Micromake 3D Printer

Manual Levelling

- **Words before using**

  Please using Auto-level as possible. If the assembly of printer is no problem, “Print Height”, “Horizontal Raqius”, and“X Y Z Axis Adjustment” can be set up by Auto-Level. The Manual Levelling mainly use in the modle with high demand of the planeness. It can reach a perfect effect by using the manual levelling after Auto-level.

- **Problem of imbalance in two sides.**

  When covering the bottom, if the printer is imbalance in two sides, it because the heights of 3 Axis limit switch are not the same. you can adjust the the“X Y Z Axis Adjustment” for compensation the imbalance. So that it can keep the heights similar. You can do this adjustment as this way.

If the print head is low, decrease the “X Y Z Axis Adjustment”. If it is high, increase the “X Y Z Axis Adjustment”.

Suggestion : You can keep the adjustment range about 30. And change one axis in one time.

Then click on “Save”-“Reset”. Take out the previous modle,and

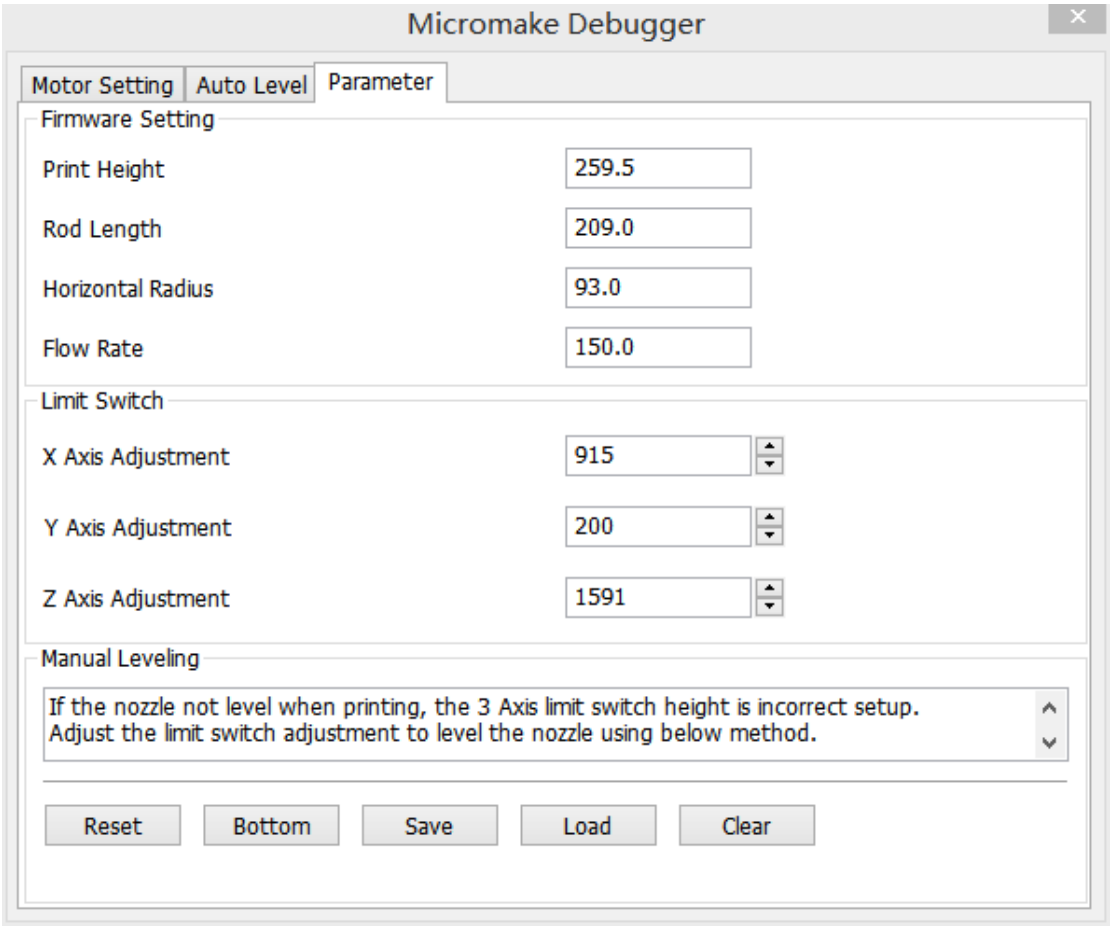
start again.

Then check out the planeness of the new cover. If it is also imbalance, repeat the previous steps to adjust. You can stop adjusting until the cover is perfect.

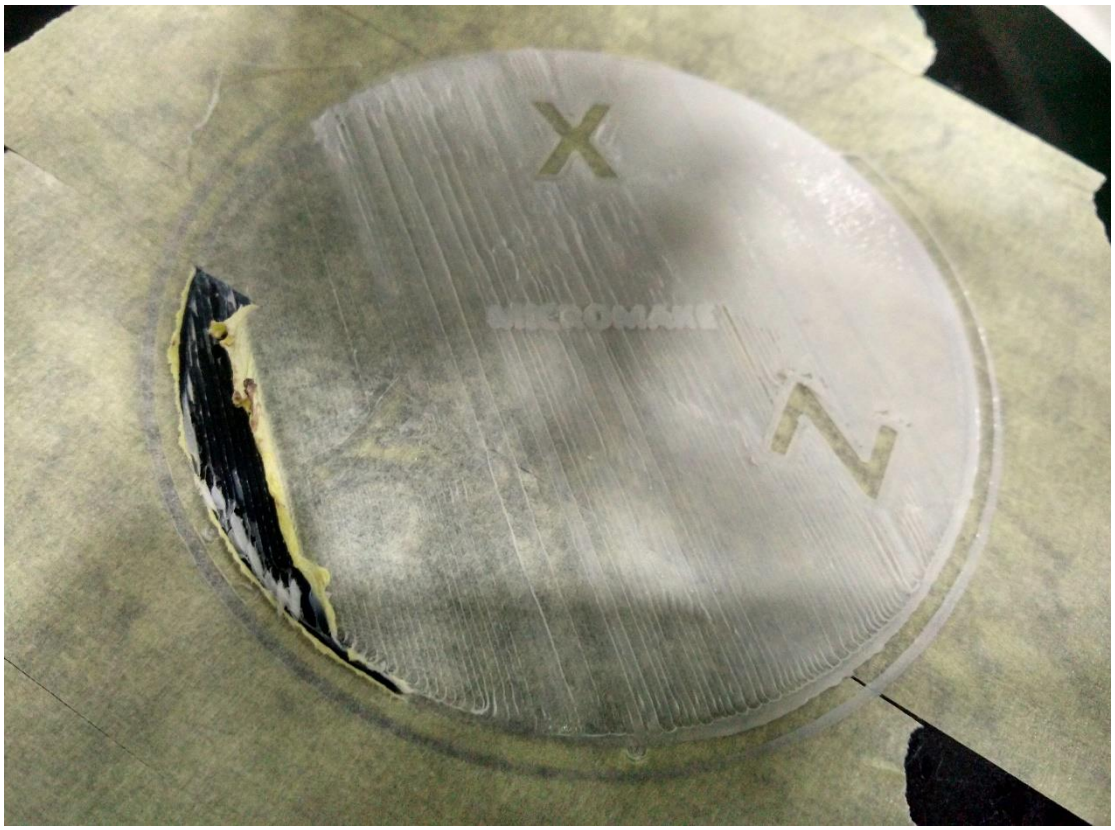
The demonstration in practical:

Download the “Leveling.gcode” in “MICROMAKE model” file in SkyDrive. Put in the SD card. Do the operation “SD Card” “Print File” to choose the file to printing off-line. Or open GCODE file with Cura to start Printing connects the computer.

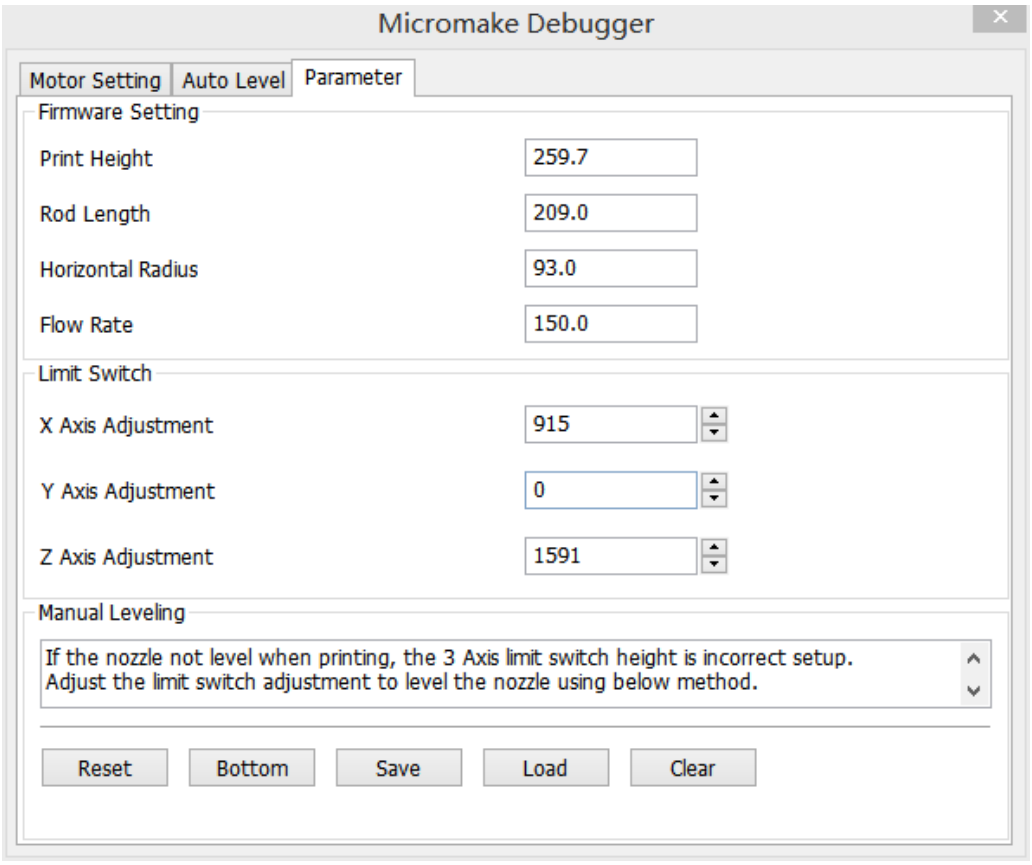
Click on the “Machine”-“Micromake Debugger”. Then we can see a dialog box, and click on “Parameter” in this box. You can see this picture:



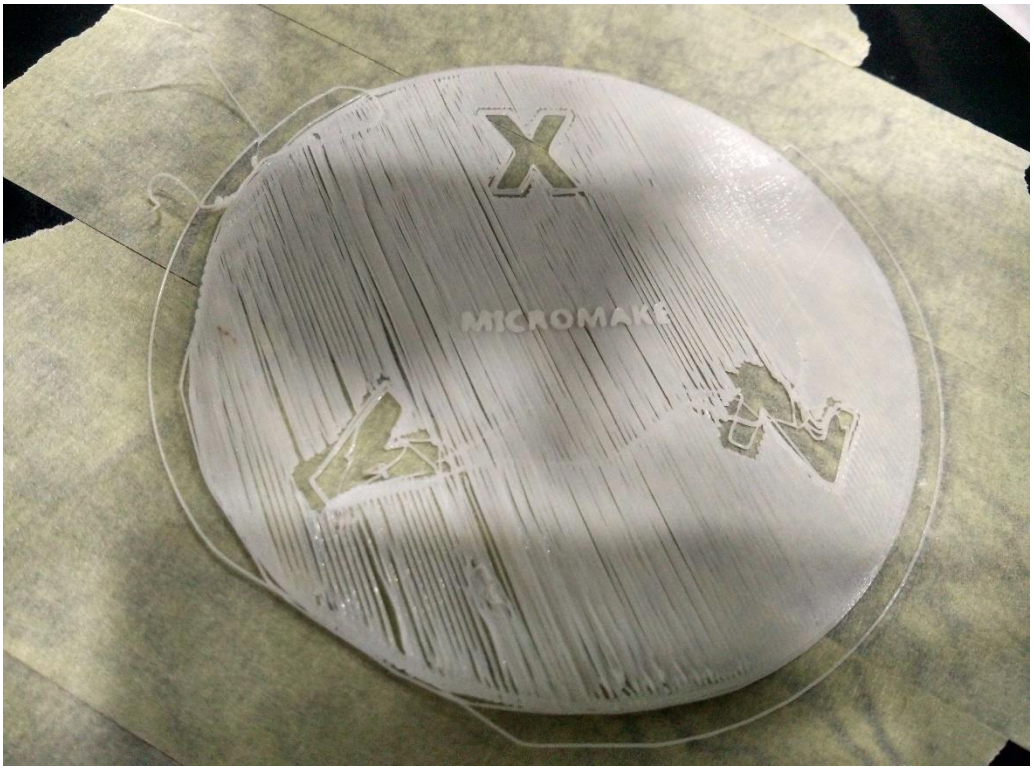
Start printing off-line, then you can see this effect:



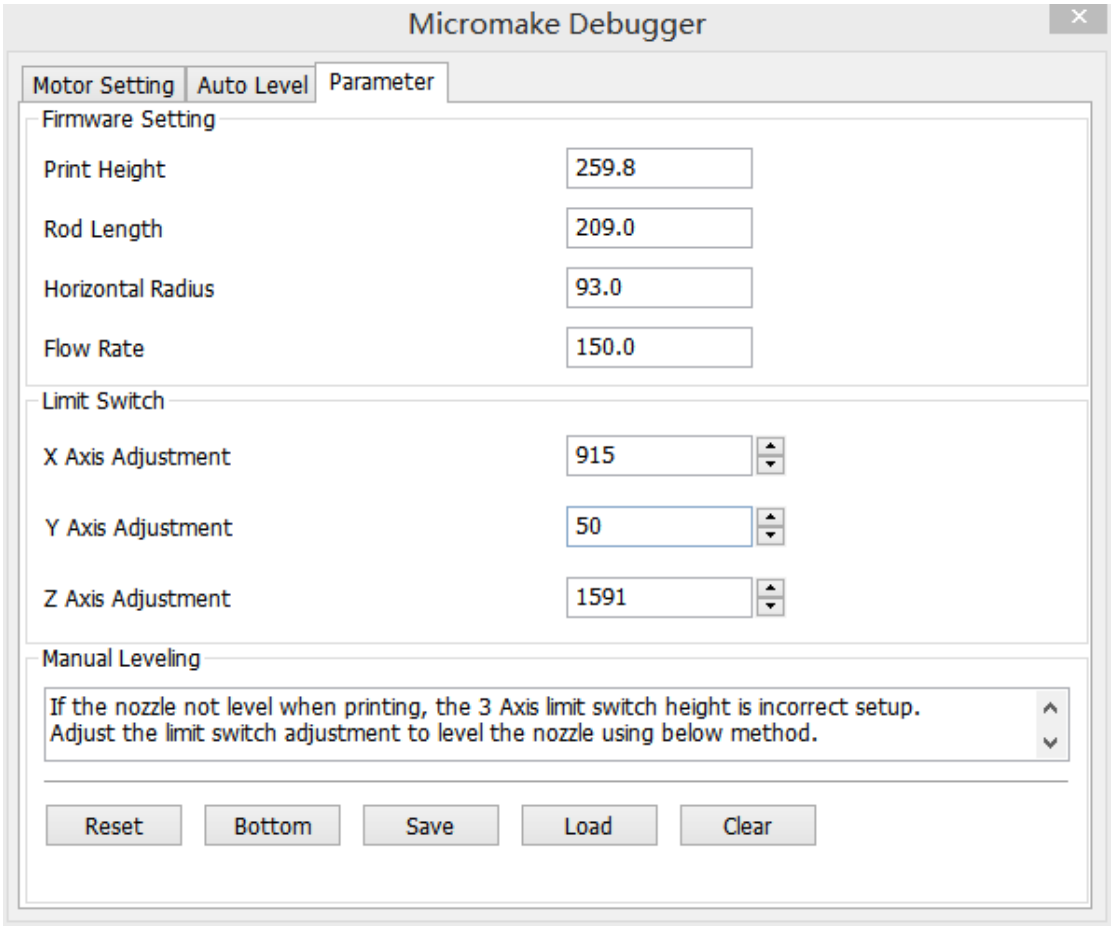
In this picture we can see the print head is so low in Y-axis that the masking tape is destroyed. According to “If the print head is low, decrease the “X Y Z Axis Adjustment”.”, we should decrease the “Y Axis Adjustment”. You can change it according to the height difference, and adjustment range is about 30 every time. But for the effect of the demo, we change 200 to 0, and 200 is 0.2mm. Then increase the “Print Height” by 0.2mm, change it in 259.8, this adjustment equates to increasing the height of X Y Z by 200 in the same time. The adjustment of “print Height” needn’t change in every time. You can change it in the next time to check up the cover. The “Parameter” table at that time:



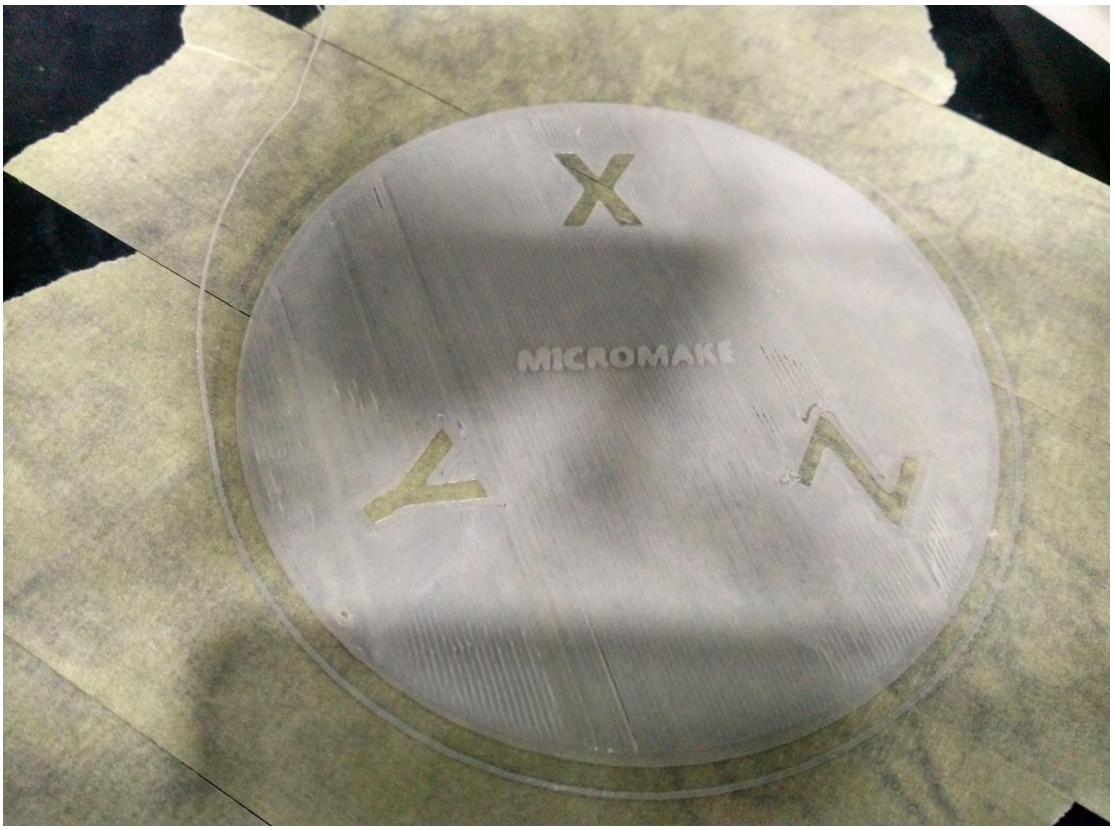
Keep on printing, we can get this effect:



In this picture, we can see, the decrease of the “Y Axis Adjustment” is too much. The height in Y Axis Adjustment is so high that the print head cannot touch the masking tape and there is gap between two lines. According to “If it is high, increase the “X Y Z Axis Adjustment”.”, we can increase “Y Axis Adjustment” by 50. And it cannot cover the most part of the masking tape because the print head is so high. We can increase the “Print Height” by 0.2mm, change it in 259.8. The “Parameter” table at that time:



Keep on printing, we can get this effect:



In this effect picture, we can see all the orientation of 3 axis and thickness of the cover are all at a perfect effect.

Additional information:

If the height between X Y Axis is so high, which means the Y axis is so low, We can increase the “Y Axis Adjustment”. If the height is so low, which means Y axis is so high, then decrease the “Y Axis Adjustment”.

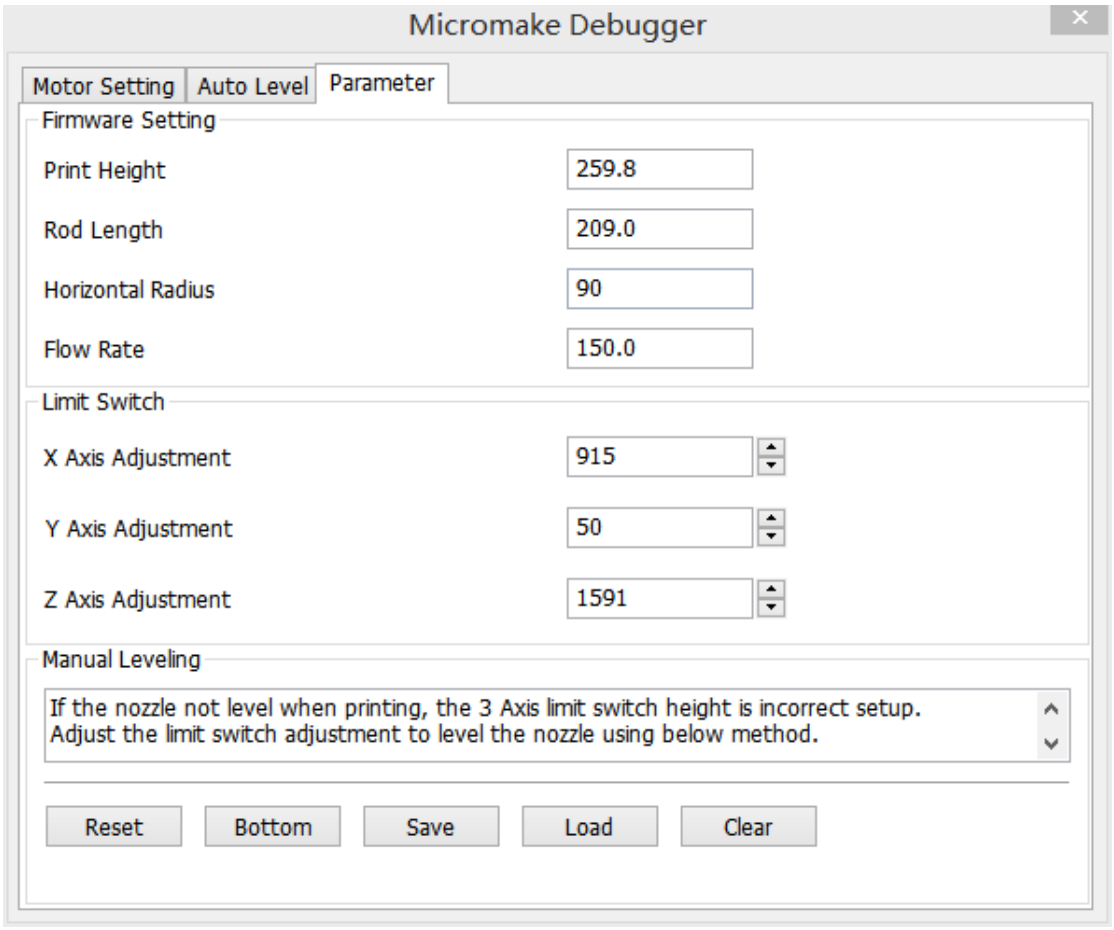
If the Y axis is low, when the “Y Axis Adjustment” turns into 0, we can increase the “X Axis Adjustment” and “Z Axis Adjustment” at the same time. For example, increasing “X Axis Adjustment” and “Z Axis Adjustment” by 100 at the same time means the effect decreasing the “Y Axis Adjustment” to -100.

- **Adjustment of the balance between center and both sides**

It will make height of the print head between in center and in both sides imbalance, If “Horizontal Radius” is not in the suitable value.

When covering the bottom, if the height on center higher than in both sides, increase the “Horizontal Radius”. If height on both sides higher than that on center, decrease the “Horizontal Radius”. You can change about 3 every time.

The “Parameter” table at that time:



Keep on printing, we can get this effect:

If the height of print head on center is so high that the PLA cannot stick on the masking tape, and the height of print head on both sides is so low that the print head press the platform to prevent extruding wire, according to “if the height on center higher than in both sides, increase the “Horizontal Radius”.”. We can increase the “Horizontal Radius” by 3, and change the value to 93. So that ， we can get the perfect effect. And vice versa.