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how to do a smoothing with iModela

View in: English - Submitted by Federico_Vanzati on Thu, 15/12/2011 - 18:29

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Introduction / Objectives:

before any milling, especially the precision ones as a PCB, you need to have a perfectly leveled surface

Part list:

iModela
cylindrical cutter (I used one with 2 mm diameter)
structural biadhesive
plexiglass base or MDF of 86x55x10 mm

Instructions:

SETUP

by their very nature, any mill has a minimum misalignment between the worktop and the sliding of the spindle. These are usually a few tenths of a millimeter, but in the case of a circuit may be sufficient to provide an unacceptable result or even break the tip. The first step is therefore the flattening of the milling media:

Fix with double-sided adhesive the support to the work plan.

The support is an additional plan of a dimensionally stable material. Generally it is sufficient to use a sheet of 4-5 mm thick (not to excessively reduce the volume of work along Z). In the case of circuits (especially with two sides) it is better to use one with higher tickness, (8-10mm). The material must be rigid, dimensionally stable and moisture proof. The best solution is the plexiglass (which does not absorb water, oil, or moisture and is extremely hard), but also the medium density fiberboard (MDF) is a good solution.

iModela software and drivers installation

install iModela on your machine

following the instructions in the manual of Roland, install with the drill disconnected, in order:

- Driver
- iModela Controller
- Roland Virtual MODELA

Always follow the Roland manual to check how to position the tips, reset the Z axis, set the origin X \ Y

Zero and point of origin

before any cutting is needed to set correctly the point of origin through **iModela Controller**.



On the iModela manual you will find all the instructions for the correct calibration of the machine and the use of the controller, we are going to summarize only the essential aspects.

Just turned on, the iModela reaches the origin of the machine, which is the limit of all three axes. To set a different reference you must change the settings for the type of origin:



Set **User Coordinate System** in both pull-down menu (upper left and upper right)



clicking on the various alternatives of the **Cursor Step (continuous - x 100 - x 10 - x 1)** you choose the number of steps of how much move the spindle on different axes, each step is 0.01mm.

With the arrows you can move the central point in the origin of the piece, which is the bottom left corner on the upper face of the support to pave.

move to the center of the piece and get down up to touch the surface of the plate, once you are near we recommend to slow down (**x10**). A trick to verify the Z is to place a sheet of thin paper, where the tip will touch the piece. Move it back and forth as you slowly lower the tip. As soon as the sheet is clamped between the two, remove it and lower the Z of 0.1mm. This operation is quite delicate, if you lower too much or set bad values it's easy to break the tip, damage to the device or even the machine.

After reaching the correct Z click **Set Point of Origin** on **Z**.

Raise the Z of 0.3 mm and move to seek the origin in X / Y.

When you reach the desired point in X / Y click **Set Point of Origin** on **X / Y**.

Now on the left the values of X, Y and Z should be for all three of 0.00

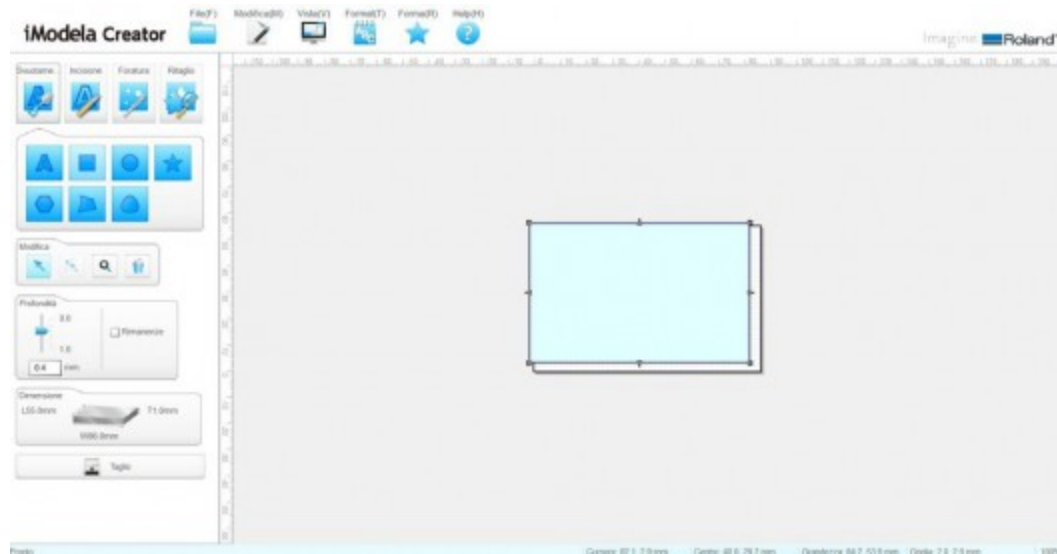


From the **Cut** the panel on the right you can, by clicking on **manual**, change the speed in percentage. If set to manual you can also change during the milling phase

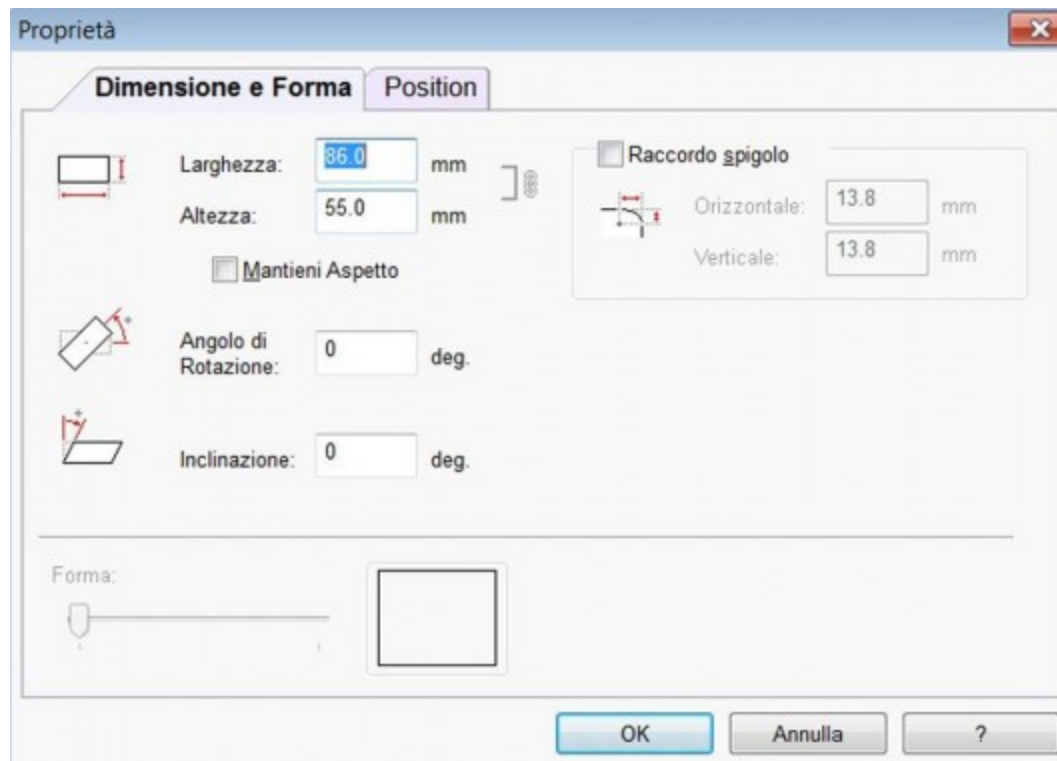
Once you set the zero on the Z axis and the origin of X / Y, you can start cutting.

Smoothing the support

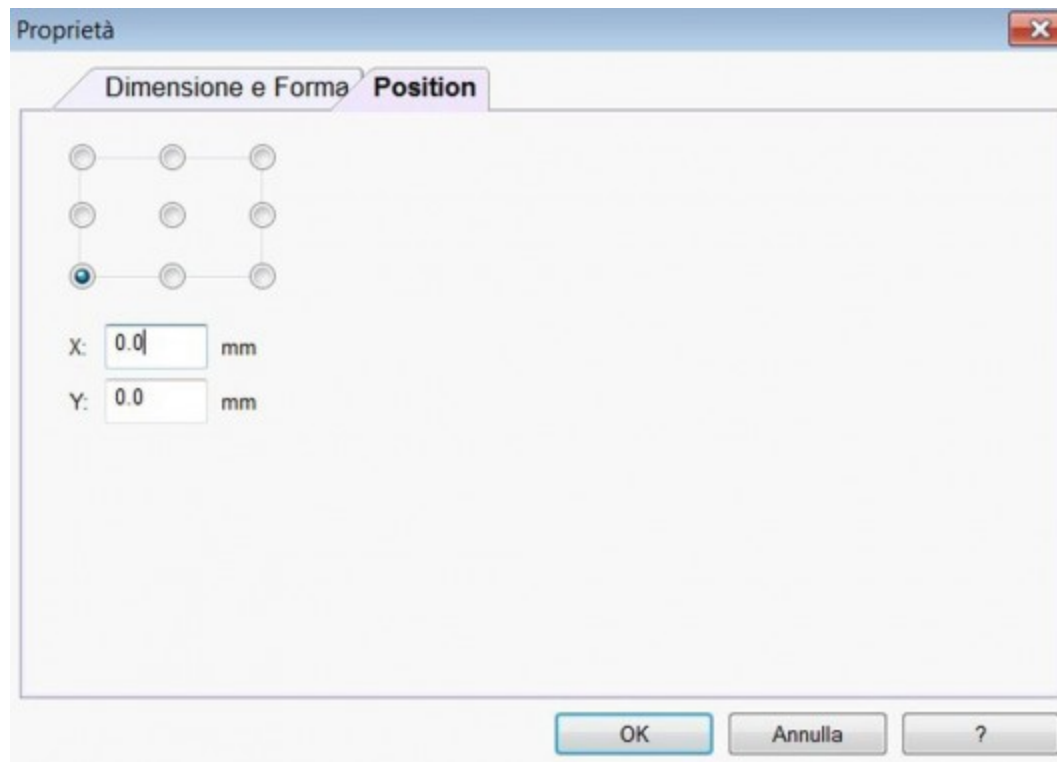
Once fixed the support you can go to the smoothing.



from **Empty** menu, insert a rectangle. Set the **depth** to 0.4mm (usually more than enough to settle any differences in height)

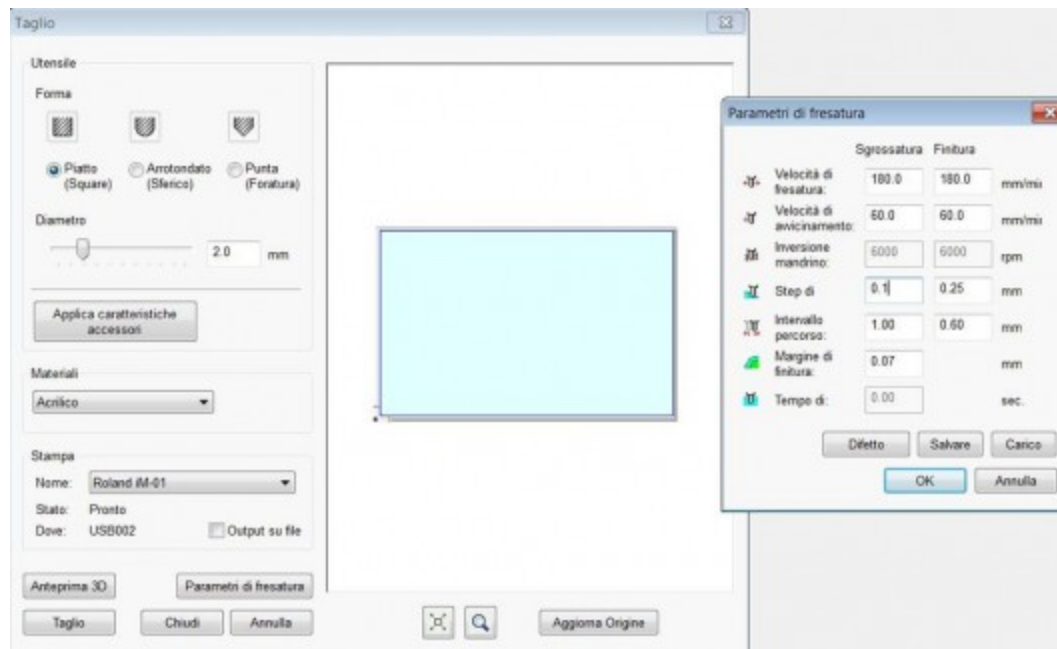


from **Shape**, click **Properties (Alt + Enter)**. From **Dimensione and Shape**, choose width and height of the floor (86mm x 55mm)



From **Position**, click on the bottom left corner (usually more convenient to refer to center) and set both **X** and **Y** to 0.0

claccate su **OK** e tornate alla finestra principale



from the main window click on **Cut** on the lower left. Within the menu that appears choose the **diameter** (we used a cylindrical 2mm) and then the milling parameters. From here you can take the **step** to 0.1mm

Click **OK**, then **Cut**

At this point, will begin the plan smoothing!

Images:

Comments



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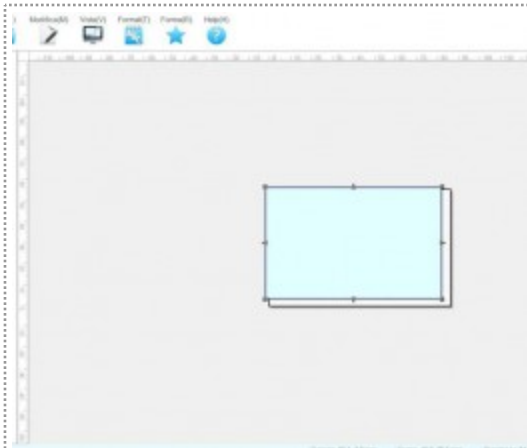
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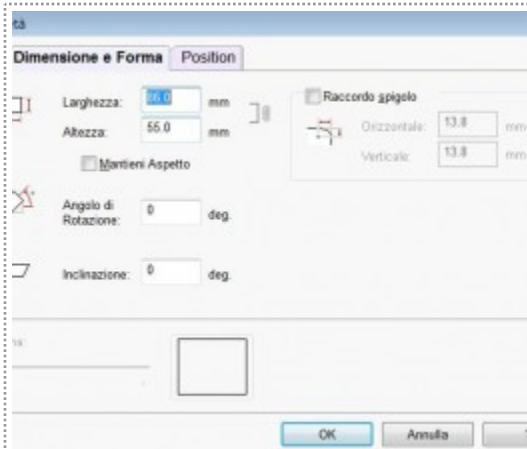
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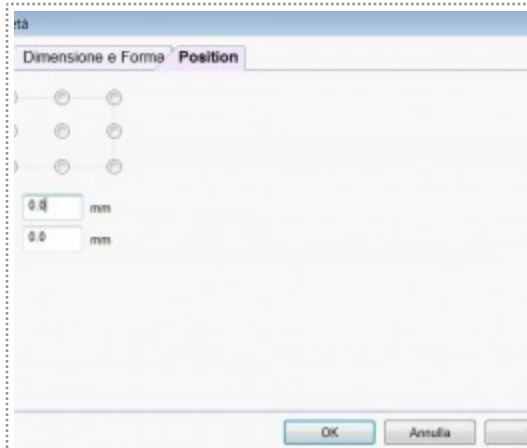
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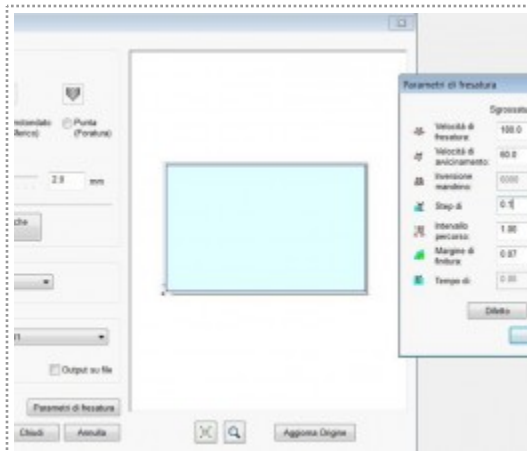
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