# The engraving results are poor

**general rules:**
1) Make sure you only use sharp cutters.
2) Make sure your cutters have been sharpened using the correct grinding angles for the material you have to engrave.
3) Always try not to engrave deeper than necessary. For plastics this means just deep enough to get through the top layer.
4) If you have to colour fill engravings, e.g. in aluminium, the engraving depth needs to be be 0.3 mm.

Check the following:

1. Is your cutter sharp and adapted for the kind of material you want to engrave ?\
2. Are the XYZ feed speeds and the spindle RPM adapted for your material ?
3. Is the cutter width adapted to the character height in combination with the used font ? For most single line fonts you need a cutter width about 1/8 to 1/10 of the character height.
4. When engraving aluminium or stainless, did you not forget to switch on the “bidirectional”  function ?
5. Is your cutter knob still in good shape? A worn out cutter knob could cause the cutter to vibrate.
6. If your engraving depth is not equally deep everywhere, you need to check if the floating function is working correctly.
7. If the floating function works fine, please check the status of the nosecone.
8. If the engravings show different depts, or if you see shadows near the engraved characters, you may be engraving without vacuum cleaner. A vacuum cleaner is a must!

**Continue to trouble shooting, there is no connection between pc and machine.**
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