# Z Traversing with Loops



M98 PSpiral L250
M30

OSpiral
G91
G01 A360.0 B360.5 U0.02 Z-.02 F500
M99

**The following formula is for determining all necessary units per revolution when turning a workpiece traversing in Z with loops:**

Find **Z** Length of workpiece in inches, in this example we measure 5", Z=5
Divide **Z** by the **S**tepover of Z axis(.01-.02") [1]
**Z/S=R**
EX: A 5" **Z** length workpiece with a .020" **S**tepover = **Z/S** = 5"/.020" = **250 R**evolutions per length
U/**R**= amount of U per **R**evolution (U is either the Mechanized Touch or the Summing Device)
X/**R**= amount of X taper per **R**evolution (X taper is the difference in radius between the largest Diameter and the smallest diameter of the finished workpiece)
**R** = Loops[2]

[1] Stepover of Z is per one revolution of the workpiece
[2] Loops is the number of repeats of the subprogram entered into the program in this example as L250

So we input L250 for the number of Loops, and insert the results into the corresponding axis in the line of Gcode. A will move 360 deg, B will move 360.5 degrees, Z will move .02" and U will move .005" per rev of the workpiece.

M98 Pspiral L250
G01 A360.0 B360.5 U0.005 1 Z-.02