

A Method for Engineering Change Management within VISI-Series

The paper describes a method by which VISI-Series users (typically toolmakers) can manage engineering changes received from their customers (tool buyers) for purposes of engineering and accounting.

Step 1: Receipt of the Engineering Change Data

Typically, engineering change data arrives in the form of an updated CAD model. The first step in the process is to define an EC level layer in the VISI work file for the previous change level. (This is because the work file itself defines the current change level.) A good numbering convention is to use the 900 series of layer numbers for engineering changes. That would define layer 900 for the original job release, layer 901 for EC-001, and so forth.

Step 2: Update the Old Part Data with the New EC Part Data

Move the old part model to the previous EC level layer (900 in this case) thus reflecting the original engineering change level (EC-000). Then replace the old part data with the new part file in the main tool design. (Thus the main tool design always reflects the current EC level – EC-001.)

Step 3: Copy Tool Details to be Changed to the EC Level Layer

Next, move a copy of all tool details to be changed to the EC level layer (900 in our example). This layer should then contain both the original part and associated tool details (for EC-000) that were obsoleted by EC-001. They are the “changed from” EC-000 CAD data.

If it is not apparent exactly what changed in the part data, use the VISI “Analysis > Compare” command to assist in this determination. This command compares two solids and two presents two visuals showing - in one color - material added by the EC-001 model to the original EC-000 model and - in another color - material taken away from the EC-000 model. Using these visuals it becomes easier to identify which tool details need changing.

Step 4: Redesign the Appropriate Tool Details

Tooling design changes can now be made to the original design.

Step 5: Recalculate Tool Paths for Details to be Reworked

Regardless of whether a tool is to be reworked or scrapped, usually the existing NC programs can be reused. If a detail is to be scrapped, no changes may be made for the new detail – only a tool path recalculation.

Reusing NC programs for reworked details is also usually possible. But top-of-block touch points will have to be switched to the table before recalculation. Also, it is usually possible specify a stock boundary of the original tool detail geometry (from layer 900) to minimize the re-roughing of the detail.

Step 6: Accounting for an Engineering Change

When the engineering change is completed, layer 900 then represents an engineer audit trail of the work done by comparing layer 900 geometries with the current tool data. It can be interpreted as to what was salvaged and what was scrapped and can be used to more easily apply the costs for the engineering change.