



Tool No.	Skil No.	Tool Name	Z Offset	Tool Diameter
0		EDGE FINDER	0.0000	0.0000
1		1/8" E MILL	-6.80196	0.3150
2		3/8" CARB E MILL	-6.79566	0.3750
3		1/4" END DRILL	-6.65163	0.2500
4		1/16" BALL EMILL	-7.65526	0.0625
5			0.0000	0.0000
6			0.0000	0.0000
7			0.0000	0.0000
8			0.0000	0.0000
9			0.0000	0.0000
10			0.0000	0.0000
11			0.0000	0.0000
12			0.0000	0.0000
13			0.0000	0.0000
14			0.0000	0.0000
15			0.0000	0.0000

Work Offset	Work Off	Z	A
54	CLIP	0.0000	0.0000
55		0.0000	0.0000
56		0.0000	0.0000
57		0.0000	0.0000
58		0.0000	0.0000
59		0.0000	0.0000
60		0.0000	0.0000
61		0.0000	0.0000

Work Offset	Work Off	Z	A
54	CLIP	0.0000	0.0000
55		0.0000	0.0000
56		0.0000	0.0000
57		0.0000	0.0000
58		0.0000	0.0000
59		0.0000	0.0000
60		0.0000	0.0000
61		0.0000	0.0000

**SHERLINE
PRODUCTS**
INCORPORATED 1974

Sherline/MASSO Controller Programming

Related Sherline Videos

1. **Work Position and Tool Offsets for Tools** (This video goes through setting up your tools, tool offsets, machine home position, and work position.) <https://youtu.be/Btu5tLLVY7o>
2. **Loading Programs on the Sherline Controller** (This video goes over the control functions to load programs, and use conversation programming.) <https://youtu.be/3DJ9a6Rgm4k>
3. **Sample Program on the Sherline CNC Controller** (This video walks through the cup holder program one tool at a time.) <https://youtu.be/t1WbVXzodLA>

Programming

1. For MASSO the programs don't need to start with a percentage sign (%) or anything else. They don't need to start with the letter "O" and a program number either.
2. Save your file with your chosen file name. Files can be saved as: .TXT, .NC, or .CNC.
3. You can open and edit your files in any CNC editor program, Notepad, or WordPad®.
4. Supported G-code and M-code definitions can be found here* (<https://masso.com.au/masso-documentation/?section=supported-g-m-codes>).

*NOTE: Not all of these G and M-codes apply to our Sherline machines. The G and M-codes that do apply are listed below.

CAUTION—Protect your motors, cables, and driver board!

- Do not unplug stepper motors using the rectangular white plug that goes into the motor. Disconnect only at the cable plug.
- Do not pull on cable wires to disconnect plug—*grip at connector.*
- Turn handwheels slowly (1 rev/sec) with driver power OFF when manually positioning. For longer travels use Jog Mode.

List of Supported G-codes

- G00 – Rapid Motion
- G01 – Linear Interpolation Motion
- G02 – Circular Interpolation (Clockwise)
- G03 – Circular Interpolation (Counter Clockwise)
- G04 – Dwell
- G10 – Set Work Offset Values
- G17 – XY Plane Selection
- G18 – ZX Plane Selection
- G19 – YZ Plane Selection
- G20 – Set Machine Units To Inches
- G21 – Set Machine Units To Millimeters
- G28 – Return To Machine Home
- G32 – Threading Cycle
- G38.2 – Straight Probe Cycle

G53 – Move In Absolute Machine Coordinates
G54 to G59 – Select Work Offset Coordinate System
G73 – High Speed Peck Drilling
G80 – Cancel Modal Motion
G81 – Drilling Cycle
G82 – Drilling Canned Cycle With Dwell
G83 – Peck Drilling For Deeper Holes
G90 – Set Distance Mode To Absolute
G91 – Set Distance Mode To Incremental
G92 – Temporary Work Offset
G92.1 – Cancel Temporary Work Offset
G93 – Inverse Time Mode
G94 – Units Per Minute Mode
G96 – Turn on Constant Surface Speed (CSS)
G97 – Turn off Constant Surface Speed (CSS)
G98 – Canned Cycle – Retract Back To The Initial Z
G99 – Canned Cycle – Retract Back To R Plane

List of Supported M-codes

M00 – Program Stop
M01 – Optional Program Stop
M02 – Program End
M03 – Spindle ON (Clockwise)
M05 – Spindle OFF
M06 – Tool Change
M07 – Turn Mist Coolant On (Does not apply to Sherline)
M08 – Turn Flood Coolant On (Does not apply to Sherline)
M09 – To Turn All Coolant Off (Does not apply to Sherline)
M10 – Chuck Or Rotary Table Clamp On (Does not apply to Sherline)
M11 – Chuck Or Rotary Table Clamp Off (Does not apply to Sherline)
M30 – End The Program And Rewind
M98 & M99 – Sub Program Call

Parentheses Use

When programming, any notes or tooling information need to be in parentheses (), or the computer will try to read it. See example below.

(tool 1 ENDMILL ROUGH D.25 C0. L5.)
(tool 2 ENDMILL ROUGH D.375 C0. L5.)
(tool 4 BALL END MILL D.0625 C0. L5.)
(note tool offsets for tools 1 and 2 are Z0 at the top of the part)
(The tool offset for tool 4 is Z0 at the surface to be engraved)

(SHERLINE PRODUCTS CUP HOLDER.NC)
G90 G20
G54 G17 G20 G90 G00 G94 X0 Y0

T2 M6

S2800 M03

(MSG, " Change to .375 ENDMILL ROUGH")

(MSG, " Spindle Speed 2800")

1. Because the MASSO software keeps track of every move that your tool makes, there is no need for “Length Compensation” codes such as G43, G49, or G30
 - a. G-Code to make a tool change is [T (the tool number) M06] EX. T1 M06.
 - b. To bring the tool down to a clearance point above the part [G0 Z (desired distance above the part zero plane)] EX G0 Z.100.
 - c. When the tool is finished, raise it to a clearance plane [Z.1 or Z1.0].
 - d. If you are going to change a tool for the next operation, all you need to do is type in [T2 M06].
At this point, Tool #1 will retract to the Z “Machine home position”. Then it will move to the X and Y machine home. These moves will happen every time your program does a tool change.
 - e. If you are at the end of the program and you want to send the tool home, use G53. G53 is the work coordinate system for the “Machine”. The home position of each axis is G53 Zero point for each axis. [G0 G53 Z0]. This will send the Z axis to the Z Machine Zero point or machine home position in the Z axis.
2. Below is a short program sample with explanations showing the program header, a tool change, Z axis movements, and the program ending.

NOTE: If you are trying to get a Post Processor for your Cad-Cam software. The information below along with the G and M-codes and a sample program, is what your software maker will be asking you for.

Program Sample

(tool 1 ENDMILL ROUGH D.25 C0. L5.) [Tool information in parentheses]

(SHERLINE PRODUCTS CUP HOLDER.NC) [Program file name in parentheses]

G90 G20 [G90 is Absolute Positioning and G20 is for Inch dimensions in the program]

G54 G17 G20 G90 G00 G94 X0 Y0 [G54 is the Work Coordinate that we are using for this part, G17 tells the computer that we are machining on the X/Y Planes, G94 is “feed in In/Min]

T1 M6 [T1 tells the computer to use the tool offset information for tool #2, and M6 is a Tool Change]

(MSG, " Change to .250 ENDMILL ROUGH") [Tool message]

S2800 M03 [Spindle RPM set to 2800, M03 is Clockwise rotation of the spindle]

NOTE: Our spindles do not turn Counter Clockwise M04.

(MSG, " Spindle Speed 2800") [Spindle speed message]

G0 X-1.8125 Y2.2568 [G0 Rapid move in the X and Y axis]

G0 Z.1

G1 Z-.02 F2. [G1 Linear move with a feed rate of 2 In/Min]

Y2.0068 F10.

Y-2.0067

X-1.625 Y-2.1178

Y2.1179

G0 Z.1 [Rapid move in Z to .100 above the part surface]

T2 M6 [M6 Tool change, to Tool #2] [When the machine reads this line, The spindle will stop, Tool #1 and the Z axis will go to machine zero in the Z axis. Then the machine will move to the tool change position and the machine will stop so you can change the tool. The control will ask you to click on Cycle Start to continue with the program.]

S2000 M03 [M03 turn spindle clockwise at 2000 RPM]

(MSG, " Change to .375 ENDMILL ROUGH") [Tool message]

(MSG, " Spindle Speed 2000") [Spindle RPM message]

If this is the end of the program and you want to send all three axis home, then this is the ending G-code for your program:

G0 Z.1 [Rapid move in Z to .100 above the part surface]

M5 [M5 Spindle Stop]

G0 G53 Z0.0 [G53 Absolute machine coordinate, Z axis rapid to Z0 Machine Home position]

G53 G0 X0.0 Y0.0 [G53 X and Y axis move rapid to X and Y Machine Home position]

M30 [End of program, and rewind]

NOTE: You could also use an M02 which is just a Program End.

How to Calculate Feed in Inches/Minute

Sherline machines feed in Inches per Minute, not Inches per Revolution.

To calculate a feed in In./Min., take the spindle RPM and multiply it by the desired feed per revolution.

Example:

I have a 2-flute 1/4" HSS end mill.

I will be cutting 6061 aluminum which has an SFM of 300 to 400

First I calculate my Max RPM.

$$\text{RPM} = \frac{3.82 \times \text{SFM}}{\text{Tool Diameter}}$$

$$(3.82 \times 300) / .25 = \text{RPM}$$

$$1146 / .25 = 4584 \text{ RPM max}$$

Since the Maximum RPM for our spindle is 2800, we will use 2800 RPM.

Next figure out how much material you are going to cut with each flute in one revolution of the cutter.

Let's go with .001"/flute. Two flutes x .001" = .002"/rev

Given feed rate of **.002"/rev x 2800 RPM = 5.6 In/Min** feed rate

Drilling Program: File Name (Spot Drill and Drill 4 Holes.NC)

(tool 5 90 Degree Spot Drill .375 C0. L5.)

(tool 6 #7 Drill .201 C0. L5.)

(this program will spot drill and drill 4 .201 holes .800 deep for a 1/4-20 tap)

(Spot Drill and Drill 4 Holes.NC)

G90 G20

G54 G17 G20 G90 G00 G94 X0 Y0

T5 M6

S2000 M03

(MSG, " Change to 3/8" Spot Drill")

```
G54 G17 G20 G90 G00 G94 X-1.438 Y1.438
G99 G81 X-1.438 Y1.438 Z-.135 R.1 F6.0
X1.438
Y-1.438
X-1.438
G00 Z.1
T6 M6
S2500 M03
(MSG, "CHANGE TO #7 DRILL)
```

```
G99 G83 X-1.438 Y-1.438 Z-.800 Q.25 R.1 F6.0
X1.438
Y1.438
X-1.438
G0 Z.1
M5
G0 G53 Z0.0
G53 G0 X0.0 Y0.0
M30
```

Notes on Thread Milling

Tool #5 is an 1/8" diameter single-tip thread mill

Z zero is the top of the hole. **NOTE:** we are going to start the threading cycle .100" above the part so we are guaranteed to have a complete thread at the start of the hole.

We are milling 1/4"-20 threads.

$1.0" / 20 \text{ Tpi} = .050$. This is how much the z axis will move for each full revolution.

`G17 G20 G90 G00 X-1.438 y1.438` (first line `g17=x,y` axis, `g20=` inch, , `g90` is absolute positioning)

(Begin feature thread mill 1/4-20 hole .600 Deep)

(Line explanation)

`N1 g91 g01 x-.0625 f6.0` (G91 is incremental)(Subtract the radius of the cutter “.0625” from the radius of the thread OD “.125” This equals .0625. feed out .0625 fom CL of the hole to the major dia. of thread.)

`N10 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

(G91 = incremental) (G02 = circular cutting in the clockwise direction) (X0 and Y0 = arc finish point) (Z = the thread lead or pitch. A 20 TPI thread moves .050 for each full rotation) (**NOTE:** If you wanted to cut a half circle, you would change X0 to X.125 and Z-.050 to Z-.025) (I = the incremental distance and direction from start point to arc center in the X-axis) (J = the incremental distance and direction from start point to arc center in the Y-axis)

`N20 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0` (Each line will cut one thread)

`N30 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N40 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N50 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N60 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N70 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N80 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N90 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

`N100 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0`

N110 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0

N150 g91 g00 x.06250 (Cutter moves to the center of the hole)
N160 g90 g00 z.700

NOTE: Depending on the desired finish and the material that you are cutting, you may want to do a rough and finish pass. To accomplish this, program a rough and finish pass. For the ID thread, you would change the initial X move from “X-.0625 to X-.0605. Then change the (I) value from i.0625 to i.0605 for the roughing pass.

Rough: g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6
Finish: g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6

Main Program Only, or Main and Subprograms?

There are two ways to create your program.

1. Use a main program only. This means that you will need to type in lines N1 – N160 for each hole.
2. Use a main program to move your cutter to each hole center position and then call up a Subprogram to mill the threads in each hole. Your Subprogram will be lines N1 – N160.

Thread Milling Program: File name (Thread Mill 4 Holes.NC)

Main Program Only Sample:

(tool 5 Thread Mill D.125 C0. L5.)
(this program will thread mill 4 1/4-20 holes)

(THREAD MILL 4 Holes.NC)
G90 G20
G54 G17 G20 G90 G00 G94 X0 Y0

T5 M6
S2000 M03
(MSG, " Change to “.125 Dia Thread Mill")

G54 G17 G20 G90 G00 G94 X-1.438 Y1.438
G0 Z.1

N1 g91 g01 x-.0625 f6.0
N10 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N20 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N30 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N40 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N50 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N60 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N70 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0

N80 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N90 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N100 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N110 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N150 g91 g00 x.06250
N160 g90 g00 z.700

G90 g0 X1.438

N1 g91 g01 x-.0625 f6.0
N10 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N20 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N30 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N40 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N50 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N60 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N70 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N80 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N90 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N100 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N110 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N150 g91 g00 x.06250
N160 g90 g00 z.700

G90 g0 Y-1.438

N1 g91 g01 x-.0625 f6.0
N10 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N20 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N30 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N40 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N50 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N60 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N70 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N80 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N90 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N100 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0

N110 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N150 g91 g00 x.06250
N160 g90 g00 z.700

G90 g0 X-1.438

N1 g91 g01 x-.0625 f6.0
N10 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N20 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N30 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N40 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N50 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N60 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N70 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N80 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N90 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N100 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N110 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N150 g91 g00 x.06250
N160 g90 g00 z.700
M5
G0 G53 Z0.0
G53 G0 X0.0 Y0.0
M30

Thread Milling Program: File name (Thread Mill 4 Holes with Subprogram.NC)

Main Program Using Subprogram To Mill Threads Sample:

See this MASSO link for additional information regarding subprograms (<https://masso.com.au/masso-documentation/?section=m98-m99-sub-program-call>)

First we start with a subprogram. Each subprogram is a separate program that the Main program is going to call up.

Our subprogram is going to be called (2520.nc). Once this program has been made, you can use it in other programs and either increase or decrease the number of threads in the program.

NOTE: The file name for subprograms can be **Numbers Only**. No letters, no hyphens or dashes(-), no periods (.).

(2520)

(tool 5 Thread Mill D.125 C0. L5.)

(this program will thread mill a 1/4-20 hole .600 deep with the tool starting at .100 above the part surface.)

N1 g91 g01 x-.0625 f6.0
N10 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0

N20 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N30 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N40 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N50 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N60 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N70 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N80 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N90 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N100 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N110 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0
N150 g91 g00 x.06250
N160 g90 g00 z.700
M99 (return to original program)

Now the Main Program

File name: Thread Mill 4 Holes with Subprogram.NC

(tool 5 Thread Mill D.125 C0. L5.)
(this program will thread mill (4) 1/4-20 holes)

(Thread Mill 4 Holes with Subprogram.NC)

G90 G20

G54 G17 G20 G90 G00 G94 X0 Y0

T5 M6

S2000 M03

(MSG, " Change to “.125 Dia Thread Mill")

G54 G17 G20 G90 G00 G94 X-1.438 Y1.438

G0 Z.1

M98 P2520 (This line calls up subprogram 2520 and runs it)

G90 G00 X1.438

M98 P2520

G90 G00 Y-1.438

M98 P2520

G90 G00 X-1.438

M98 P2520

G90 G00

M5

G0 G53 Z0.0

G53 G0 X0.0 Y0.0

M30

SPECIAL NOTE:

In the thread milling programs above we are cutting a right hand thread in a CW direction and moving in a Z minus direction. This is "Conventional Milling" form.

If we wanted to use the cutter in a "Climb Milling" form, we would move the thread mill to the bottom of the hole, then we would cut CWW and in the Z positive direction up and out of the hole.

To do this, change each single thread move in the subprogram from this:

g91g02 x0 y0 z-0.050 i0.0625 j0.0 f6.0

To this:

g91**g03** x0 y0 **z0.050** i0.0625 j0.0 f6.0

In the main program you would move to the hole centerline, then go Z-.600 to the bottom of the hole, then call up the reverse subprogram like this:

(Thread Mill 4 Holes with Subprogram G03.NC)

G90 G20

G54 G17 G20 G90 G00 G94 X0 Y0

T5 M6

S2000 M03

(MSG, " Change to ".125 Dia Thread Mill")

G54 G17 G20 G90 G00 G94 X-1.438 Y1.438

G0 Z-.6

M98 P2521

G90 G00 X1.438

G0 Z-.6

M98 P2521

G90 G00 Y-1.438

G0 Z-.6

M98 P2521

G90 G00 X-1.438

G0 Z-.6

M98 P2521

G90 G00

M5

G0 G53 Z0.0

G53 G0 X0.0 Y0.0

M30

Subprogram (2521.nc)

(2521.nc)

(tool Thread Mill D.125 C0. L5.)

(this program will thread mill a 1/4-20 hole .600 deep with the tool .100 above the part surface.)

```
N1 g91 g01 x-.0625 f2.0
N10 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N20 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N30 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N40 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N50 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N60 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N70 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N80 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N90 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N100 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N110 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N120 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N130 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N140 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0
N150 g91 g00 x.06250
M99
```

Nesting Subprograms Two Programs Deep

Next we are going to make a roughing thread milling subprogram that will feed CW and down. It will also be .002" smaller on the radius.

The main program will call up this subprogram. Then this subprogram will call up subprogram 2521 and the cutter will cut out to the finish radius and cut reverse and upward to make a finish thread mill pass.

Rough Thread Mill Program 2522.NC

(2522.NC)

(tool 5 Thread Mill D.125 C0. L5.)

(this program will thread mill a 1/4-20 hole .600 deep with the tool .100 above the part surface.)

```
N1 g91 g01 x-.0605 f6.0
N10 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N20 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N30 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N40 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N50 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N60 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N70 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N80 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N90 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N100 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N110 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N120 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N130 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N140 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0
N150 g91 g00 x.06050
```

M98 P2521

M99

The Main Program

(Thread Mill 4 Holes with 2 Sub Programs.NC)

G90 G20

G54 G17 G20 G90 G00 G94 X0 Y0

T5 M6

S2000 M03

(MSG, " Change to “.125 Dia Thread Mill”)

G54 G17 G20 G90 G00 G94 X-1.438 Y1.438

G0 Z.1

M98 P2522

G90 G00 X1.438

M98 P2522

G90 G00 Y-1.438

M98 P2522

G90 G00 X-1.438

M98 P2522

G90 G00

M5

G0 G53 Z0.0

G53 G0 X0.0 Y0.0

M30

This is how the two subprogram above work.

(MSG, " Change to “.125 Dia Thread Mill”)

G54 G17 G20 G90 G00 G94 X-1.438 Y1.438

G0 Z.1

M98 P2522 (This line calls up subprogram 2522)

Next it will run subprogram 2522.

At the end of the subprogram it calls up subprogram 2521

N140 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0

N150 g91 g00 x.06050

M98 P2521

M99

Now it will run subprogram 2521. At the end of this program is an M99 which will send it back to the next line in the 2522 program.

N140 g91g03 x0 y0 z0.050 i0.0625 j0.0 f6.0

N150 g91 g00 x.06250

M99

The next line in subprogram 2522 is an M99 also. This sends it back to the main program.

N140 g91g02 x0 y0 z-0.050 i0.0605 j0.0 f6.0

N150 g91 g00 x.06050

M98 P2521

M99

Now the main program goes onto the next line after the M98 line and that starts the next sequence of the program.

G54 G17 G20 G90 G00 G94 X-1.438 Y1.438

G0 Z.1

M98 P2522

G90 G00 X1.438

Sherline Products Sample Program for Cup Holder

Below is the program that we used to machine the Sherline Products cup holder that was in our video.

<https://youtu.be/t1WbVXzodLA>

File name: SHERLINE PRODUCTS CUP HOLDER.NC

(tool 1 ENDMILL ROUGH D.375 C0. L5.)

(tool 2 ENDMILL ROUGH D.250 C0. L5.)

(tool 4 BALL END MILL D.0625 C0. L5.)

(Note tool offsets for tools 1 and 2 are Z0 at the top of the part)

(The tool offset for tool 4 is Z0 at the surface to be engraved)

(SHERLINE PRODUCTS CUP HOLDER.NC)

G90 G20

G54 G17 G20 G90 G00 G94 X0 Y0

T2 M6

S2800 M03

(MSG, " Change to .375 ENDMILL ROUGH")

(MSG, " Spindle Speed 2800")

G0

(Begin FEATURE 2 AXIS FACE TOP OF PART)

G0 X-1.8125 Y2.2568

G0 Z.1
G1 Z-.02 F2.
Y2.0068 F10.
Y-2.0067
X-1.625 Y-2.1178
Y2.1179
X-1.4375 Y2.15
Y-2.15
X-1.25
Y2.15
X-1.0625
Y-2.15
X-.875
Y2.15
X-.6875
Y-2.15
X-.5
Y2.15
X-.3125
Y-2.15
X-.125
Y2.15
X.0625
Y-2.15
X.25
Y2.15
X.4375
Y-2.15
X.625
Y2.15
X.8125
Y-2.15
X1.
Y2.15
X1.1875
Y-2.15
X1.375
Y2.15
X1.5625 Y2.136
Y-2.1359
X1.75 Y-2.0552
Y2.0552
Y2.3052

G0 Z.1

Z1.

S2000

(Begin FEATURE 2 AXIS CUT 3.3 DIAMETER CIRCULAR POCKET)

Z.1

G1 X.0376 Y.4891 Z0. F2.

X.0566 Y.4943 Z-.001

X.0799 Y.4982 Z-.0023

X.1073 Y.5 Z-.0037

X.1324 Y.499 Z-.005

X.1466 Y.4973 Z-.0058

X.1608 Y.4948 Z-.0065

X.1739 Y.4917 Z-.0072

X.1889 Y.4873 Z-.0081

X.2144 Y.4772 Z-.0095

X.2366 Y.4656 Z-.0108

X.2526 Y.4554 Z-.0118

X.2696 Y.4425 Z-.0129

X.2868 Y.4268 Z-.0141

X.3023 Y.4098 Z-.0153

X.3149 Y.3933 Z-.0164

X.3275 Y.3733 Z-.0177

X.3374 Y.3541 Z-.0188

X.3468 Y.3302 Z-.0201

X.3514 Y.3152 Z-.021

X.3547 Y.3011 Z-.0217

X.3587 Y.2758 Z-.0231

X.3599 Y.2576 Z-.024

X.3598 Y.2407 Z-.0249

X.3588 Y.2252 Z-.0257

X.3571 Y.2117 Z-.0264

X.352 Y.1872 Z-.0278

X.3456 Y.1662 Z-.0289

X.3353 Y.1416 Z-.0303

X.3225 Y.1182 Z-.0317

X.3132 Y.1043 Z-.0326

X.304 Y.0923 Z-.0334

X.295 Y.0819 Z-.0341

X.284 Y.0705 Z-.0349

X.2635 Y.0527 Z-.0363

X.2498 Y.0428 Z-.0372

X.2364 Y.0343 Z-.0381

X.219 Y.025 Z-.0391

X.2012 Y.0173 Z-.0401
X.1861 Y.0119 Z-.041
X.1697 Y.0073 Z-.0418
X.1558 Y.0043 Z-.0426
X.1404 Y.0019 Z-.0434
X.1245 Y.0005 Z-.0442
X.11 Y0. Z-.045
G3 X-.11 Y0. I-.11 J0. F5.
X.11 Y0. I.11 J0.
G1 X.2975
G3 X-.2975 Y0. I-.2975 J0.
X.2975 Y0. I.2975 J0.
G1 X.485
G3 X-.485 Y0. I-.485 J0.
X.485 Y0. I.485 J0.
G1 X.6725
G3 X-.6725 Y0. I-.6725 J0.
X.6725 Y0. I.6725 J0.
G1 X.86
G3 X-.86 Y0. I-.86 J0.
X.86 Y0. I.86 J0.
G1 X1.0475
G3 X-1.0475 Y0. I-1.0475 J0.
X1.0475 Y0. I1.0475 J0.
G1 X1.235
G3 X-1.235 Y0. I-1.235 J0.
X1.235 Y0. I1.235 J0.
G1 X1.4225
G3 X-1.4225 Y0. I-1.4225 J0.
X1.4225 Y0. I1.4225 J0.
G0 Z.1
X.0376 Y.4891 Z.055
G1 Z-.045 F2.
X.0566 Y.4943 Z-.046
X.0799 Y.4982 Z-.0473
X.1073 Y.5 Z-.0487
X.1324 Y.499 Z-.05
X.1466 Y.4973 Z-.0508
X.1608 Y.4948 Z-.0515
X.1739 Y.4917 Z-.0522
X.1889 Y.4873 Z-.0531
X.2144 Y.4772 Z-.0545
X.2366 Y.4656 Z-.0558

X.2526 Y.4554 Z-.0568
X.2696 Y.4425 Z-.0579
X.2868 Y.4268 Z-.0591
X.3023 Y.4098 Z-.0603
X.3149 Y.3933 Z-.0614
X.3275 Y.3733 Z-.0627
X.3374 Y.3541 Z-.0638
X.3468 Y.3302 Z-.0651
X.3514 Y.3152 Z-.066
X.3547 Y.3011 Z-.0667
X.3587 Y.2758 Z-.0681
X.3599 Y.2576 Z-.069
X.3598 Y.2407 Z-.0699
X.3588 Y.2252 Z-.0707
X.3571 Y.2117 Z-.0714
X.352 Y.1872 Z-.0728
X.3456 Y.1662 Z-.0739
X.3353 Y.1416 Z-.0753
X.3225 Y.1182 Z-.0767
X.3132 Y.1043 Z-.0776
X.304 Y.0923 Z-.0784
X.295 Y.0819 Z-.0791
X.284 Y.0705 Z-.0799
X.2635 Y.0527 Z-.0813
X.2498 Y.0428 Z-.0822
X.2364 Y.0343 Z-.0831
X.219 Y.025 Z-.0841
X.2012 Y.0173 Z-.0851
X.1861 Y.0119 Z-.086
X.1697 Y.0073 Z-.0868
X.1558 Y.0043 Z-.0876
X.1404 Y.0019 Z-.0884
X.1245 Y.0005 Z-.0892
X.11 Y0. Z-.09
G3 X-.11 Y0. I-.11 J0. F5.
X.11 Y0. I.11 J0.
G1 X.2975
G3 X-.2975 Y0. I-.2975 J0.
X.2975 Y0. I.2975 J0.
G1 X.485
G3 X-.485 Y0. I-.485 J0.
X.485 Y0. I.485 J0.
G1 X.6725

G3 X-.6725 Y0. I-.6725 J0.
X.6725 Y0. I.6725 J0.
G1 X.86
G3 X-.86 Y0. I-.86 J0.
X.86 Y0. I.86 J0.
G1 X1.0475
G3 X-1.0475 Y0. I-1.0475 J0.
X1.0475 Y0. I1.0475 J0.
G1 X1.235
G3 X-1.235 Y0. I-1.235 J0.
X1.235 Y0. I1.235 J0.
G1 X1.4225
G3 X-1.4225 Y0. I-1.4225 J0.
X1.4225 Y0. I1.4225 J0.
G0 Z.1
Z1.
S2800
(Begin FEATURE 2 AXIS)
Z.1
G1 X1.4375 Z-.1 F3.
G2 X-1.4375 Y0. I-1.4375 J0. F8.
X1.4375 Y0. I1.4375 J0.
G0 Z.1

T1 M6
S2000 M03
(MSG, " Change to .25 ENDMILL ROUGH")
(MSG, " Spindle Speed 2000")
G0
G1 F5
(Begin FEATURE 2 AXIS PROFILE OUTSIDE 3.625 SQUARE)
G0 X-1.4375 Y2.2025
G0 Z.1
G1 Z-.075 F2.
X-1.6875 F5.
G3 X-1.4375 Y1.9525 I.25 J0.
G1 X1.4375
G2 X1.9525 Y1.4375 I0. J-.515
G1 Y-1.4375
G2 X1.4375 Y-1.9525 I-.515 J0.
G1 X-1.4375
G2 X-1.9525 Y-1.4375 I0. J.515
G1 Y1.4375

G2 X-1.4375 Y1.9525 I.515 J0.
G3 X-1.1875 Y2.2025 I0. J.25
G1 X-1.4375
G0 Z.1
Z.025
G1 Z-.15 F2.
X-1.6875 F5.
G3 X-1.4375 Y1.9525 I.25 J0.
G1 X1.4375
G2 X1.9525 Y1.4375 I0. J-.515
G1 Y-1.4375
G2 X1.4375 Y-1.9525 I-.515 J0.
G1 X-1.4375
G2 X-1.9525 Y-1.4375 I0. J.515
G1 Y1.4375
G2 X-1.4375 Y1.9525 I.515 J0.
G3 X-1.1875 Y2.2025 I0. J.25
G1 X-1.4375
G0 Z.1
Z-.05
G1 Z-.225 F2.
X-1.6875 F5.
G3 X-1.4375 Y1.9525 I.25 J0.
G1 X1.4375
G2 X1.9525 Y1.4375 I0. J-.515
G1 Y-1.4375
G2 X1.4375 Y-1.9525 I-.515 J0.
G1 X-1.4375
G2 X-1.9525 Y-1.4375 I0. J.515
G1 Y1.4375
G2 X-1.4375 Y1.9525 I.515 J0.
G3 X-1.1875 Y2.2025 I0. J.25
G1 X-1.4375
G0 Z.1
Z-.125
G1 Z-.3 F2.
X-1.6875 F5.
G3 X-1.4375 Y1.9525 I.25 J0.
G1 X1.4375
G2 X1.9525 Y1.4375 I0. J-.515
G1 Y-1.4375
G2 X1.4375 Y-1.9525 I-.515 J0.
G1 X-1.4375

G2 X-1.9525 Y-1.4375 I0. J.515
G1 Y1.4375
G2 X-1.4375 Y1.9525 I.515 J0.
G3 X-1.1875 Y2.2025 I0. J.25
G1 X-1.4375
G0 Z.1
Z-.2
G1 Z-.375 F2.
X-1.6875 F5.
G3 X-1.4375 Y1.9525 I.25 J0.
G1 X1.4375
G2 X1.9525 Y1.4375 I0. J-.515
G1 Y-1.4375
G2 X1.4375 Y-1.9525 I-.515 J0.
G1 X-1.4375
G2 X-1.9525 Y-1.4375 I0. J.515
G1 Y1.4375
G2 X-1.4375 Y1.9525 I.515 J0.
G3 X-1.1875 Y2.2025 I0. J.25
G1 X-1.4375
G0 Z.1
Z1.
S2500
(Begin FEATURE 2 AXIS)
Z.1
G1 Y2.1875 Z-.375 F5.
X-1.6875 F8.
G3 X-1.4375 Y1.9375 I.25 J0.
G1 X1.4375
G2 X1.9375 Y1.4375 I0. J-.5
G1 Y-1.4375
G2 X1.4375 Y-1.9375 I-.5 J0.
G1 X-1.4375
G2 X-1.9375 Y-1.4375 I0. J.5
G1 Y1.4375
G2 X-1.4375 Y1.9375 I.5 J0.
G3 X-1.1875 Y2.1875 I0. J.25
G1 X-1.4375
G0 Z1.0

(NOTE THE TOOL OFFSET FOR THE ENGRAVING CUTTER IS ACQUIRED FROM THE FINISHED SURFACE TO BE CUT, NOT FROM THE TOP OF THE PART)

(tool 4 end mill engrave .0625)

(ENGRAVE SHERLINE PRODUCTS Made in USA)

T4 M6

S2800 M03

(MSG, " Change to .0625 BALL MILL")

G17 G64 P0.001

F5.00

G0 Z0.2500

G0 X0.1185 Y1.4849

G1 Z-0.0050

G1 X0.1185 Y1.4849

G1 X0.1196 Y1.4790

G1 X0.1241 Y1.4763

G1 X0.1568 Y1.4703

G1 X0.1729 Y1.4690

G1 X0.1603 Y1.3324

G1 X0.1801 Y1.3308

G1 X0.1804 Y1.3330

G1 X0.1862 Y1.3813

G1 X0.1948 Y1.4682

G1 X0.2524 Y1.4611

G1 X0.2537 Y1.4781

G1 X0.1263 Y1.4918

G1 X0.1199 Y1.4899

G1 X0.1185 Y1.4849

G0 Z0.0500

G0 X0.0590 Y1.4904

G1 Z-0.0050

G1 X0.0590 Y1.4904

G1 X0.0563 Y1.4669

G1 X0.0495 Y1.3503

G1 X0.0573 Y1.3396

G1 X0.0686 Y1.3386

G1 X0.0735 Y1.3382

G1 X0.0737 Y1.3423

G1 X0.0765 Y1.4132

G1 X0.0782 Y1.4882

G1 X0.0762 Y1.4910

G1 X0.0692 Y1.4928

G1 X0.0626 Y1.4928

G1 X0.0590 Y1.4904

G0 Z0.0500
G0 X-0.0119 Y1.4918
G1 Z-0.0050
G1 X-0.0119 Y1.4918
G1 X-0.0298 Y1.3984
G1 X-0.0373 Y1.3677
G1 X-0.0858 Y1.4912
G1 X-0.1065 Y1.4891
G1 X-0.1110 Y1.4880
G1 X-0.1134 Y1.4854
G1 X-0.1369 Y1.3870
G1 X-0.1393 Y1.3707
G1 X-0.1414 Y1.3690
G1 X-0.1444 Y1.3699
G1 X-0.1474 Y1.3735
G1 X-0.1862 Y1.4824
G1 X-0.1900 Y1.4853
G1 X-0.1941 Y1.4854
G1 X-0.2081 Y1.4828
G1 X-0.1607 Y1.3540
G1 X-0.1548 Y1.3362
G1 X-0.1562 Y1.3335
G1 X-0.1295 Y1.3350
G1 X-0.0983 Y1.4682
G1 X-0.0461 Y1.3402
G1 X-0.0236 Y1.3382
G1 X0.0089 Y1.4909
G1 X0.0071 Y1.4939
G1 X-0.0002 Y1.4950
G1 X-0.0078 Y1.4944
G1 X-0.0118 Y1.4919
G1 X-0.0119 Y1.4918
G0 Z0.0500
G0 X0.2809 Y1.4051
G1 Z-0.0050
G1 X0.2809 Y1.4051
G1 X0.2625 Y1.3310
G1 X0.2576 Y1.3254
G1 X0.2471 Y1.3227
G1 X0.2719 Y1.3217
G1 X0.2789 Y1.3200
G1 X0.2789 Y1.3175
G1 X0.2817 Y1.3159

G1 X0.2944 Y1.3155
G1 X0.2857 Y1.3191
G1 X0.2845 Y1.3221
G1 X0.2996 Y1.3883
G1 X0.3167 Y1.3867
G1 X0.3837 Y1.3731
G1 X0.3870 Y1.3711
G1 X0.3739 Y1.3126
G1 X0.3692 Y1.3035
G1 X0.3630 Y1.3010
G1 X0.3756 Y1.2995
G1 X0.3835 Y1.2945
G1 X0.3913 Y1.2970
G1 X0.3939 Y1.3004
G1 X0.3979 Y1.3149
G1 X0.4286 Y1.4448
G1 X0.4076 Y1.4511
G1 X0.3941 Y1.3982
G1 X0.3913 Y1.3936
G1 X0.3860 Y1.3918
G1 X0.3059 Y1.4073
G1 X0.3157 Y1.4568
G1 X0.3152 Y1.4666
G1 X0.3122 Y1.4698
G1 X0.3025 Y1.4721
G1 X0.2995 Y1.4706
G1 X0.2953 Y1.4623
G1 X0.2907 Y1.4461
G1 X0.2809 Y1.4051
G0 Z0.0500
G0 X0.5900 Y1.3173
G1 Z-0.0050
G1 X0.5900 Y1.3173
G1 X0.5566 Y1.2467
G1 X0.5568 Y1.2448
G1 X0.5603 Y1.2426
G1 X0.5832 Y1.2349
G1 X0.5841 Y1.2356
G1 X0.5806 Y1.2398
G1 X0.5825 Y1.2492
G1 X0.5956 Y1.2778
G1 X0.6055 Y1.2939
G1 X0.6676 Y1.2745
G1 X0.6857 Y1.2730

G1 X0.6964 Y1.2748
G1 X0.7075 Y1.2805
G1 X0.7166 Y1.2888
G1 X0.7254 Y1.3033
G1 X0.7285 Y1.3132
G1 X0.7289 Y1.3212
G1 X0.7260 Y1.3325
G1 X0.7231 Y1.3374
G1 X0.7167 Y1.3449
G1 X0.7092 Y1.3505
G1 X0.6888 Y1.3607
G1 X0.6269 Y1.3851
G1 X0.6246 Y1.3839
G1 X0.6175 Y1.3723
G1 X0.6073 Y1.3531
G1 X0.5900 Y1.3173
G0 Z0.0500
G0 X0.6954 Y1.3371
G1 Z-0.0050
G1 X0.6954 Y1.3371
G1 X0.6999 Y1.3328
G1 X0.7040 Y1.3257
G1 X0.7051 Y1.3130
G1 X0.7025 Y1.3060
G1 X0.6973 Y1.2994
G1 X0.6852 Y1.2930
G1 X0.6750 Y1.2922
G1 X0.6638 Y1.2942
G1 X0.6198 Y1.3082
G1 X0.6131 Y1.3125
G1 X0.6363 Y1.3626
G1 X0.6728 Y1.3483
G1 X0.6940 Y1.3381
G1 X0.6954 Y1.3371
G0 Z0.0500
G0 X0.8716 Y1.2444
G1 Z-0.0050
G1 X0.8716 Y1.2444
G1 X0.8714 Y1.2336
G1 X0.8646 Y1.2229
G1 X0.8550 Y1.2172
G1 X0.8435 Y1.2155
G1 X0.8282 Y1.2203

G1 X0.7829 Y1.2440
G1 X0.7763 Y1.2492
G1 X0.8060 Y1.2923
G1 X0.8584 Y1.2593
G1 X0.8671 Y1.2519
G1 X0.8713 Y1.2456
G1 X0.8716 Y1.2444
G0 Z0.0500
G0 X0.8922 Y1.2230
G1 Z-0.0050
G1 X0.8922 Y1.2230
G1 X0.8946 Y1.2317
G1 X0.8949 Y1.2413
G1 X0.8917 Y1.2536
G1 X0.8875 Y1.2599
G1 X0.8661 Y1.2758
G1 X0.7969 Y1.3155
G1 X0.7526 Y1.2549
G1 X0.7081 Y1.1900
G1 X0.7170 Y1.1818
G1 X0.7247 Y1.1786
G1 X0.7647 Y1.2333
G1 X0.7720 Y1.2317
G1 X0.8003 Y1.2109
G1 X0.8043 Y1.2058
G1 X0.8071 Y1.1964
G1 X0.8093 Y1.1670
G1 X0.8106 Y1.1400
G1 X0.8090 Y1.1299
G1 X0.8154 Y1.1235
G1 X0.8345 Y1.1120
G1 X0.8321 Y1.1747
G1 X0.8301 Y1.1895
G1 X0.8253 Y1.1998
G1 X0.8301 Y1.2012
G1 X0.8518 Y1.1988
G1 X0.8696 Y1.2019
G1 X0.8809 Y1.2082
G1 X0.8908 Y1.2202
G1 X0.8922 Y1.2230
G0 Z0.0500
G0 X0.8541 Y1.1030

G1 Z-0.0050
G1 X0.8541 Y1.1030
G1 X0.8504 Y1.1038
G1 X0.8510 Y1.1014
G1 X0.8516 Y1.1007
G1 X0.8604 Y1.0950
G1 X0.8605 Y1.0987
G1 X0.8639 Y1.0981
G1 X0.8670 Y1.0956
G1 X0.8683 Y1.0906
G1 X0.8802 Y1.0842
G1 X0.8749 Y1.0894
G1 X0.8740 Y1.0931
G1 X0.9082 Y1.1297
G1 X0.9772 Y1.2097
G1 X0.9679 Y1.2182
G1 X0.9624 Y1.2219
G1 X0.9602 Y1.2218
G1 X0.8680 Y1.1167
G1 X0.8510 Y1.1014
G0 Z0.0500
G0 X1.0216 Y1.1833
G1 Z-0.0050
G1 X1.0216 Y1.1833
G1 X1.0192 Y1.1834
G1 X0.9947 Y1.1611
G1 X0.9304 Y1.0945
G1 X0.9122 Y1.0745
G1 X0.9087 Y1.0686
G1 X0.9089 Y1.0670
G1 X0.9691 Y1.0264
G1 X0.9855 Y1.0190
G1 X0.9965 Y1.0163
G1 X1.0134 Y1.0157
G1 X1.0250 Y1.0178
G1 X1.0420 Y1.0244
G1 X1.0572 Y1.0339
G1 X1.0712 Y1.0460
G1 X1.0836 Y1.0605

G1 X1.0929 Y1.0771
G1 X1.0969 Y1.0919
G1 X1.0962 Y1.1123
G1 X1.0876 Y1.1298
G1 X1.0653 Y1.1499
G1 X1.0218 Y1.1833
G1 X1.0216 Y1.1833
G0 Z0.0500
G0 X1.0472 Y1.1409
G1 Z-0.0050
G1 X1.0472 Y1.1409
G1 X1.0696 Y1.1195
G1 X1.0748 Y1.1087
G1 X1.0758 Y1.0986
G1 X1.0719 Y1.0840
G1 X1.0652 Y1.0724
G1 X1.0507 Y1.0565
G1 X1.0335 Y1.0432
G1 X1.0214 Y1.0377
G1 X1.0102 Y1.0351
G1 X0.9991 Y1.0354
G1 X0.9914 Y1.0373
G1 X0.9798 Y1.0422
G1 X0.9616 Y1.0538
G1 X0.9424 Y1.0712
G1 X0.9435 Y1.0770
G1 X0.9468 Y1.0820
G1 X1.0223 Y1.1573
G1 X1.0262 Y1.1571
G1 X1.0403 Y1.1463
G1 X1.0472 Y1.1409
G0 Z0.0500
G0 X1.1145 Y0.9938
G1 Z-0.0050
G1 X1.1145 Y0.9938
G1 X1.1172 Y0.9930
G1 X1.1261 Y0.9851
G1 X1.1806 Y0.9341
G1 X1.1895 Y0.9413
G1 X1.1902 Y0.9446
G1 X1.1887 Y0.9488
G1 X1.1300 Y1.0074
G1 X1.1609 Y1.0314

G1 X1.1685 Y1.0354
G1 X1.1744 Y1.0338
G1 X1.2383 Y0.9708
G1 X1.2517 Y0.9844
G1 X1.1692 Y1.0643
G1 X1.0702 Y0.9871
G1 X1.0434 Y0.9629
G1 X1.0971 Y0.9075
G1 X1.1200 Y0.8854
G1 X1.1278 Y0.8803
G1 X1.1368 Y0.8864
G1 X1.1405 Y0.8909
G1 X1.1402 Y0.8927
G1 X1.0725 Y0.9615
G1 X1.1142 Y0.9939
G1 X1.1145 Y0.9938
G0 Z0.0500
G0 X1.0464 Y0.9599
G1 Z-0.0050
G1 X1.0464 Y0.9599
G1 X1.0459 Y0.9595
G0 Z0.0500
G0 X1.1406 Y0.8912
G1 Z-0.0050
G0 Z0.0500
G0 X1.2703 Y0.0044
G1 Z-0.0050
G1 X1.2703 Y0.0044
G1 X1.2691 Y0.0581
G1 X1.2642 Y0.1223
G1 X1.2574 Y0.1756
G1 X1.2459 Y0.2391
G1 X1.2337 Y0.2915
G1 X1.2158 Y0.3536
G1 X1.1982 Y0.4046
G1 X1.1740 Y0.4648
G1 X1.1464 Y0.5237
G1 X1.1207 Y0.5717
G1 X1.0928 Y0.6184
G1 X1.0565 Y0.6730
G1 X1.0171 Y0.7256
G1 X0.9821 Y0.7679
G1 X0.9451 Y0.8088

G1 X0.8983 Y0.8557
G1 X0.8573 Y0.8930
G1 X0.8059 Y0.9354
G1 X0.7522 Y0.9752
G1 X0.7058 Y1.0063
G1 X0.6482 Y1.0409
G1 X0.5987 Y1.0675
G1 X0.5377 Y1.0964
G1 X0.4856 Y1.1181
G1 X0.4325 Y1.1375
G1 X0.3676 Y1.1577
G1 X0.3017 Y1.1747
G1 X0.2461 Y1.1862
G1 X0.1900 Y1.1955
G1 X0.1222 Y1.2034
G1 X0.0654 Y1.2075
G1 X-0.0029 Y1.2092
G1 X-0.0712 Y1.2075
G1 X-0.1280 Y1.2034
G1 X-0.1957 Y1.1953
G1 X-0.2518 Y1.1858
G1 X-0.3184 Y1.1713
G1 X-0.3731 Y1.1565
G1 X-0.4377 Y1.1357
G1 X-0.4906 Y1.1158
G1 X-0.5425 Y1.0937
G1 X-0.6033 Y1.0644
G1 X-0.6527 Y1.0376
G1 X-0.7103 Y1.0029
G1 X-0.7567 Y0.9717
G1 X-0.8104 Y0.9319
G1 X-0.8534 Y0.8967
G1 X-0.9027 Y0.8521
G1 X-0.9494 Y0.8051
G1 X-0.9862 Y0.7641
G1 X-1.0209 Y0.7216
G1 X-1.0536 Y0.6777
G1 X-1.0841 Y0.6324
G1 X-1.1178 Y0.5764
G1 X-1.1434 Y0.5285
G1 X-1.1712 Y0.4696
G1 X-1.1957 Y0.4095
G1 X-1.2135 Y0.3586

G1 X-1.2318 Y0.2965
G1 X-1.2444 Y0.2442
G1 X-1.2562 Y0.1808
G1 X-1.2634 Y0.1276
G1 X-1.2687 Y0.0634
G1 X-1.2703 Y0.0098
G1 X-1.2693 Y-0.0438
G1 X-1.2647 Y-0.1081
G1 X-1.2581 Y-0.1613
G1 X-1.2468 Y-0.2248
G1 X-1.2346 Y-0.2772
G1 X-1.2169 Y-0.3394
G1 X-1.1957 Y-0.4006
G1 X-1.1755 Y-0.4508
G1 X-1.1530 Y-0.5001
G1 X-1.1229 Y-0.5579
G1 X-1.0897 Y-0.6142
G1 X-1.0597 Y-0.6597
G1 X-1.0208 Y-0.7127
G1 X-0.9862 Y-0.7552
G1 X-0.9495 Y-0.7963
G1 X-0.9028 Y-0.8433
G1 X-0.8619 Y-0.8807
G1 X-0.8105 Y-0.9231
G1 X-0.7659 Y-0.9565
G1 X-0.7103 Y-0.9940
G1 X-0.6528 Y-1.0287
G1 X-0.6033 Y-1.0554
G1 X-0.5425 Y-1.0847
G1 X-0.4905 Y-1.1067
G1 X-0.4270 Y-1.1303
G1 X-0.3730 Y-1.1474
G1 X-0.3073 Y-1.1649
G1 X-0.2518 Y-1.1769
G1 X-0.1957 Y-1.1865
G1 X-0.1393 Y-1.1935
G1 X-0.0826 Y-1.1981
G1 X-0.0143 Y-1.2004
G1 X0.0426 Y-1.1997
G1 X0.1108 Y-1.1956
G1 X0.1674 Y-1.1896
G1 X0.2349 Y-1.1793
G1 X0.2906 Y-1.1682

G1 X0.3566 Y-1.1517
G1 X0.4217 Y-1.1320
G1 X0.4750 Y-1.1131
G1 X0.5273 Y-1.0919
G1 X0.5887 Y-1.0636
G1 X0.6385 Y-1.0375
G1 X0.6965 Y-1.0035
G1 X0.7432 Y-0.9728
G1 X0.7973 Y-0.9335
G1 X0.8490 Y-0.8914
G1 X0.8903 Y-0.8545
G1 X0.9375 Y-0.8079
G1 X0.9748 Y-0.7673
G1 X1.0170 Y-0.7167
G1 X1.0500 Y-0.6729
G1 X1.0868 Y-0.6187
G1 X1.1152 Y-0.5721
G1 X1.1462 Y-0.5148
G1 X1.1696 Y-0.4658
G1 X1.1905 Y-0.4159
G1 X1.2125 Y-0.3550
G1 X1.2310 Y-0.2930
G1 X1.2437 Y-0.2407
G1 X1.2558 Y-0.1773
G1 X1.2630 Y-0.1241
G1 X1.2679 Y-0.0706
G1 X1.2703 Y-0.0063
G1 X1.2703 Y0.0044
G0 Z0.0500
G0 X1.3614 Y0.0044
G1 Z-0.0050
G1 X1.3614
G1 X1.3598 Y0.0681
G1 X1.3548 Y0.1315
G1 X1.3467 Y0.1947
G1 X1.3352 Y0.2574
G1 X1.3206 Y0.3194
G1 X1.3028 Y0.3808
G1 X1.2818 Y0.4412
G1 X1.2578 Y0.5005
G1 X1.2307 Y0.5587
G1 X1.2007 Y0.6156
G1 X1.1677 Y0.6709

G1 X1.1320 Y0.7247
G1 X1.0935 Y0.7767
G1 X1.0524 Y0.8269
G1 X1.0087 Y0.8750
G1 X0.9627 Y0.9211
G1 X0.9143 Y0.9650
G1 X0.8637 Y1.0066
G1 X0.8110 Y1.0457
G1 X0.7564 Y1.0823
G1 X0.6999 Y1.1164
G1 X0.6418 Y1.1478
G1 X0.5821 Y1.1764
G1 X0.5210 Y1.2021
G1 X0.4586 Y1.2250
G1 X0.3952 Y1.2450
G1 X0.3308 Y1.2620
G1 X0.2656 Y1.2759
G1 X0.1998 Y1.2868
G1 X0.1334 Y1.2946
G1 X0.0668 Y1.2993
G1 X0.0000 Y1.3008
G1 X-0.0668 Y1.2993
G1 X-0.1334 Y1.2946
G1 X-0.1998 Y1.2868
G1 X-0.2656 Y1.2759
G1 X-0.3308 Y1.2620
G1 X-0.3952 Y1.2450
G1 X-0.4586 Y1.2250
G1 X-0.5210 Y1.2021
G1 X-0.5821 Y1.1764
G1 X-0.6418 Y1.1478
G1 X-0.6999 Y1.1164
G1 X-0.7564 Y1.0823
G1 X-0.8110 Y1.0457
G1 X-0.8637 Y1.0066
G1 X-0.9143 Y0.9650
G1 X-0.9627 Y0.9211
G1 X-1.0087 Y0.8750
G1 X-1.0524 Y0.8269
G1 X-1.0935 Y0.7767
G1 X-1.1320 Y0.7247
G1 X-1.1677 Y0.6709
G1 X-1.2007 Y0.6156

G1 X-1.2307 Y0.5587
G1 X-1.2578 Y0.5005
G1 X-1.2818 Y0.4412
G1 X-1.3028 Y0.3808
G1 X-1.3206 Y0.3194
G1 X-1.3352 Y0.2574
G1 X-1.3467 Y0.1947
G1 X-1.3548 Y0.1315
G1 X-1.3598 Y0.0681
G1 X-1.3614 Y0.0044
G1 X-1.3598 Y-0.0592
G1 X-1.3548 Y-0.1226
G1 X-1.3467 Y-0.1858
G1 X-1.3352 Y-0.2485
G1 X-1.3206 Y-0.3105
G1 X-1.3028 Y-0.3719
G1 X-1.2818 Y-0.4323
G1 X-1.2578 Y-0.4917
G1 X-1.2307 Y-0.5498
G1 X-1.2007 Y-0.6067
G1 X-1.1677 Y-0.6620
G1 X-1.1320 Y-0.7158
G1 X-1.0935 Y-0.7678
G1 X-1.0524 Y-0.8180
G1 X-1.0087 Y-0.8661
G1 X-0.9627 Y-0.9122
G1 X-0.9143 Y-0.9561
G1 X-0.8637 Y-0.9977
G1 X-0.8110 Y-1.0368
G1 X-0.7564 Y-1.0734
G1 X-0.6999 Y-1.1075
G1 X-0.6418 Y-1.1389
G1 X-0.5821 Y-1.1675
G1 X-0.5210 Y-1.1932
G1 X-0.4586 Y-1.2161
G1 X-0.3952 Y-1.2361
G1 X-0.3308 Y-1.2531
G1 X-0.2656 Y-1.2670
G1 X-0.1998 Y-1.2779
G1 X-0.1334 Y-1.2857
G1 X-0.0668 Y-1.2904
G1 X0.0000 Y-1.2919
G1 X0.0668 Y-1.2904

G1 X0.1334 Y-1.2857
G1 X0.1998 Y-1.2779
G1 X0.2656 Y-1.2670
G1 X0.3308 Y-1.2531
G1 X0.3952 Y-1.2361
G1 X0.4586 Y-1.2161
G1 X0.5210 Y-1.1932
G1 X0.5821 Y-1.1675
G1 X0.6418 Y-1.1389
G1 X0.6999 Y-1.1075
G1 X0.7564 Y-1.0734
G1 X0.8110 Y-1.0368
G1 X0.8637 Y-0.9977
G1 X0.9143 Y-0.9561
G1 X0.9627 Y-0.9122
G1 X1.0087 Y-0.8661
G1 X1.0524 Y-0.8180
G1 X1.0935 Y-0.7678
G1 X1.1320 Y-0.7158
G1 X1.1677 Y-0.6620
G1 X1.2007 Y-0.6067
G1 X1.2307 Y-0.5498
G1 X1.2578 Y-0.4917
G1 X1.2818 Y-0.4323
G1 X1.3028 Y-0.3719
G1 X1.3206 Y-0.3105
G1 X1.3352 Y-0.2485
G1 X1.3467 Y-0.1858
G1 X1.3548 Y-0.1226
G1 X1.3598 Y-0.0592
G1 X1.3614 Y0.0044
G0 Z0.0500
G0 X0.7243 Y0.0522
G1 Z-0.0050
G1 X0.7243 Y0.0522
G1 X-0.6715
G0 Z0.0500
G0 X-0.6639 Y-0.0806
G1 Z-0.0050
G1 X-0.6639 Y-0.0806
G1 Y-0.1565
G1 X-0.6413
G1 Y-0.0960

G1 X-0.5766 Y-0.0922
G1 X-0.5587 Y-0.0879
G1 X-0.5486 Y-0.0823
G1 X-0.5406 Y-0.0742
G1 X-0.5336 Y-0.0595
G1 X-0.5320 Y-0.0493
G1 X-0.5338 Y-0.0360
G1 X-0.5397 Y-0.0243
G1 X-0.5496 Y-0.0149
G1 X-0.5617 Y-0.0089
G1 X-0.5751 Y-0.0060
G1 X-0.5897 Y-0.0051
G1 X-0.6639 Y-0.0048
G1 Y-0.0806
G0 Z0.0500
G0 X-0.5641 Y-0.0290
G1 Z-0.0050
G1 X-0.5641 Y-0.0290
G1 X-0.5571 Y-0.0394
G1 X-0.5556 Y-0.0526
G1 X-0.5604 Y-0.0632
G1 X-0.5687 Y-0.0711
G1 X-0.5827 Y-0.0745
G1 X-0.6413 Y-0.0764
G1 Y-0.0204
G1 X-0.5810 Y-0.0227
G1 X-0.5712 Y-0.0248
G1 X-0.5649 Y-0.0283
G1 X-0.5641 Y-0.0290
G0 Z0.0500
G0 X-0.5026 Y-0.0806
G1 Z-0.0050
G1 X-0.5026 Y-0.0806
G1 Y-0.1565
G1 X-0.4800
G1 Y-0.0887
G1 X-0.4444 Y-0.0890
G1 X-0.4340 Y-0.0914
G1 X-0.4191 Y-0.1035
G1 X-0.3792 Y-0.1533
G1 X-0.3735 Y-0.1558
G1 X-0.3647 Y-0.1565
G1 X-0.3561 Y-0.1561

G1 X-0.3529 Y-0.1543
G1 X-0.3620 Y-0.1392
G1 X-0.3943 Y-0.0992
G1 X-0.4096 Y-0.0876
G1 X-0.3824 Y-0.0761
G1 X-0.3739 Y-0.0695
G1 X-0.3672 Y-0.0599
G1 X-0.3643 Y-0.0503
G1 X-0.3653 Y-0.0372
G1 X-0.3694 Y-0.0270
G1 X-0.3767 Y-0.0176
G1 X-0.3885 Y-0.0102
G1 X-0.4073 Y-0.0063
G1 X-0.5026 Y-0.0048
G1 Y-0.0806
G0 Z0.0500
G0 X-0.3984 Y-0.0276
G1 Z-0.0050
G1 X-0.3984 Y-0.0276
G1 X-0.3902 Y-0.0361
G1 X-0.3879 Y-0.0456
G1 X-0.3923 Y-0.0580
G1 X-0.4006 Y-0.0660
G1 X-0.4152 Y-0.0700
G1 X-0.4784 Y-0.0710
G1 X-0.4803 Y-0.0210
G1 X-0.4172 Y-0.0214
G1 X-0.4069 Y-0.0232
G1 X-0.3999 Y-0.0265
G1 X-0.3984 Y-0.0276
G0 Z0.0500
G0 X-0.2839 Y-0.0064
G1 Z-0.0050
G1 X-0.2839 Y-0.0064
G1 X-0.2987 Y-0.0136
G1 X-0.3114 Y-0.0233
G1 X-0.3216 Y-0.0354
G1 X-0.3289 Y-0.0496
G1 X-0.3333 Y-0.0653
G1 X-0.3344 Y-0.0823
G1 X-0.3325 Y-0.0987
G1 X-0.3273 Y-0.1138
G1 X-0.3219 Y-0.1233

G1 X-0.3108 Y-0.1365
G1 X-0.2960 Y-0.1476
G1 X-0.2846 Y-0.1527
G1 X-0.2693 Y-0.1568
G1 X-0.2536 Y-0.1584
G1 X-0.2301 Y-0.1558
G1 X-0.2152 Y-0.1508
G1 X-0.2036 Y-0.1448
G1 X-0.1915 Y-0.1351
G1 X-0.1819 Y-0.1228
G1 X-0.1743 Y-0.1080
G1 X-0.1724 Y-0.0962
G1 Y-0.0707
G1 X-0.1746 Y-0.0548
G1 X-0.1779 Y-0.0440
G1 X-0.1857 Y-0.0309
G1 X-0.1931 Y-0.0230
G1 X-0.2017 Y-0.0165
G1 X-0.2161 Y-0.0090
G1 X-0.2313 Y-0.0044
G1 X-0.2470 Y-0.0021
G1 X-0.2627 Y-0.0019
G1 X-0.2788 Y-0.0048
G1 X-0.2839 Y-0.0064
G0 Z0.0500
G0 X-0.2335 Y-0.0213
G1 Z-0.0050
G1 X-0.2335 Y-0.0213
G1 X-0.2224 Y-0.0259
G1 X-0.2126 Y-0.0332
G1 X-0.1998 Y-0.0510
G1 X-0.1940 Y-0.0724
G1 X-0.1941 Y-0.0898
G1 X-0.1963 Y-0.1006
G1 X-0.2002 Y-0.1110
G1 X-0.2066 Y-0.1212
G1 X-0.2123 Y-0.1271
G1 X-0.2225 Y-0.1339
G1 X-0.2356 Y-0.1384
G1 X-0.2470 Y-0.1402
G1 X-0.2718 Y-0.1380
G1 X-0.2847 Y-0.1326
G1 X-0.2932 Y-0.1263

G1 X-0.2998 Y-0.1193
G1 X-0.3069 Y-0.1083
G1 X-0.3098 Y-0.0989
G1 X-0.3105 Y-0.0809
G1 X-0.3076 Y-0.0555
G1 X-0.3038 Y-0.0458
G1 X-0.2982 Y-0.0375
G1 X-0.2831 Y-0.0261
G1 X-0.2608 Y-0.0187
G1 X-0.2482 Y-0.0184
G1 X-0.2391 Y-0.0200
G1 X-0.2335 Y-0.0213
G0 Z0.0500
G0 X-0.1414 Y-0.0810
G1 Z-0.0050
G1 X-0.1414 Y-0.0810
G1 Y-0.1571
G1 X-0.0611 Y-0.1546
G1 X-0.0472 Y-0.1523
G1 X-0.0332 Y-0.1466
G1 X-0.0185 Y-0.1358
G1 X-0.0076 Y-0.1210
G1 X-0.0010 Y-0.1023
G1 X0.0011 Y-0.0800
G1 X-0.0012 Y-0.0560
G1 X-0.0080 Y-0.0367
G1 X-0.0198 Y-0.0219
G1 X-0.0321 Y-0.0133
G1 X-0.0424 Y-0.0088
G1 X-0.0558 Y-0.0061
G1 X-0.1414 Y-0.0048
G1 Y-0.0810
G0 Z0.0500
G0 X-0.0414 Y-0.0306
G1 Z-0.0050
G1 X-0.0414 Y-0.0306
G1 X-0.0281 Y-0.0456
G1 X-0.0229 Y-0.0628
G1 X-0.0222 Y-0.0810
G1 X-0.0241 Y-0.0991
G1 X-0.0271 Y-0.1099
G1 X-0.0322 Y-0.1195
G1 X-0.0427 Y-0.1300

G1 X-0.0550 Y-0.1348
G1 X-0.0879 Y-0.1371
G1 X-0.1188
G1 X-0.1186 Y-0.0596
G1 X-0.1164 Y-0.0227
G1 X-0.1055 Y-0.0214
G1 X-0.0660 Y-0.0227
G1 X-0.0532 Y-0.0249
G1 X-0.0436 Y-0.0292
G1 X-0.0414 Y-0.0306
G0 Z0.0500
G0 X0.0360 Y-0.0622
G1 Z-0.0050
G1 X0.0360 Y-0.0622
G1 X0.0373 Y-0.1124
G1 X0.0409 Y-0.1284
G1 X0.0446 Y-0.1351
G1 X0.0510 Y-0.1421
G1 X0.0663 Y-0.1521
G1 X0.0785 Y-0.1565
G1 X0.0880 Y-0.1577
G1 X0.1257 Y-0.1565
G1 X0.1380 Y-0.1521
G1 X0.1499 Y-0.1448
G1 X0.1585 Y-0.1367
G1 X0.1629 Y-0.1298
G1 X0.1668 Y-0.1177
G1 X0.1690 Y-0.1033
G1 X0.1723 Y-0.0048
G1 X0.1498
G1 X0.1466 Y-0.0985
G1 X0.1447 Y-0.1118
G1 X0.1406 Y-0.1244
G1 X0.1352 Y-0.1313
G1 X0.1279 Y-0.1360
G1 X0.1167 Y-0.1393
G1 X0.1023 Y-0.1405
G1 X0.0875 Y-0.1386
G1 X0.0752 Y-0.1344
G1 X0.0671 Y-0.1293
G1 X0.0622 Y-0.1223
G1 X0.0606 Y-0.1163
G1 X0.0588 Y-0.0829

G1 X0.0585 Y-0.0048
G1 X0.0360
G1 Y-0.0622
G0 Z0.0500
G0 X0.0070 Y0.1581
G1 Z-0.0050
G1 X0.0070 Y0.1581
G1 Y0.0822
G1 X0.1135
G1 Y0.1015
G1 X0.0296
G1 Y0.2339
G1 X0.0070
G1 Y0.1581
G0 Z0.0500
G0 X-0.0647 Y0.2127
G1 Z-0.0050
G1 X-0.0647 Y0.2127
G1 X-0.0557 Y0.2041
G1 X-0.0525 Y0.1945
G1 X-0.0551 Y0.1836
G1 X-0.0644 Y0.1735
G1 X-0.0740 Y0.1700
G1 X-0.0837 Y0.1687
G1 X-0.1430 Y0.1677
G1 X-0.1449 Y0.2177
G1 X-0.0841 Y0.2171
G1 X-0.0740 Y0.2161
G1 X-0.0657 Y0.2133
G1 X-0.0647 Y0.2127
G0 Z0.0500
G0 X-0.1672 Y0.1581
G1 Z-0.0050
G1 X-0.1672 Y0.1581
G1 Y0.0822
G1 X-0.1446
G1 Y0.1499
G1 X-0.1065 Y0.1495
G1 X-0.0971 Y0.1466
G1 X-0.0837 Y0.1352
G1 X-0.0437 Y0.0854
G1 X-0.0337 Y0.0825
G1 X-0.0152 Y0.0822

G1 X-0.0433 Y0.1209
G1 X-0.0723 Y0.1521
G1 X-0.0464 Y0.1629
G1 X-0.0402 Y0.1677
G1 X-0.0330 Y0.1772
G1 X-0.0293 Y0.1885
G1 X-0.0298 Y0.2003
G1 X-0.0353 Y0.2143
G1 X-0.0407 Y0.2212
G1 X-0.0531 Y0.2285
G1 X-0.0700 Y0.2321
G1 X-0.1672 Y0.2339
G1 Y0.1581
G0 Z0.0500
G0 X-0.3285 Y0.1581
G1 Z-0.0050
G1 X-0.3285
G1 Y0.0822
G1 X-0.1995
G1 Y0.1015
G1 X-0.3059
G1 Y0.1531
G1 X-0.2091
G1 Y0.1693
G1 X-0.3059
G1 Y0.2177
G1 X-0.2027
G1 Y0.2339
G1 X-0.3285
G1 Y0.1581
G0 Z0.0500
G0 X-0.5026 Y0.1581
G1 Z-0.0050
G1 X-0.5026
G1 Y0.0822
G1 X-0.4800
G1 Y0.1531
G1 X-0.3898
G1 Y0.0822
G1 X-0.3672
G1 Y0.2339
G1 X-0.3898
G1 Y0.1725

G1 X-0.4800
G1 Y0.2339
G1 X-0.5026
G1 Y0.1581
G0 Z0.0500
G0 X-0.6333 Y0.2324
G1 Z-0.0050
G1 X-0.6333 Y0.2324
G1 X-0.6496 Y0.2229
G1 X-0.6602 Y0.2098
G1 X-0.6636 Y0.1936
G1 X-0.6591 Y0.1791
G1 X-0.6514 Y0.1699
G1 X-0.6406 Y0.1633
G1 X-0.5663 Y0.1406
G1 X-0.5610 Y0.1358
G1 X-0.5581 Y0.1300
G1 X-0.5571 Y0.1253
G1 X-0.5581 Y0.1171
G1 X-0.5649 Y0.1071
G1 X-0.5782 Y0.1007
G1 X-0.5944 Y0.0985
G1 X-0.6171 Y0.1002
G1 X-0.6257 Y0.1027
G1 X-0.6359 Y0.1091
G1 X-0.6425 Y0.1164
G1 X-0.6502 Y0.1298
G1 X-0.6553 Y0.1324
G1 X-0.6699 Y0.1281
G1 X-0.6704 Y0.1257
G1 X-0.6672 Y0.1141
G1 X-0.6626 Y0.1062
G1 X-0.6537 Y0.0969
G1 X-0.6420 Y0.0895
G1 X-0.6269 Y0.0835
G1 X-0.6133 Y0.0807
G1 X-0.5988 Y0.0798
G1 X-0.5840 Y0.0809
G1 X-0.5683 Y0.0849
G1 X-0.5508 Y0.0947
G1 X-0.5384 Y0.1093
G1 X-0.5358 Y0.1164
G1 X-0.5351 Y0.1276

G1 X-0.5371 Y0.1380
G1 X-0.5405 Y0.1453
G1 X-0.5463 Y0.1521
G1 X-0.5622 Y0.1613
G1 X-0.6232 Y0.1782
G1 X-0.6340 Y0.1831
G1 X-0.6401 Y0.1913
G1 X-0.6409 Y0.2025
G1 X-0.6371 Y0.2097
G1 X-0.6295 Y0.2149
G1 X-0.6177 Y0.2181
G1 X-0.6009 Y0.2196
G1 X-0.5896 Y0.2184
G1 X-0.5781 Y0.2142
G1 X-0.5690 Y0.2070
G1 X-0.5610 Y0.1964
G1 X-0.5549 Y0.1928
G1 X-0.5397 Y0.1931
G1 X-0.5408 Y0.2021
G1 X-0.5450 Y0.2104
G1 X-0.5521 Y0.2194
G1 X-0.5610 Y0.2269
G1 X-0.5703 Y0.2318
G1 X-0.5971 Y0.2360
G1 X-0.6177 Y0.2357
G1 X-0.6295 Y0.2337
G1 X-0.6333 Y0.2324
G0 Z0.0500
G0 X-0.6715 Y-0.1993
G1 Z-0.0050
G1 X-0.6715 Y-0.1993
G1 X0.7243
G0 Z0.0500
G0 X0.5601 Y-0.0063
G1 Z-0.0050
G1 X0.5601 Y-0.0063
G1 X0.5438 Y-0.0157
G1 X0.5363 Y-0.0236
G1 X0.5320 Y-0.0316
G1 X0.5299 Y-0.0401
G1 X0.5301 Y-0.0475
G1 X0.5360 Y-0.0622
G1 X0.5422 Y-0.0689

G1 X0.5528 Y-0.0753
G1 X0.6267 Y-0.0976
G1 X0.6328 Y-0.1035
G1 X0.6357 Y-0.1089
G1 X0.6373 Y-0.1154
G1 X0.6367 Y-0.1208
G1 X0.6335 Y-0.1266
G1 X0.6275 Y-0.1322
G1 X0.6176 Y-0.1368
G1 X0.5994 Y-0.1400
G1 X0.5779 Y-0.1389
G1 X0.5680 Y-0.1358
G1 X0.5572 Y-0.1291
G1 X0.5509 Y-0.1223
G1 X0.5432 Y-0.1089
G1 X0.5382 Y-0.1062
G1 X0.5260 Y-0.1089
G1 X0.5232 Y-0.1112
G1 X0.5276 Y-0.1277
G1 X0.5353 Y-0.1379
G1 X0.5476 Y-0.1472
G1 X0.5706 Y-0.1562
G1 X0.5850 Y-0.1584
G1 X0.6003
G1 X0.6278 Y-0.1530
G1 X0.6430 Y-0.1435
G1 X0.6529 Y-0.1332
G1 X0.6570 Y-0.1263
G1 X0.6584 Y-0.1179
G1 X0.6580 Y-0.1068
G1 X0.6519 Y-0.0911
G1 X0.6455 Y-0.0850
G1 X0.6316 Y-0.0774
G1 X0.5624 Y-0.0573
G1 X0.5541 Y-0.0498
G1 X0.5524 Y-0.0388
G1 X0.5553 Y-0.0316
G1 X0.5608 Y-0.0264
G1 X0.5719 Y-0.0213
G1 X0.5838 Y-0.0190
G1 X0.5999 Y-0.0197
G1 X0.6156 Y-0.0246
G1 X0.6224 Y-0.0296

G1 X0.6332 Y-0.0431
G1 X0.6385 Y-0.0459
G1 X0.6536 Y-0.0456
G1 X0.6542 Y-0.0423
G1 X0.6514 Y-0.0338
G1 X0.6466 Y-0.0257
G1 X0.6376 Y-0.0157
G1 X0.6230 Y-0.0069
G1 X0.5962 Y-0.0026
G1 X0.5757 Y-0.0029
G1 X0.5639 Y-0.0050
G1 X0.5601 Y-0.0063
G0 Z0.0500
G0 X0.3714 Y-0.0130
G1 Z-0.0050
G1 X0.3714 Y-0.0130
G1 X0.3728 Y-0.0185
G1 X0.3779 Y-0.0206
G1 X0.4263 Y-0.0210
G1 Y-0.1565
G1 X0.4489
G1 Y-0.0210
G1 X0.5033 Y-0.0200
G1 X0.5066 Y-0.0157
G1 X0.5069 Y-0.0048
G1 X0.3714
G1 Y-0.0130
G0 Z0.0500
G0 X0.2528 Y-0.0061
G1 Z-0.0050
G1 X0.2528 Y-0.0061
G1 X0.2362 Y-0.0137
G1 X0.2242 Y-0.0225
G1 X0.2155 Y-0.0325
G1 X0.2091 Y-0.0446
G1 X0.2046 Y-0.0619
G1 X0.2031 Y-0.0793
G1 X0.2040 Y-0.0931
G1 X0.2086 Y-0.1125
G1 X0.2137 Y-0.1242
G1 X0.2231 Y-0.1374
G1 X0.2325 Y-0.1454
G1 X0.2439 Y-0.1515

G1 X0.2630 Y-0.1572
G1 X0.2768 Y-0.1585
G1 X0.2907 Y-0.1581
G1 X0.3106 Y-0.1539
G1 X0.3281 Y-0.1450
G1 X0.3420 Y-0.1319
G1 X0.3494 Y-0.1199
G1 X0.3511 Y-0.1129
G1 X0.3500 Y-0.1090
G1 X0.3411 Y-0.1049
G1 X0.3329 Y-0.1068
G1 X0.3213 Y-0.1236
G1 X0.3144 Y-0.1304
G1 X0.3061 Y-0.1354
G1 X0.2963 Y-0.1387
G1 X0.2759 Y-0.1402
G1 X0.2615 Y-0.1380
G1 X0.2519 Y-0.1342
G1 X0.2385 Y-0.1224
G1 X0.2333 Y-0.1142
G1 X0.2279 Y-0.1007
G1 X0.2271 Y-0.0749
G1 X0.2308 Y-0.0500
G1 X0.2359 Y-0.0398
G1 X0.2443 Y-0.0313
G1 X0.2580 Y-0.0232
G1 X0.2723 Y-0.0201
G1 X0.2885 Y-0.0195
G1 X0.3060 Y-0.0229
G1 X0.3141 Y-0.0284
G1 X0.3278 Y-0.0456
G1 X0.3328 Y-0.0485
G1 X0.3468 Y-0.0456
G1 X0.3485 Y-0.0410
G1 X0.3379 Y-0.0232
G1 X0.3296 Y-0.0163
G1 X0.3184 Y-0.0101
G1 X0.3063 Y-0.0057
G1 X0.2859 Y-0.0022
G1 X0.2723
G1 X0.2592 Y-0.0044
G1 X0.2528 Y-0.0061
G0 Z0.0500

G0 X0.2069 Y0.1581
G1 Z-0.0050
G1 X0.2069 Y0.1581
G1 Y0.0822
G1 X0.2293
G1 X0.2311 Y0.2015
G1 X0.3057 Y0.1027
G1 X0.3181 Y0.0884
G1 X0.3272 Y0.0830
G1 X0.3456 Y0.0822
G1 Y0.2339
G1 X0.3232
G1 X0.3214 Y0.1161
G1 X0.2327 Y0.2339
G1 X0.2069
G1 Y0.1581
G0 Z0.0500
G0 X0.1457 Y0.1581
G1 Z-0.0050
G1 X0.1457
G1 Y0.0822
G1 X0.1683
G1 Y0.2339
G1 X0.1457
G1 Y0.1581
G0 Z0.0500
G0 X0.3844 Y0.1581
G1 Z-0.0050
G1 X0.3844
G1 Y0.0822
G1 X0.5137
G1 X0.5117 Y0.0999
G1 X0.4069 Y0.1017
G1 Y0.1531
G1 X0.5005
G1 Y0.1693
G1 X0.4069
G1 Y0.2177
G1 X0.5069
G1 Y0.2339
G1 X0.3844
G1 Y0.1581
G0 Z0.0500

G0 X0.5352 Y-1.2407
G1 Z-0.0050
G1 X0.5352 Y-1.2407
G1 X0.5263 Y-1.2439
G1 X0.5264 Y-1.3545
G1 X0.5285 Y-1.4058
G1 X0.5414 Y-1.4033
G1 X0.5473 Y-1.3990
G1 X0.5487 Y-1.3921
G1 X0.5489 Y-1.3506
G1 X0.6141 Y-1.3271
G1 X0.6471 Y-1.3558
G1 X0.6538 Y-1.3599
G1 X0.6627 Y-1.3598
G1 X0.6739 Y-1.3541
G1 X0.6717 Y-1.3491
G1 X0.5489 Y-1.2381
G1 X0.5458 Y-1.2372
G1 X0.5387 Y-1.2394
G1 X0.5352 Y-1.2407
G0 Z0.0500
G0 X0.5986 Y-1.3140
G1 Z-0.0050
G1 X0.5986 Y-1.3140
G1 X0.5614 Y-1.3285
G1 X0.5477 Y-1.3303
G1 X0.5438 Y-1.2563
G1 X0.5827 Y-1.2952
G1 X0.5987 Y-1.3140
G1 X0.5986
G0 Z0.0500
G0 X0.3988 Y-1.2847
G1 Z-0.0050
G1 X0.3988 Y-1.2847
G1 X0.3829 Y-1.2914
G1 X0.3685 Y-1.3005
G1 X0.3594 Y-1.3097
G1 X0.3516 Y-1.3236
G1 X0.3481 Y-1.3385
G1 X0.3478 Y-1.3583
G1 X0.3507 Y-1.3752
G1 X0.3558 Y-1.3894
G1 X0.3621 Y-1.4010

G1 X0.3744 Y-1.4160
G1 X0.3842 Y-1.4239
G1 X0.4008 Y-1.4325
G1 X0.4128 Y-1.4357
G1 X0.4250 Y-1.4369
G1 X0.4450 Y-1.4353
G1 X0.4598 Y-1.4316
G1 X0.4788 Y-1.4220
G1 X0.4929 Y-1.4080
G1 X0.5022 Y-1.3897
G1 X0.5049 Y-1.3797
G1 X0.5052 Y-1.3709
G1 X0.5025 Y-1.3694
G1 X0.4831 Y-1.3704
G1 X0.4814 Y-1.3732
G1 X0.4804 Y-1.3872
G1 X0.4770 Y-1.3952
G1 X0.4677 Y-1.4058
G1 X0.4572 Y-1.4127
G1 X0.4362 Y-1.4194
G1 X0.4157 Y-1.4185
G1 X0.4048 Y-1.4138
G1 X0.3954 Y-1.4068
G1 X0.3801 Y-1.3876
G1 X0.3747 Y-1.3764
G1 X0.3710 Y-1.3630
G1 X0.3695 Y-1.3397
G1 X0.3749 Y-1.3226
G1 X0.3823 Y-1.3132
G1 X0.3947 Y-1.3048
G1 X0.4068 Y-1.3006
G1 X0.4228 Y-1.2976
G1 X0.4364 Y-1.2987
G1 X0.4483 Y-1.3043
G1 X0.4657 Y-1.3167
G1 X0.4811 Y-1.3110
G1 X0.4823 Y-1.3067
G1 X0.4763 Y-1.2984
G1 X0.4711 Y-1.2942
G1 X0.4566 Y-1.2866
G1 X0.4409 Y-1.2808
G1 X0.4249 Y-1.2792
G1 X0.4059 Y-1.2826

G1 X0.3988 Y-1.2847
G0 Z0.0500
G0 X0.2866 Y-1.3102
G1 Z-0.0050
G1 X0.2866 Y-1.3102
G1 X0.2827 Y-1.3118
G1 X0.2797 Y-1.3158
G1 X0.2806 Y-1.3252
G1 X0.3086 Y-1.4325
G1 X0.3135 Y-1.4482
G1 X0.3181 Y-1.4564
G1 X0.3226 Y-1.4590
G1 X0.3272 Y-1.4586
G1 X0.3310 Y-1.4561
G1 X0.3335 Y-1.4506
G1 X0.3307 Y-1.4307
G1 X0.2982 Y-1.3089
G1 X0.2902 Y-1.3097
G1 X0.2866 Y-1.3102
G0 Z0.0500
G0 X0.2263 Y-1.3443
G1 Z-0.0050
G1 X0.2263 Y-1.3443
G1 X0.2354 Y-1.3513
G1 X0.2411 Y-1.3625
G1 X0.2404 Y-1.3726
G1 X0.2335 Y-1.3818
G1 X0.2257 Y-1.3863
G1 X0.2123 Y-1.3904
G1 X0.1528 Y-1.3959
G1 X0.1493 Y-1.3558
G1 X0.1505 Y-1.3472
G1 X0.2069 Y-1.3407
G1 X0.2250 Y-1.3438
G1 X0.2263 Y-1.3443
G0 Z0.0500
G0 X0.1573 Y-1.3282
G1 Z-0.0050
G1 X0.1573 Y-1.3282
G1 X0.1224 Y-1.3314
G1 X0.1404 Y-1.4820
G1 X0.1627
G1 X0.1559 Y-1.4176

G1 X0.1592 Y-1.4146
G1 X0.1793 Y-1.4115
G1 X0.1948 Y-1.4118
G1 X0.2098 Y-1.4182
G1 X0.2557 Y-1.4628
G1 X0.2653 Y-1.4701
G1 X0.2754 Y-1.4711
G1 X0.2910 Y-1.4686
G1 X0.2525 Y-1.4271
G1 X0.2405 Y-1.4168
G1 X0.2239 Y-1.4060
G1 X0.2480 Y-1.3948
G1 X0.2537 Y-1.3902
G1 X0.2604 Y-1.3815
G1 X0.2636 Y-1.3738
G1 X0.2647 Y-1.3658
G1 X0.2628 Y-1.3535
G1 X0.2585 Y-1.3440
G1 X0.2491 Y-1.3338
G1 X0.2375 Y-1.3277
G1 X0.2223 Y-1.3251
G1 X0.2050 Y-1.3248
G1 X0.1573 Y-1.3282
G0 Z0.0500
G0 X0.0338 Y-1.3400
G1 Z-0.0050
G1 X0.0338 Y-1.3400
G1 X-0.0219 Y-1.3430
G1 X-0.0248 Y-1.3456
G1 X-0.0203 Y-1.4900
G1 X-0.0182 Y-1.4933
G1 X0.1069 Y-1.4909
G1 Y-1.4720
G1 X0.0006 Y-1.4766
G1 Y-1.4251
G1 X0.0874 Y-1.4207
G1 X0.0934 Y-1.4176
G1 X0.0941 Y-1.4047
G1 X0.0125 Y-1.4044
G1 X0.0042 Y-1.4025
G1 X-0.0008 Y-1.3981
G1 X-0.0025 Y-1.3864
G1 X-0.0026 Y-1.3605

G1 X0.0360 Y-1.3576
G1 X0.0881 Y-1.3561
G1 X0.0953 Y-1.3554
G1 X0.1004 Y-1.3528
G1 X0.0988 Y-1.3426
G1 X0.0945 Y-1.3376
G1 X0.0553 Y-1.3392
G1 X0.0338 Y-1.3400
G0 Z0.0500
G0 X-0.2104 Y-1.3439
G1 Z-0.0050
G1 X-0.2104 Y-1.3439
G1 X-0.2218 Y-1.4820
G1 X-0.2208 Y-1.4845
G1 X-0.2033 Y-1.4883
G1 X-0.1998 Y-1.4861
G1 X-0.1906 Y-1.3665
G1 X-0.1890 Y-1.3644
G1 X-0.1500 Y-1.4918
G1 X-0.1347 Y-1.4908
G1 X-0.1271 Y-1.4841
G1 X-0.0711 Y-1.3738
G1 X-0.0703 Y-1.3762
G1 X-0.0761 Y-1.4561
G1 X-0.0805 Y-1.4950
G1 X-0.0627 Y-1.4947
G1 X-0.0589 Y-1.4931
G1 X-0.0574 Y-1.4898
G1 X-0.0493 Y-1.3857
G1 X-0.0478 Y-1.3435
G1 X-0.0773
G1 X-0.1370 Y-1.4698
G1 X-0.1756 Y-1.3405
G1 X-0.1823 Y-1.3375
G1 X-0.2087 Y-1.3331
G1 X-0.2104 Y-1.3439
G0 Z0.0500
G0 X-0.2875 Y-1.3764
G1 Z-0.0050
G1 X-0.2875 Y-1.3764
G1 X-0.2818 Y-1.4140
G1 X-0.3285 Y-1.4067
G1 X-0.3330 Y-1.4045

G1 X-0.3293 Y-1.3949
G1 X-0.2976 Y-1.3403
G1 X-0.2958 Y-1.3411
G1 X-0.2904 Y-1.3625
G1 X-0.2875 Y-1.3764
G0 Z0.0500
G0 X-0.3515 Y-1.3898
G1 Z-0.0050
G1 X-0.3515 Y-1.3898
G1 X-0.3985 Y-1.4589
G1 X-0.3763 Y-1.4627
G1 X-0.3477 Y-1.4223
G1 X-0.3242 Y-1.4240
G1 X-0.2769 Y-1.4313
G1 X-0.2648 Y-1.4778
G1 X-0.2566 Y-1.4812
G1 X-0.2450 Y-1.4820
G1 X-0.2421 Y-1.4807
G1 X-0.2677 Y-1.3714
G1 X-0.2801 Y-1.3261
G1 X-0.2824 Y-1.3235
G1 X-0.2881 Y-1.3215
G1 X-0.2954 Y-1.3209
G1 X-0.3002 Y-1.3222
G1 X-0.3098 Y-1.3308
G1 X-0.3220 Y-1.3468
G1 X-0.3515 Y-1.3898
G0 Z0.0500
G0 X-0.6092 Y-1.2490
G1 Z-0.0050
G1 X-0.6092 Y-1.2490
G1 X-0.6602 Y-1.3834
G1 X-0.6560 Y-1.3854
G1 X-0.6476 Y-1.3863
G1 X-0.6423 Y-1.3841
G1 X-0.6391 Y-1.3806
G1 X-0.6108 Y-1.3123
G1 X-0.5964 Y-1.2824
G1 X-0.5679 Y-1.3742
G1 X-0.5540 Y-1.4138
G1 X-0.5476 Y-1.4191
G1 X-0.5374 Y-1.4204
G1 X-0.5291 Y-1.4086

G1 X-0.5209 Y-1.3904
G1 X-0.4931 Y-1.3194
G1 X-0.4801 Y-1.2798
G1 X-0.4851 Y-1.2767
G1 X-0.4930 Y-1.2753
G1 X-0.4959 Y-1.2763
G1 X-0.4995 Y-1.2805
G1 X-0.5341 Y-1.3659
G1 X-0.5419 Y-1.3821
G1 X-0.5827 Y-1.2536
G1 X-0.5878 Y-1.2470
G1 X-0.5923 Y-1.2441
G1 X-0.6028 Y-1.2406
G1 X-0.6066 Y-1.2425
G1 X-0.6092 Y-1.2490
G0 Z0.0500
G0 X-0.6838 Y-1.2928
G1 Z-0.0050
G1 X-0.6838 Y-1.2928
G1 X-0.7181 Y-1.3615
G1 X-0.6981 Y-1.3685
G1 X-0.6417 Y-1.2569
G1 X-0.6331 Y-1.2362
G1 X-0.6324 Y-1.2307
G1 X-0.6340 Y-1.2278
G1 X-0.6438 Y-1.2241
G1 X-0.6476 Y-1.2253
G1 X-0.6703 Y-1.2665
G1 X-0.6838 Y-1.2928
G0 Z0.0500
G0 X-1.0245 Y1.1682
G1 Z-0.0050
G1 X-1.0245 Y1.1682
G1 X-1.0280 Y1.1640
G1 X-1.0267 Y1.1584
G1 X-0.9303 Y1.0458
G1 X-0.9263 Y1.0437
G1 X-0.9218 Y1.0450
G1 X-0.9151 Y1.0498
G1 X-0.9143 Y1.0528
G1 X-0.9170 Y1.0600
G1 X-0.9950 Y1.1551
G1 X-0.8726 Y1.0802

G1 X-0.8679 Y1.0788
G1 X-0.8622 Y1.0798
G1 X-0.8566 Y1.0851
G1 X-0.8556 Y1.0928
G1 X-0.8941 Y1.2009
G1 X-0.8933 Y1.2042
G1 X-0.8908 Y1.2052
G1 X-0.8175 Y1.1225
G1 X-0.8109 Y1.1219
G1 X-0.8044 Y1.1259
G1 X-0.8024 Y1.1290
G1 X-0.8036 Y1.1354
G1 X-0.8093 Y1.1437
G1 X-0.9004 Y1.2480
G1 X-0.9056 Y1.2466
G1 X-0.9147 Y1.2410
G1 X-0.9195 Y1.2351
G1 X-0.9207 Y1.2283
G1 X-0.8782 Y1.1059
G1 X-1.0039 Y1.1825
G1 X-1.0224 Y1.1699
G1 X-1.0245 Y1.1682
G0 Z0.0500
G0 X-0.7933 Y1.2849
G1 Z-0.0050
G1 X-0.7933 Y1.2849
G1 X-0.7933 Y1.2851
G1 X-0.7931 Y1.2851
G1 X-0.7472 Y1.2542
G1 X-0.7284 Y1.2402
G1 X-0.7286 Y1.2376
G1 X-0.7686 Y1.2170
G1 X-0.7743 Y1.2166
G1 X-0.7818 Y1.2379
G1 X-0.7933 Y1.2851
G1 X-0.7931 Y1.2851
G0 Z0.0500
G0 X-0.6471 Y1.2119
G1 Z-0.0050
G1 X-0.6471 Y1.2119
G1 X-0.7882 Y1.3027
G1 X-0.7950 Y1.3054
G1 X-0.8003 Y1.3050

G1 X-0.8067 Y1.3025
G1 X-0.8140 Y1.2966
G1 X-0.8138 Y1.2866
G1 X-0.7794 Y1.1306
G1 X-0.7755 Y1.1320
G1 X-0.7673 Y1.1386
G1 X-0.7623 Y1.1458
G1 X-0.7697 Y1.1921
G1 X-0.7680 Y1.1962
G1 X-0.7595 Y1.2017
G1 X-0.7099 Y1.2286
G1 X-0.6678 Y1.2010
G1 X-0.6585 Y1.2025
G1 X-0.6467 Y1.2093
G1 X-0.6466 Y1.2093
G1 X-0.6471 Y1.2119
G0 Z0.0500
G0 X-0.5438 Y1.2842
G1 Z-0.0050
G1 X-0.5438 Y1.2842
G1 X-0.5479 Y1.2743
G1 X-0.5575 Y1.2648
G1 X-0.6022 Y1.2440
G1 X-0.6123 Y1.2439
G1 X-0.6634 Y1.3395
G1 X-0.6646 Y1.3485
G1 X-0.6260 Y1.3631
G1 X-0.6092 Y1.3679
G1 X-0.5964 Y1.3676
G1 X-0.5843 Y1.3631
G1 X-0.5671 Y1.3505
G1 X-0.5600 Y1.3422
G1 X-0.5522 Y1.3295
G1 X-0.5441 Y1.3055
G1 X-0.5434 Y1.2868
G1 X-0.5438 Y1.2842
G0 Z0.0500
G0 X-0.5523 Y1.3655
G1 Z-0.0050
G1 X-0.5523 Y1.3655
G1 X-0.5425 Y1.3544
G1 X-0.5338 Y1.3409
G1 X-0.5244 Y1.3182

G1 X-0.5209 Y1.3010
G1 X-0.5207 Y1.2921
G1 X-0.5218 Y1.2833
G1 X-0.5255 Y1.2724
G1 X-0.5310 Y1.2635
G1 X-0.5374 Y1.2568
G1 X-0.5516 Y1.2468
G1 X-0.6178 Y1.2165
G1 X-0.6205 Y1.2171
G1 X-0.6238 Y1.2203
G1 X-0.6447 Y1.2570
G1 X-0.6934 Y1.3563
G1 X-0.6916 Y1.3583
G1 X-0.6299 Y1.3812
G1 X-0.6094 Y1.3867
G1 X-0.5968 Y1.3871
G1 X-0.5832 Y1.3843
G1 X-0.5683 Y1.3778
G1 X-0.5578 Y1.3704
G1 X-0.5523 Y1.3655
G0 Z0.0500
G0 X-0.3967 Y1.4330
G1 Z-0.0050
G1 X-0.3967 Y1.4330
G1 X-0.3964 Y1.4352
G1 X-0.4030 Y1.4462
G1 X-0.4089 Y1.4474
G1 X-0.5194 Y1.4166
G1 X-0.4672 Y1.2693
G1 X-0.3518 Y1.3007
G1 X-0.3466 Y1.3047
G1 X-0.3480 Y1.3145
G1 X-0.3518 Y1.3192
G1 X-0.4498 Y1.2958
G1 X-0.4519 Y1.2974
G1 X-0.4599 Y1.3170
G1 X-0.4675 Y1.3369
G1 X-0.4674 Y1.3435
G1 X-0.3903 Y1.3662
G1 X-0.3835 Y1.3695
G1 X-0.3817 Y1.3756
G1 X-0.3866 Y1.3846
G1 X-0.4476 Y1.3687

G1 X-0.4750 Y1.3636
G1 X-0.4827 Y1.3791
G1 X-0.4924 Y1.4060
G1 X-0.3969 Y1.4329
G1 X-0.3967 Y1.4330
G0 Z0.0500
G0 Z.1
M5
G0 G53 Z0.0
G53 G0 X0.0 Y0.0
M30