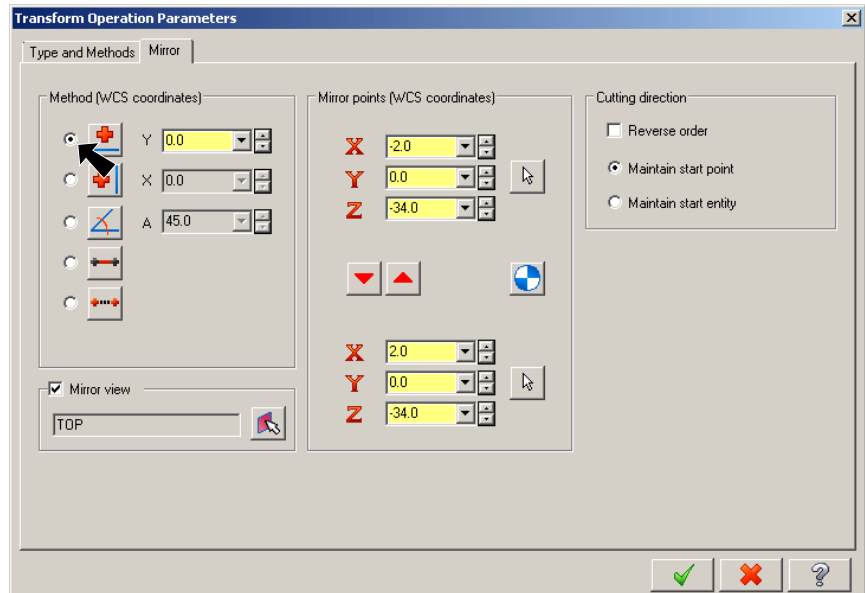



Fig. 23

## F. Verify Right Cut.

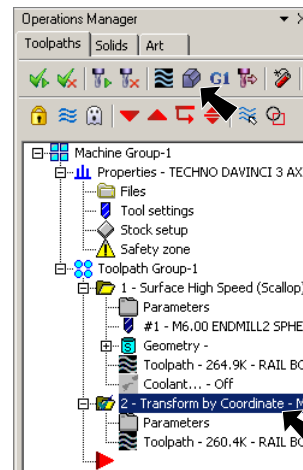
Step 1. In the Toolpaths Manager, click the **mirrored Transform by Coordinate** toolpath, **Fig. 24**.

Step 2. Click **Verify**  in the Toolpaths Manager, **Fig. 24**.

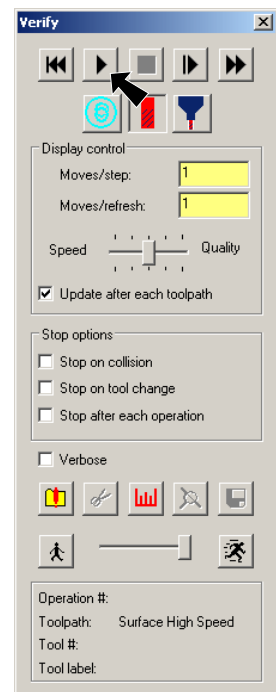
Step 3. Click the **Machine**  in the Verify dialog box to start the machining, **Fig. 25**.

Step 4. Click OK  to close Verify dialog box.

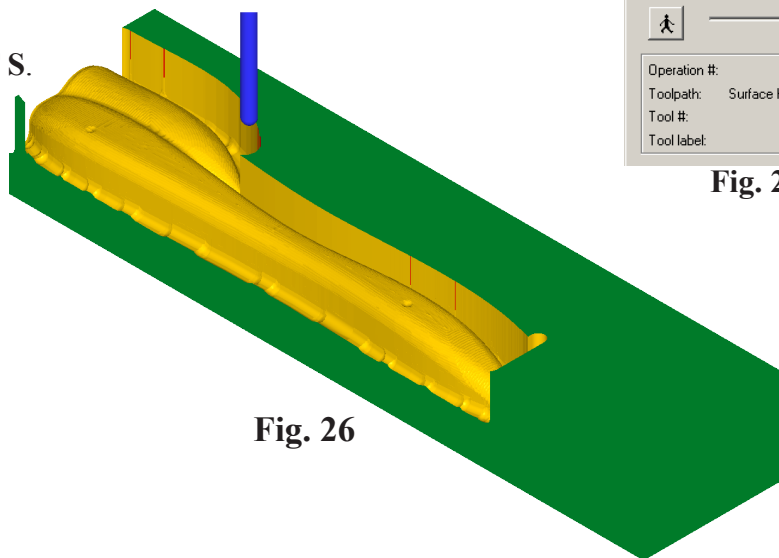
Step 5. Save . Use **Alt-F S**.



**Fig. 24**



**Fig. 25**



**Fig. 26**