Z-Mill
Engraving Machine

User Guide

PITSCO
E D U C A T I O N

Items Included

• USB cable for connection to a computer
• 10 – 3" x 3" pieces of laminate
• Z-Mill software CD

• Roll of double-stick tape
• Power cord
• Shim

Note: Although we recommend engraving only on the included laminate pieces, other plastics may be used. The necessary attachments for engraving other materials are not included with the Z-Mill.

System Requirements for Z-Mill software: Windows XP, Vista, or Windows 7 with a minimum 128 MB RAM, one available USB port, 800 x 600 screen resolution, and CD-ROM drive.

Operating the Z-Mill

The Z-Mill comes completely assembled and only needs to be plugged into an electrical outlet for operation. There are two different ways to operate the Z-Mill: in Manual mode and Computer mode. By turning the operation switch on the front panel to Manual, you can engrave a piece of laminate by controlling the directional buttons by hand. By turning the operation switch to Computer, you can control the directional buttons via computer.

Manual Operation

1. After plugging the power cord into the Z-Mill and turning on the power, set the machine to the Manual setting. Use the Up and Down buttons – the red buttons marked with a positive (+) and negative (-) sign, respectively – to raise the engraver so the bit is a few inches from the positioning table (Figure 1).

2. Place a few pieces of double-stick tape (Figure 2) on the bottom of a piece of laminate. Lift the plastic shield and center the laminate piece on the positioning table. Use the Down button to slowly lower the engraving tip to approximately one inch above the laminate.

   The x- and y-axis buttons located on the front panel of the Z-Mill are used to move the positioning table left to right and back to front. Use these buttons to move the table so the engraver is in the front-left corner of the laminate before engraving a design.

3. After the engraver and holding plate are in place, lift the machine's plastic shield and reach inside to turn on the Z-Mill engraver (Figure 3 on next page).

   There is a plastic switch on the front of the engraver to control the bit's speed. (For most applications, we recommend using the engraver on medium speed.) After you have turned on the engraver, carefully remove your hand and lower the shield.

Figure 1

Figure 2

Caution: Raising the front shield during operation will stop the positioning table movement but will *not* stop the engraving tool bit from spinning. The engraving tool has a separate power switch.

4. Now, use the Down button to lower the engraver so the tip of the bit is lightly pushing down on the laminate. Do not lower the bit so far that it cuts too deeply into the laminate – the bit is powerful enough to drill all the way through the piece. Use the x- and y-axis buttons to move the positioning table left, right, backward, and forward. Use the Up and Down buttons to lift or lower the engraving bit when needed.
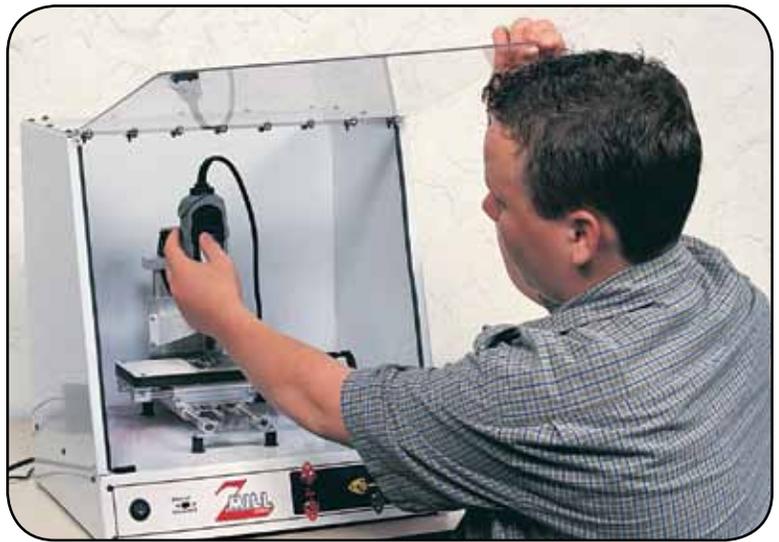

Figure 3

5. After finishing your design, use the Up button to lift the bit off the laminate. Lift the plastic shield and carefully reach inside to turn off the engraver. After the bit has stopped moving, remove the laminate piece from the positioning table. You may need to use a sharpened pencil or a flathead screwdriver to pry off the laminate if it has become thoroughly adhered to the positioning table. Wipe any excess shavings off the laminate piece.

Congratulations! You have engraved a design using the Z-Mill! Use the machine to create name tags, refrigerator magnets, small signs, and many other projects.

Engraving with the Z-Mill software

Some students might prefer to use the Z-Mill to engrave their laminate pieces by using the Z-Mill software program (Figure 4). To do this, the Z-Mill must be connected to a compatible computer (see System Requirements on the previous page). You will also need to locate the included USB cable in order for the Z-Mill to interface with the computer.

Software Setup Instructions

Next, connect the Z-Mill to the computer. To do this, follow these steps:

1. Unplug the Z-Mill from its power source.

Figure 4

2. Connect one end of the cable to a USB port on the back of the computer.

3. Connect the other end of the USB cable to the USB port located on the back of the mill. Plug the Z-Mill back into its power source.
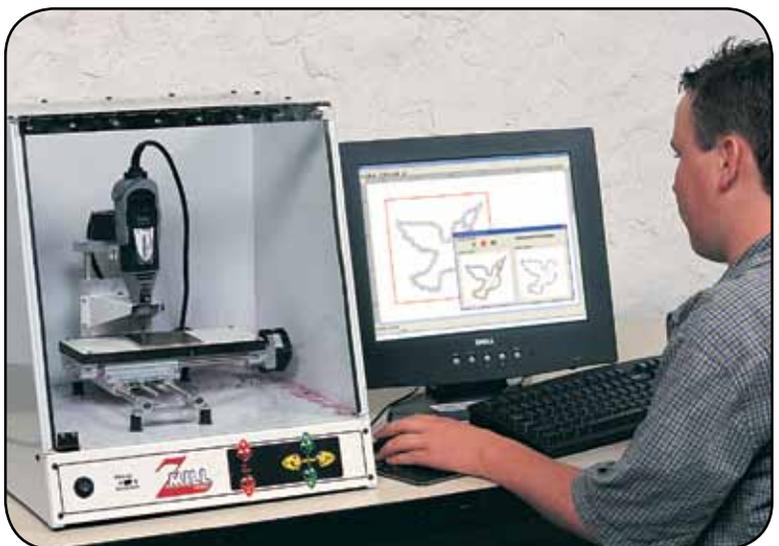
4. Set the machine's operational switch to Computer instead of Manual (the switch is located on the front panel of the Z-Mill).

5. Turn on the power switch. The USB drivers will automatically install on your system.

Install the Z-Mill software onto your computer. After it has been installed, click Programs, Z-mill, and Z-mill. A red box will appear on-screen. To create a design, use the mouse to draw inside the red box. To learn how to draw, explore the Help file. This file gives extensive instructions on how to use the software to create an on-screen design. The easy-to-follow directions tell you how to select a design from the preprogrammed choices (or how to draw your own) and how to set the machine to engrave the design onto the laminate piece.

After you have created your design with the software, follow the Help file instructions to direct the Z-Mill to begin engraving. Before engraving, use the Manual setting and directional buttons on the front panel of the machine to make sure the engraving bit is positioned directly above the front-left corner of the laminate piece (Figure 5). The bit should be touching the surface of the laminate. **The machine must be in this position before the engraving begins.** Set the operational switch back to the Computer setting. Then, direct the machine to start engraving and enjoy the show!
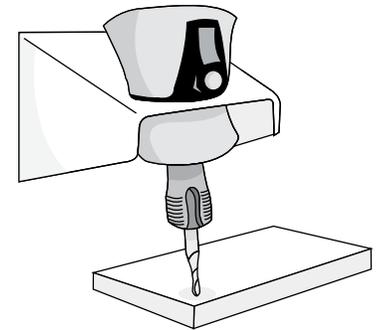

Figure 5

Changing the Bit

Loosen the bit with a wrench and raise the engraver enough to remove the bit. Using the x- and y-axis buttons, center the engraver over the positioning table. Push the new bit all the way up into the engraver and finger tighten it. Center the shim under the engraver and lower the engraver until it will go down no farther – it will make a buzzing noise. Loosen the bit and let it drop and rest on the shim. Tighten the bit with the wrench (Figure 6). Raise the engraver and remove the shim.

For more information about the Z-Mill and its software or to ask us a question about this product, call 800-358-4983.
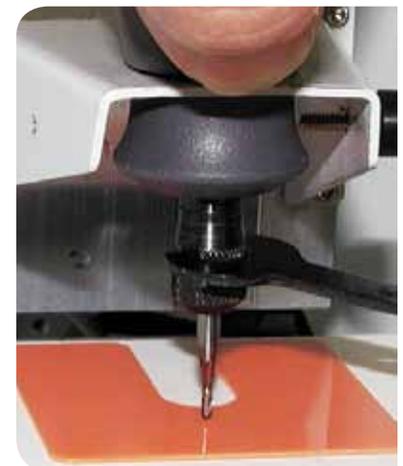

Figure 6

Warranty

Pitsco provides a one-year limited warranty against defects in manufacturing on all items purchased. In a warranty situation, Pitsco will arrange for the return of defective items for evaluation. Qualified Pitsco staff will determine warranty coverage and notify the customer. Items under warranty will be repaired or replaced at Pitsco's discretion. Customers will be billed for all costs associated with non-warranty items.