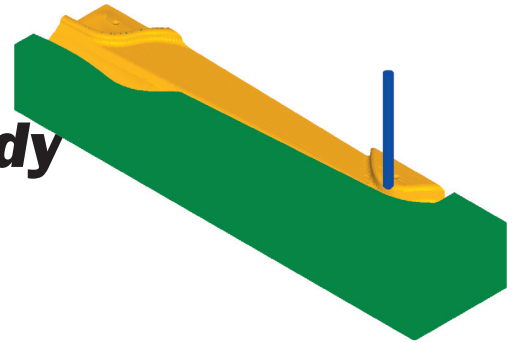


HST Toolpaths CO2 Rail Body

Cut Body (HST Scallop)



A. Machine Type and Stock Setup.

Step 1. If necessary, open your file from Chapter 19.

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**.

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 to 0
Y to -36
Z to 21, Fig. 2.

Step 9. Click OK  in the Machine Group Properties, **Fig. 2**.

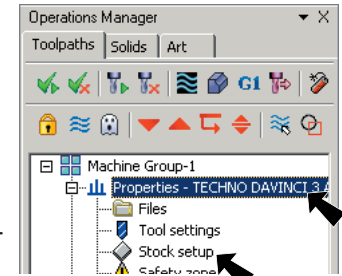


Fig. 1

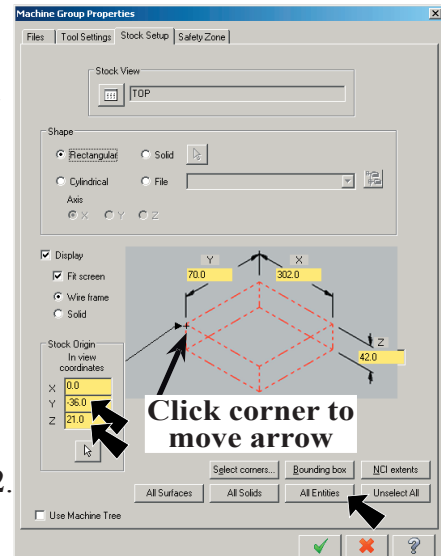


Fig. 2

B. WCS is set to 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.

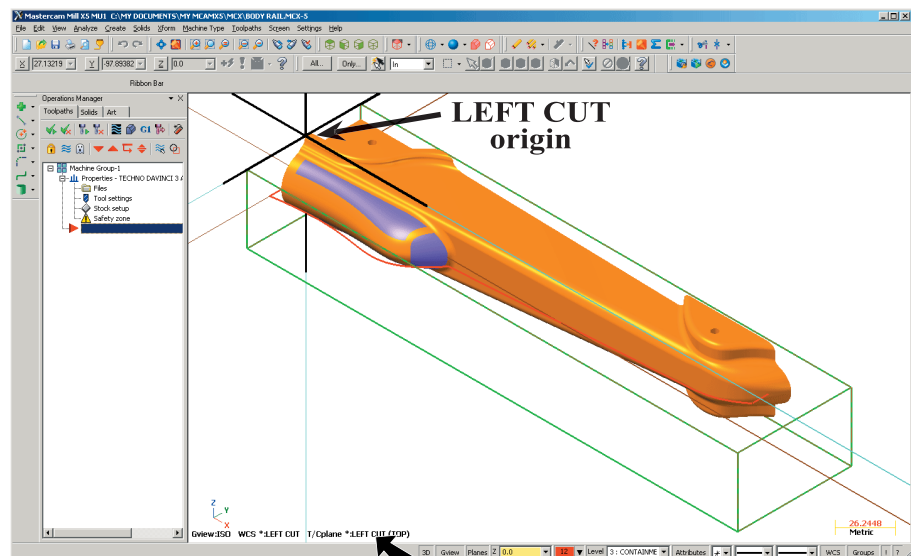



Fig. 3

C. Left Cut Finish Hybrid Toolpath.

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

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

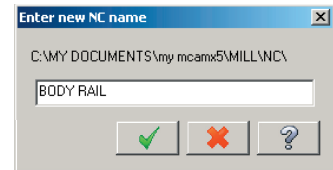


Fig. 4
Body solid

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

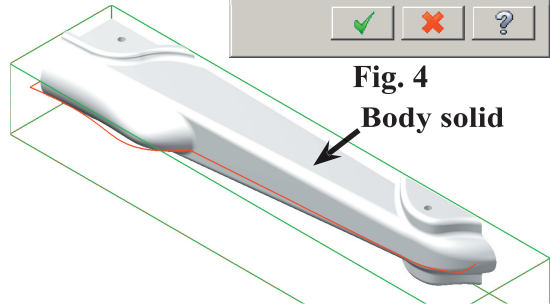


Fig. 5

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**.

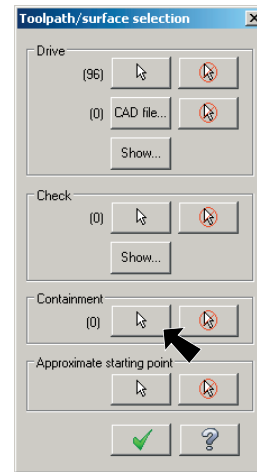


Fig. 6

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

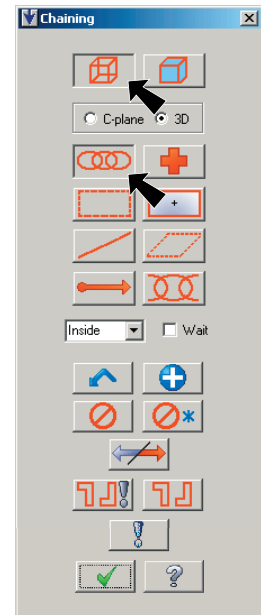


Fig. 7

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

Step 8. Click any **containment geometry**, **Fig. 8**.

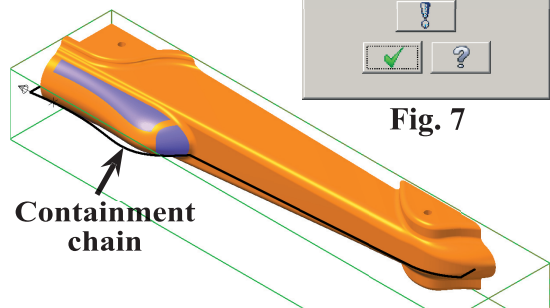



Fig. 8

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

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

Step 11. Select **Toolpath Type** from the tree control and select:

Finishing

Scallop

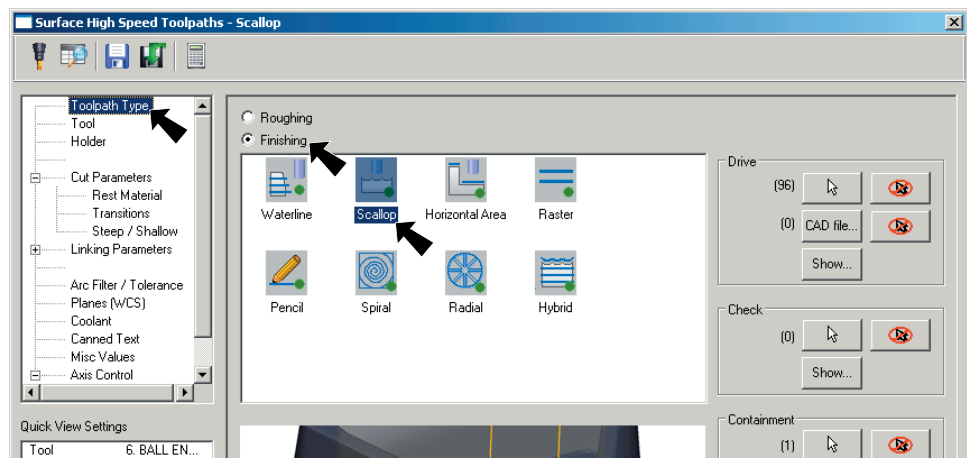


Fig. 9

Step 12. Select **Tool** from the tree control and:

click **Select library tool** button, **Fig. 10**.

Step 13. Click the **Filter** button, **Fig. 11**.

Step 14. Click **None** button under **Tool Types**, **Fig. 12**.

Step 15. Click **Endmill2 Sphere** button (second button top row), **Fig. 12** and click OK.

Step 16. Click **240 Ball End-mill 6mm**, **Fig. 13** and click OK.

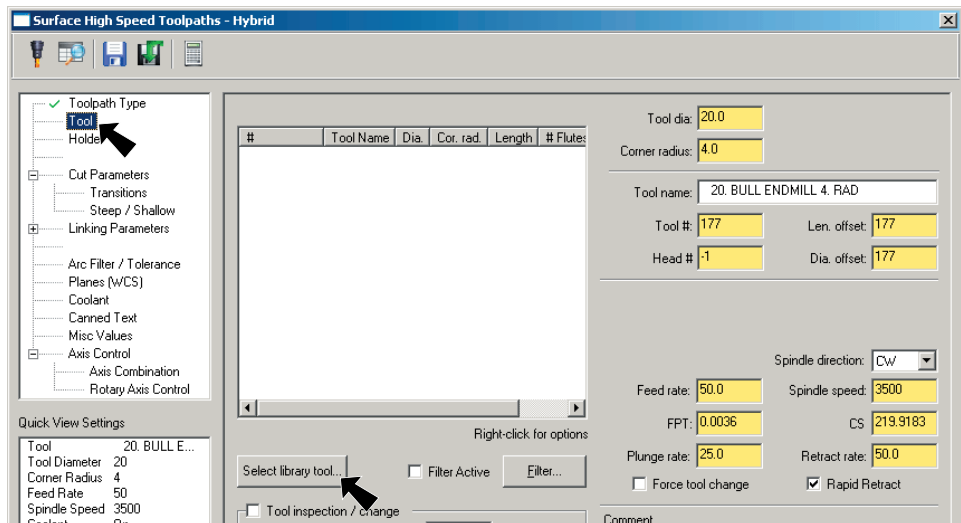


Fig. 10

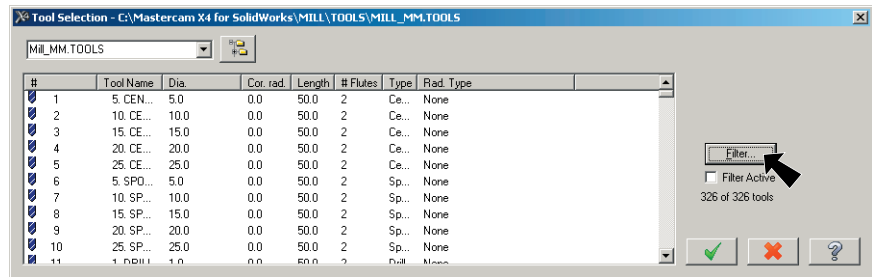


Fig. 11

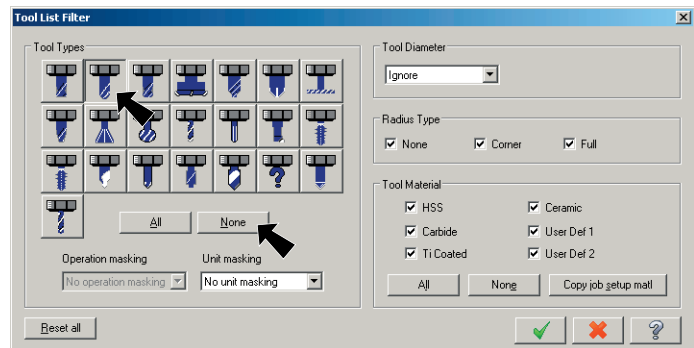


Fig. 12

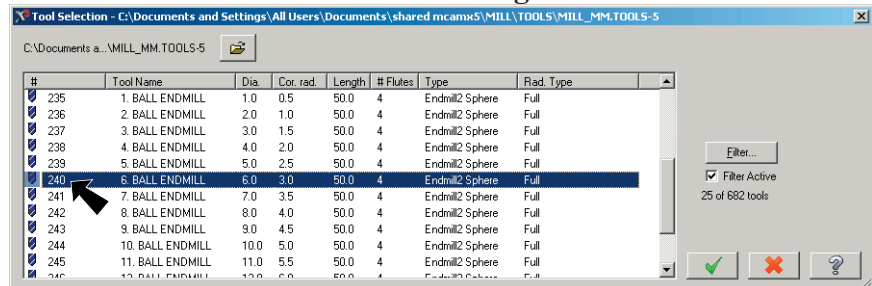


Fig. 13

Step 17. Back in Tool page set:

Tool number 1

Head number 1

Fig. 14.

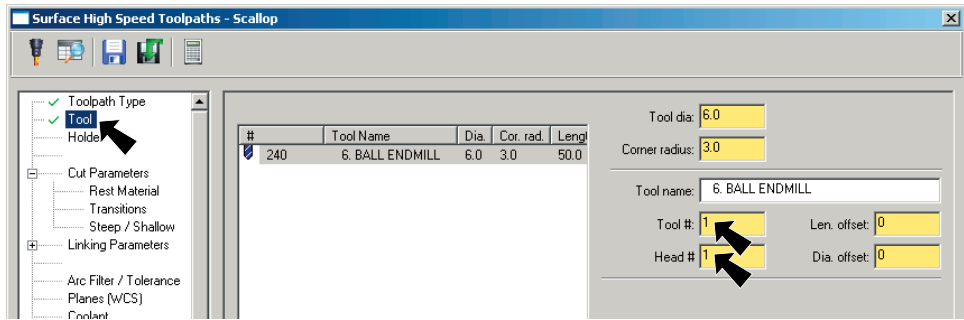


Fig. 14

Step 18. 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. 15.

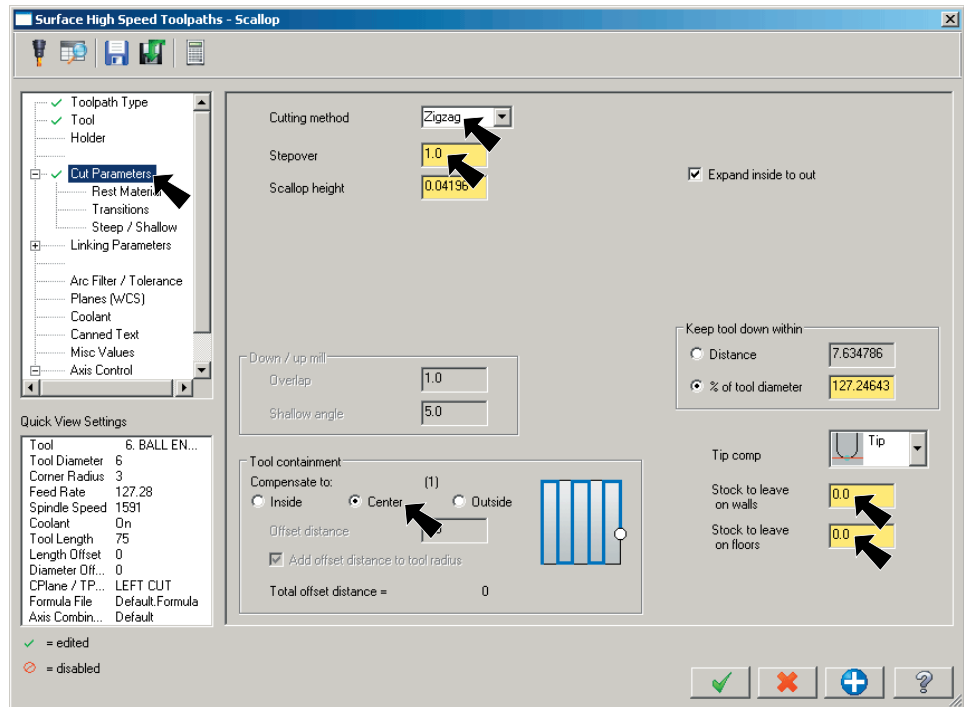


Fig. 15

Step 19. Select Step/Shallow from the tree control and set:

Check Use Z depths

Minimum depth 0

Maximum depth -23

Fig. 16.

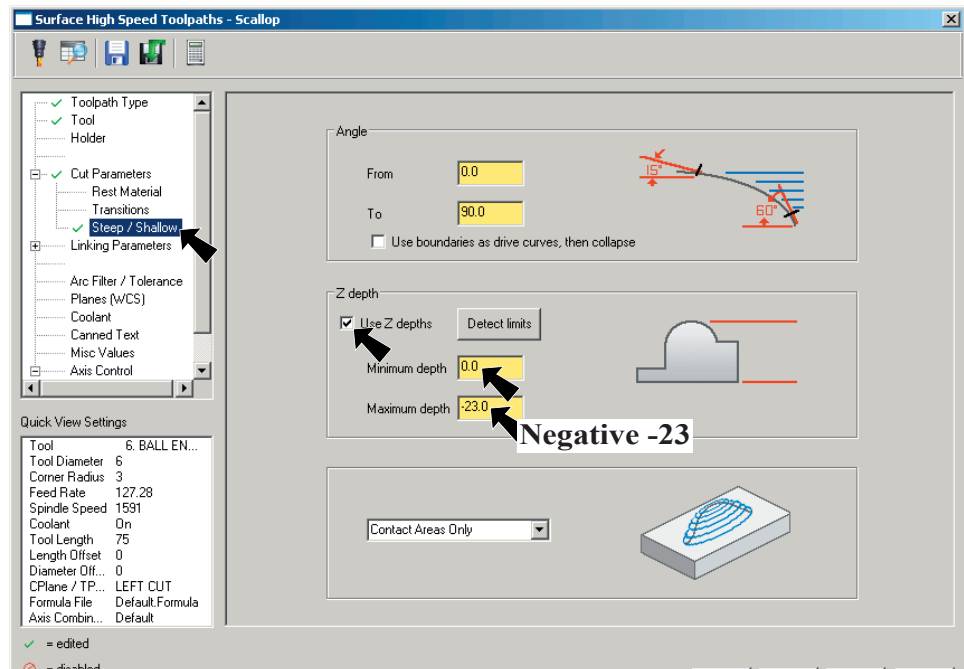


Fig. 16

Step 20. Select **Linking Parameters** from the tree control and set:

Clearance plane 2

Part clearance 6

All Leads 0
Fig. 17.

Step 21. Select **Arc Filter/Tolerance** from the tree control and set:

Total tolerance .0625

click **Refine toolpath** button, **Fig. 18.**

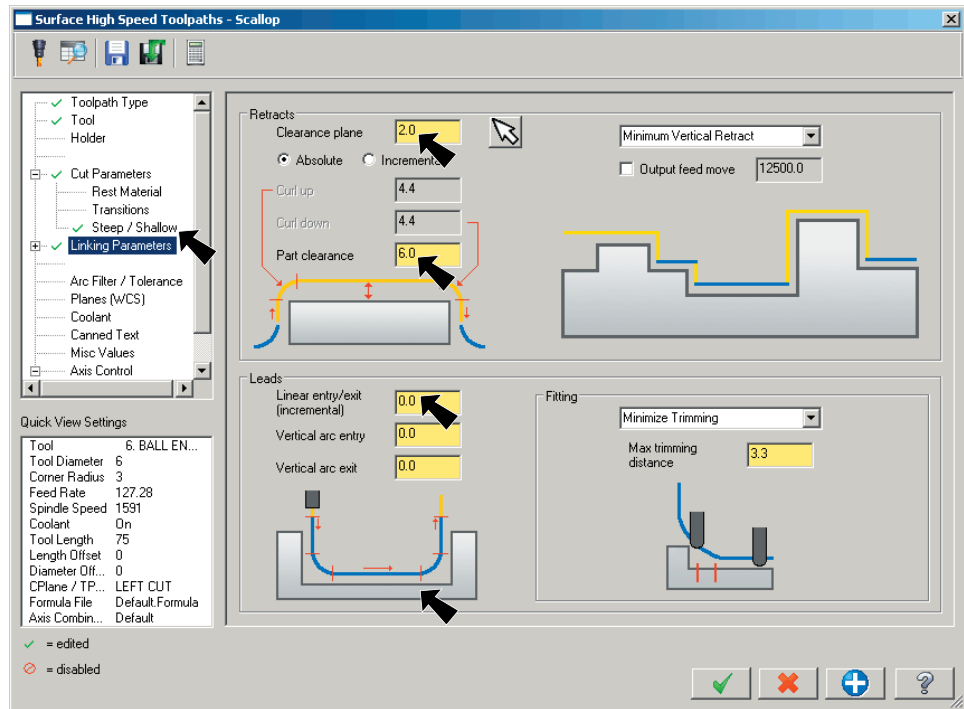


Fig. 17

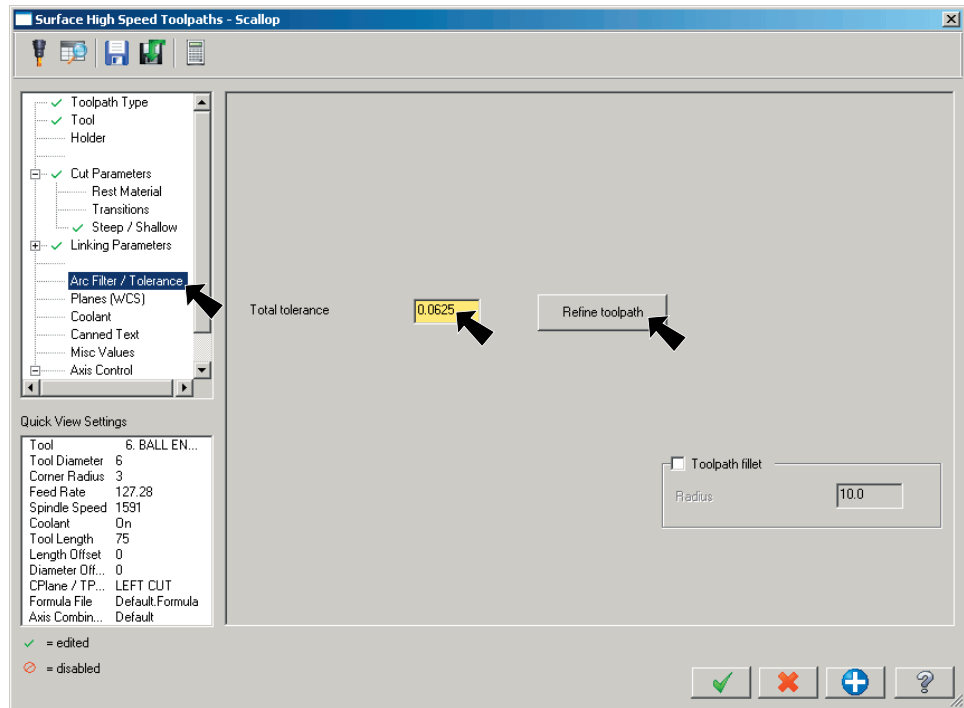


Fig. 18

Step 22. In the **Refine Toolpath** dialog box set:

check **Line/Arc Filtering Setting**, **Fig. 10**

Set **Minimum arc radius .0625**

Uncheck **Create arcs XY** check box

Check **One way filtering**

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

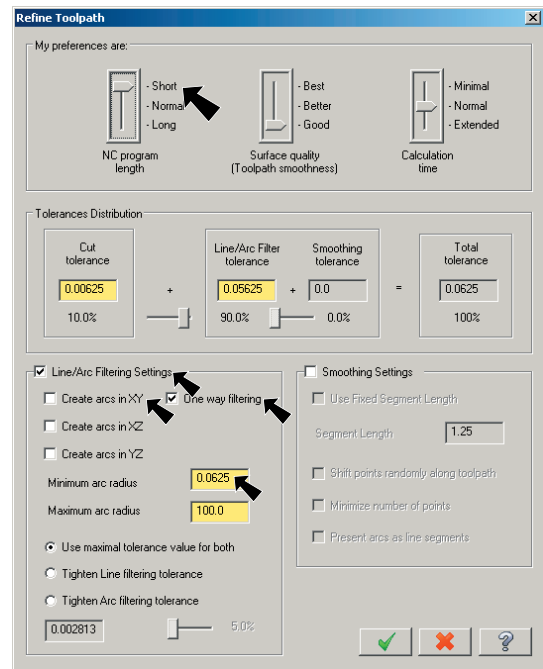


Fig. 19

Step 23. Click OK  in Refine Toolpath dialog box.

Step 24. Click OK  in Scallop dialog box.

Step 25. Allow Mastercam to calculate the toolpaths.

Step 26. Save . Use **Alt-F S**.

D. Verify Left Cut.

Step 1. In the Toolpaths Manager, click the **Scallop toolpath** to select toolpath, **Fig. 20**.

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

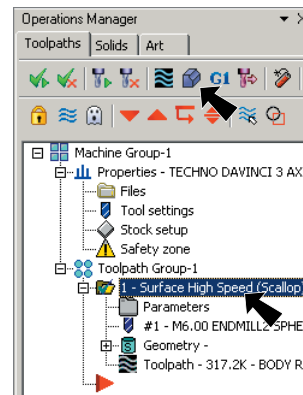




Fig. 20

Step 3. Click **Machine quickly** , **Fig. 21**.

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

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

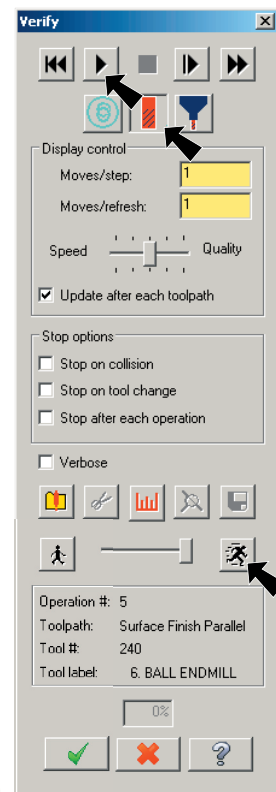


Fig. 21

Step 6. Click OK  to close Verify dialog box.

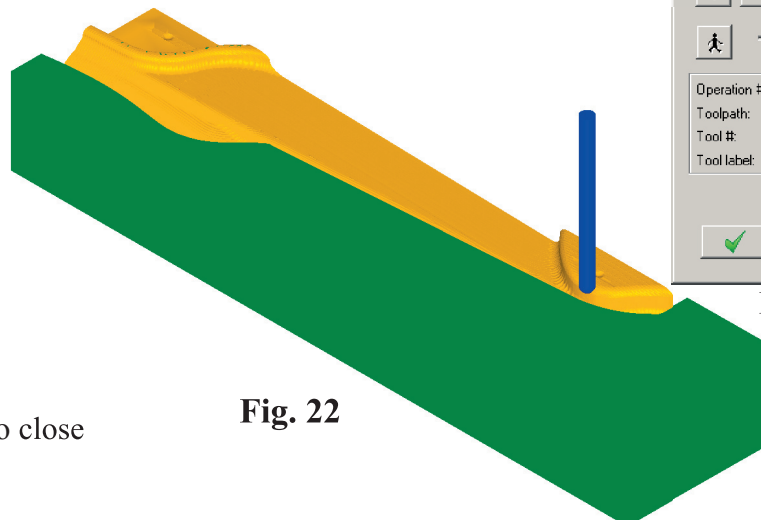


Fig. 22

E. Mirror LEFT CUT to RIGHT CUT Body Toolpaths.


Step 1. Click Toolpaths Menu
> Transform.

Step 2. Under Type, select
Mirror, Fig. 23.

Step 3. Under Source operations, select **Surface High Speed (Scallop)**, Fig. 23.

Step 4. Click the **Mirror** tab at the top of the dialog box, Fig. 23.

Step 5. Under Mirror, select **Mirror about X axis** , Fig. 24.

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

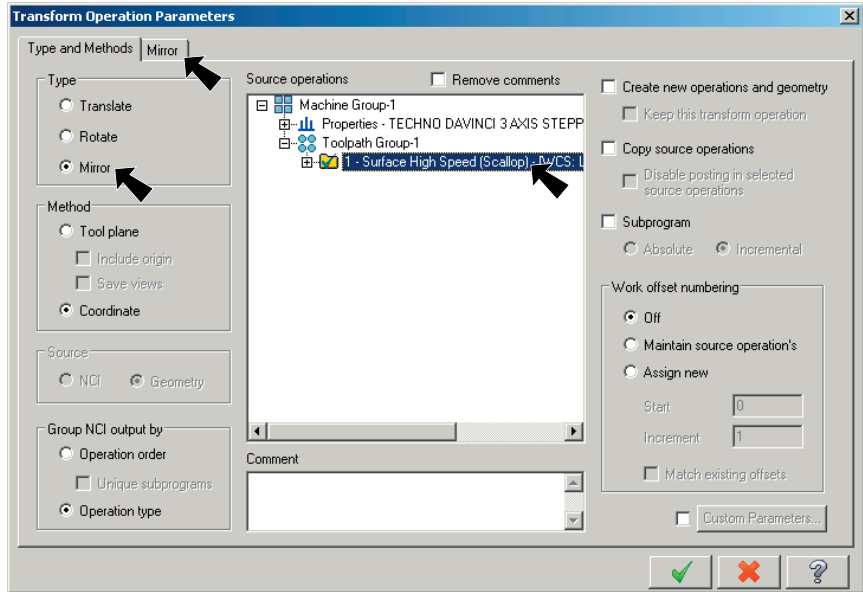


Fig. 23

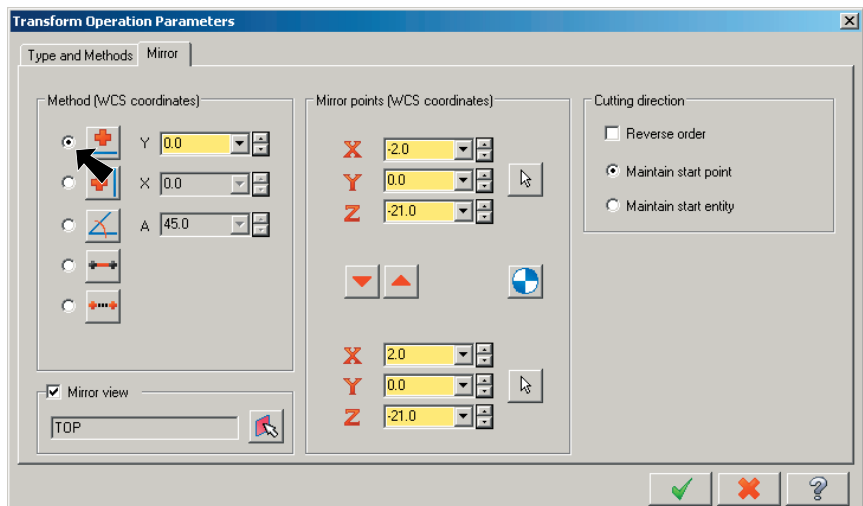


Fig. 24

F. Verify Right Cut.

Step 1. In the Toolpaths Manager, click the **mirrored Transform by Coordinate** toolpath, **Fig. 25**.

Step 2. Click **Verify**  in the Toolpaths Manager, **Fig. 25**.

Step 3. Click the **Play**  in the Verify dialog box to start the machining, **Fig. 26**.

Step 4. Click **OK**  to close Verify dialog box.

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

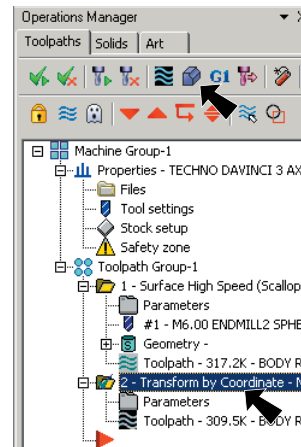


Fig. 25

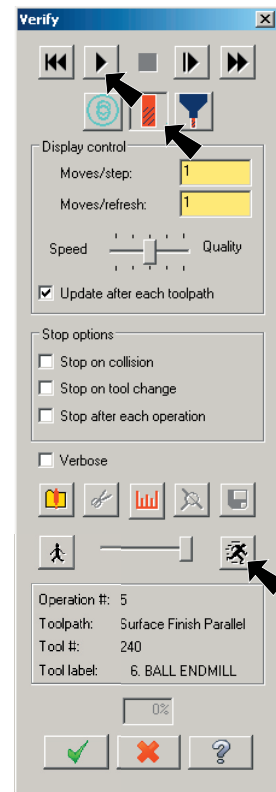


Fig. 26

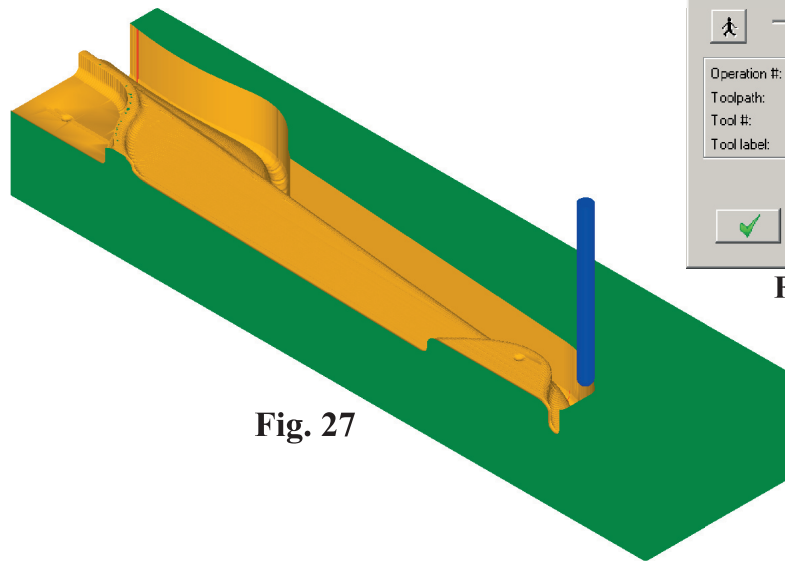


Fig. 27