

HOW TO CALIBRATE V-GROOVES IN SPT32

Listed below are some technical suggestions that may assist you in "identifying" where your problem is coming from, and potentially resolve any issues with cutting accurate v-grooves.

Please start with a **new blade**, and a **new piece of matboard** to make some test cuts.

Blade Depth

- ❑ Please ensure that your blade is not cutting through too deep into the matboard. If you flex the matboard to pull apart the cut, you should not be able to see too much of the "meat" of the matboard.
- ❑ If the blade depth is too shallow, you will get residual "furry/fluffy" bits of residual matboard in the groove. Note: this could also indicate a blunt blade.

Check Mode (for GUNNAR RAPIDO only)

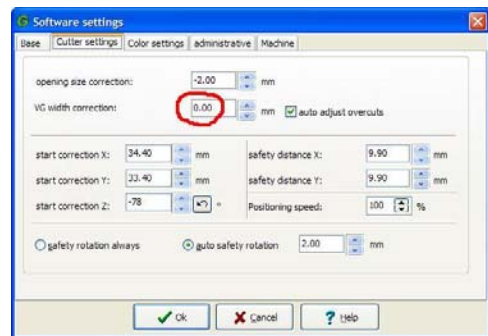
- ❑ Activate "Check Mode" in your software settings (*Settings* → *Software Settings* → *Machine*) and set this value to 3.
- ❑ Test cut a matboard and see if this improves the accuracy.

VG Width Correction

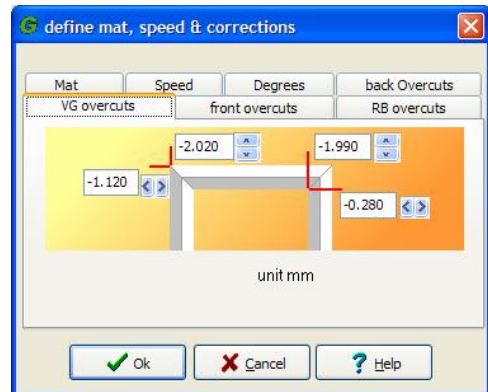
- ❑ This setting (VG Width Correction) can be found in *Settings* → *Software Settings* → *Cutter Settings*.
- ❑ Changing this setting can slightly help with VG width registration. Test cut a mat between each change in this setting to compare the improvement.

VG Calibrations for GUNNAR F1 / 601 / 3001 / 4001 only

- ❑ The standard width of a v-groove should be 1.4mm.
- ❑ If required, any variance in the width of the v-groove can be adjusted in the **Settings** → **Software Settings** → **Cutter Settings** by changing the value of the **VG Width Correction**. Make sure that the “auto adjust overcuts” checkbox is ticked too.



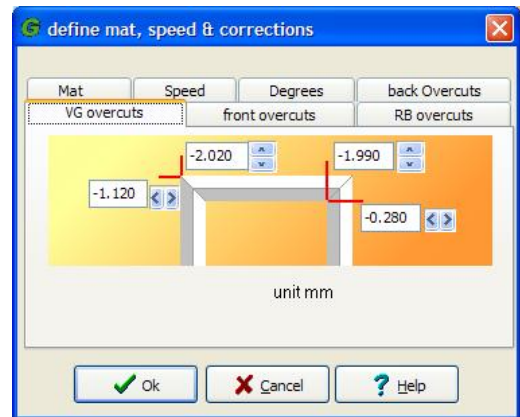
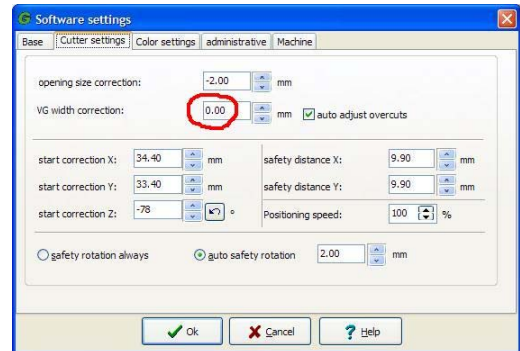
- ❑ From the front of a matboard, cut a small rectangular opening & a v-groove in a scrap, “test” piece of regular matboard, and inspect the v-groove for excessive overcuts or undercuts.
- ❑ Go to the **Settings** → **Cutter Settings Menu** and find the “**VG Overcuts**” option window, and re-adjust the corresponding cuts by increasing or decreasing the values as required.
- ❑ You can increase or decrease this value accordingly, using the click arrows up & down. Each click is equal to 0.1 of a millimetre.



- It is easier to calibrate the overcuts/undercuts, when you are working from an extreme “overcut” situation... and work you way back to a nice overcut from there. You may need to cut more openings into a matboard to get this tuned perfectly.
- The ideal v-groove should comfortably fall out of the matboard in one piece.

VG Calibrations for GUNNAR RAPIDO only

- ❑ The standard width of a v-groove should be 1.4mm.
- ❑ When you are test cutting v-grooves with the “V-Groove Only” check box (activated in the VG properties), as well as changing the blade, you also need to change the blade profile (at the bottom of the screen) from **C3 – Regular** to **C9 – V-groove**.
- ❑ Keep in mind, you may need to set the blade depth for your V-Groove Blade holder, especially if it cuts all the way through. See Step 1.
- ❑ If required, any variance in the width of the v-groove can be adjusted in the **Settings → Software Settings → Cutter Settings** by changing the value of the **VG Width Correction**. Make sure that the “auto adjust overcuts” checkbox is ticked too.
- ❑ From the front of a matboard, cut a small rectangular opening & a v-groove in a scrap, “test” piece of regular matboard, and inspect the v-groove for excessive overcuts or undercuts.
- ❑ Go to the **Settings → Cutter Settings Menu** and find the “**VG Overcuts**” option window, and re- adjust the corresponding cuts by increasing or decreasing the values as required.
- ❑ You can increase or decrease this value accordingly, using the click arrows up & down. Each click is equal to 0.1 of a millimetre.
 - It is easier to calibrate the overcuts/undercuts, when you are working from an extreme “overcut” situation... and work you way back to a nice overcut from there. You may need to cut more openings into a matboard to get this tuned perfectly.
 - The ideal v-groove should comfortably fall out of the matboard in one piece.



Straight Correction

- ❑ **Straight Correction** is the figure used to “offset” the initial entry angle (measured in degrees) of the cutting head, to get it to cut a straight line.
- ❑ This can be adjusted individually for each profile of matboard in the “define mat profiles” directory (**Settings → Define Mat Profiles**)
- ❑ Choose the **C9** Profile, which should be labeled “v-groove”... and try adjusting the “**Straight C.**” value in increments of 1 or 2 degrees at a time.
- ❑ Perform a test v-groove cut each time to compare the improvement.
- ❑ Usually, the best straight correction value for your v-groove profile should be approx. 2 degrees less than your regular (C3) profile.

Advanced Adjustments!! (WARNING - For GUNNAR Technician Only!)

Step Size Setting

- ❑ This is an advanced adjustment, and should be performed by a confident, experienced person.
- ❑ This is to check that the that scales for both X axis and Y axis in computer actually matches reality.
- ❑ To do this, take a full sheet of matboard, place it on the cutting board & tell the machine the outside measurements are 800mm x 1000mm. Make 3 small windows (50mm x 50mm) at top left, bottom left & bottom right. Position them 50mm from the sides of the board.
- ❑ Cut them out (from the back!) & measure “step size x” & “step size y.” Measure these with a very accurate ruler. (Tape measures are not good enough). These measurements need to be accurate to at least 0.25mm
- ❑ These should be 800mm & 600mm exactly, respectively. If one or both are not exact, then adjustments must be made.
- ❑ A “New Scale X” has to be put into the spt32.ini file. The formula for this is:

(Old Scale X) x (expected measurement) **(actual measurement)**

- ❑ In other words, (“Old Scale X”) x (the expected measurement) over (the actual measurement). To find the “Old Scale X” go to the **Spt32.ini** file & search for **scalex** and **scaley** (usually = 340). Calculate the “New Scale X” (in this eg, 340 x 80 over (say) 80.5).
- ❑ This number should be calculated for up to 4 decimal places (eg: 339.7652)
- ❑ You can look up the **Step Size Formula** in the Help File: **Settings → Help → Configuration Assistant → Index → Step Size → How to Adjust the Step Size.**)
- ❑ Enter the new number in the **Spt32.ini** file, replacing the old one. Then save the changes.
- ❑ Do same procedure for step size y.
- ❑ **Shut down software and machine after doing this & restart.**
- ❑ Test cut another mat and check the adjustments.
- ❑ If this is now correct, test cut a v-groove and see if you have any noticeable improvement.

Roller Bearings

- ❑ Sometimes the roller bearings in the cutting head and carriageway can be slightly loose, and may need tightened or replaced.

Replacement of brass planetary gears in servo motors (GUNNAR RAPIDO ONLY)

- ❑ Servo motors can have either brass or nylon gears. Nylon gears are not as durable as brass gears, but they do have the advantage of being slightly more accurate than brass gears.
- ❑ 99% of Rapidos have Brass Gears, because they are indestructible. This should be taken into consideration if you wish to change over to nylon gears.