

Scaling Exercise

In this project, the center of scaling is the part middle at **X37.5 Y37.5**. The key to solution is to place the common toolpath into a subprogram, with one important feature - the tool *must* return to the original start point, *after* the scaling has been turned off - see block *N115*. Study the program carefully, its structure is very important.

(43-02 - SCALING EXERCISE)

(MAIN PROGRAM)

(T01 = 20 MM DIA END MILL)

```

N1 G21
N2 G50
N3 G17 G40 G80 T01
N4 M06
N5 G90 G54 G00 X95.0 Y37.5 S2500 M03
N6 G43 Z3.0 H01 M08
N7 G01 Z-3.0 F300.0
N8 G51 I37.5 J37.5 P0.5
N9 M98 P4352
N10 G01 Z-5.9
N11 G51 I37.5 J37.5 P0.7
N12 M98 P4352
N13 G01 Z-8.5
N14 G51 I37.5 J37.5 P0.9
N15 M98 P4352
N16 M09
N17 G28 Z3.0 M05
N18 G50
N19 G00 X-50.0 Y250.0
N20 M30
%
```

(SCALING OFF)

(CONTOUR START POINT)

(DEPTH OF THE SMALLEST CONTOUR)
(SCALING DATA - 0.5 SCALE)
(SCALED CONTOUR CUTTING)

(DEPTH OF THE MIDDLE CONTOUR)
(SCALING DATA - 0.7 SCALE)
(SCALED CONTOUR CUTTING)

(DEPTH OF THE LARGEST CONTOUR)
(SCALING DATA - 0.9 SCALE)
(SCALED CONTOUR CUTTING)

(SCALING OFF - REPEATED FOR SAFETY)
(PART CHANGE POSITION)

O4352 (SUB FOR 43-02 SCALING EXERCISE)

(D51 = CUTTER RADIUS = 10 MM)

```

N101 G01 G41 Y57.5 D51
N102 G03 X75.0 Y37.7 I0 J-20.0 F250.0
N103 G01 Y10.0
N104 G02 X65.0 Y0 I-10.0 J0
N105 G01 X10.0
N106 G02 X0Y10.0 I0 J10.0
N107 G01 Y65.0
N108 G02 X10.0 Y75.0 I10.0 J0
N109 G01 X65.0
N110 G02 X75.0 Y65.0 I0 J-10.0
N111 G01 Y37.5
N112 G03 X95.0 Y17.5 I20.0 J0
N113 G00 G40 Y37.5 F500.0
N114 G50
N115 X95.0 Y37.5
N116 M99
%
```

(LEAD-IN LINE WITH G41)
(LEAD-IN ARC)

(LEAD-OUT ARC)
(LEAD-OUT LINE WITH G40)
(SCALING OFF)
(RETURN TO ORIGINAL START - NOT SCALED)