ALG20220329001 Rev02 Toolpath Data Frame Algorithm

Start

Import data frame.

Initialize counter
Initialize Start x, y, z
Initialize End x, y ,z
Initialize Tri first slot = True
Initialize Tri last slot = False
Read mode from data frame.
Read z_ramp from data frame.

Last segment ? — yes → Tri last slot = True

no

line/ arc?

line → Linear offset adjustment.
Obtain Parameters:
1. Adjusted Start x, y
2. Adjusted End x, y

arc → Arc offset adjustment.
Obtain Parameters:
1. Adjusted Start x, y
2. Adjusted End x, y
3. Adjusted Radius

first segment ?

no

yes

Generate G-code to move cutter to:
1. Safe z height.
2. Start x, y of slot/line.
3. Move to cutting z height.

*Adjusted Start x, y = Previous Adjusted End x, y **or** first segment ?* — yes

no

Decrement counter

Set parameters:
1. ramp_z = 0
2. Trichodial last slot = False
3. Adjusted End x, y = Adjusted start x, y
4. Adjusted start x, y = Previous Adjusted x, y
5. Adjusted_ rad = offset + effective wos/2
6. Less_180 = True
7. Arc = True
8. End x,y = Start x,y reset end points

!!! Caution !!!
Assumes transition arc on the external/boss profile cuts.
Does not check for overlapping internal/pocket correction.

mode 1/ mode 2?

mode 1 → cw = False

mode 2 → cw = True

Trichodial ?

no

line/ arc?

line → Generate G-Code for straight line.

arc → Generate G-Code for arc.

yes

line/ arc?

line → Generate G-Code for trichodial straight slot.

arc → Generate G-Code for trichodial arc.

Tri first slot = False

Update Cutter x, y, z

Last segment ?

no → Increment counter

Previous Adjusted End x, y = Adjusted End x, y
Start x, y = End x, y
Read Next x,y from data frame.
End x, y = Next x, y
Read parameters from data frame.

yes

Go to safe z

End