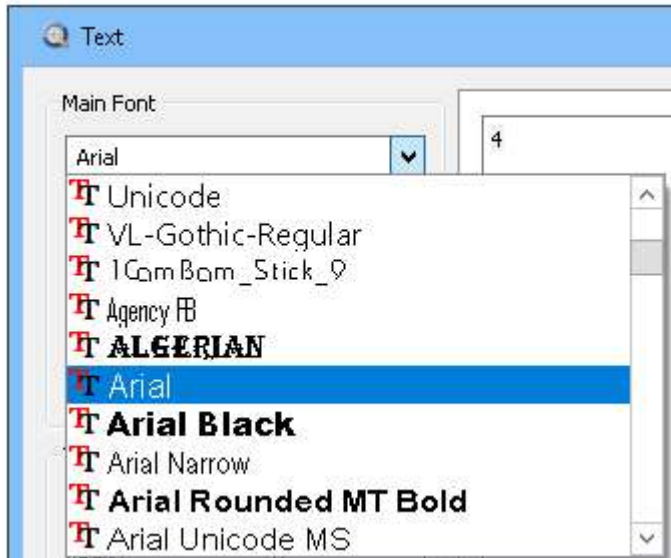# Using QCAD to prepare dxf files for engraving.

AvCAM uses the text entity to engrave text. This paper provides methods and techniques unique to QCAD to produce dxf files for text engraving.

The CAD tool bar or the menu system is the starting point for all commands. The "A" on the tool bar initiates the text command.

The picture to the left shows the font selection dropped down.
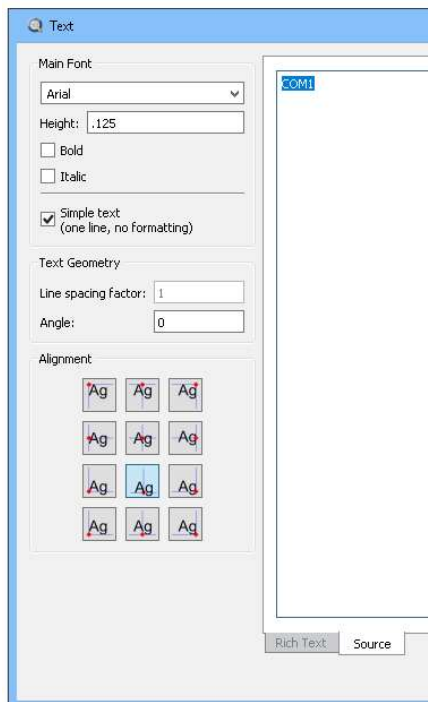
QCAD ships with a number of its own fonts. These are csx fonts, however they still have the TT to their left which would lead you to believe they are true type.   The only way to know is that the csx list starts at the beginning of the font list with courior cad and ends with qcadshp. If you are using the initialization file supplied by us, we have unchecked these fonts in Application preferences – draw – text so they do not show on the available font list.

Bear in mind that AvCAM can only read True type fonts.   For general legends, a non decorative sans serif font like arial should be used.

Remember that the font must reside on the computer generating the dxf as well as the computer operating the Panel Pro. The font is not embedded in the dxf file.

Please refer to the document "AvCAM 18.50 engraving for an in depth discussion of cutter size and font selection. This document focuses on the actions specific to QCAD.

The next selection is text height. Typical text height for switch and circuit breaker marking is .1 to .125"

AvCAM does not recognize the bold flag. If the selected font supports italic, then AvCAM will support Italic also IF the layer name contains the word italic. For instance the layer "ITALIC" would produce a tool path inside the outline in the italic style. The layer onlineItalic would cut the font on the outline but in the Italic style.

The next check box "simple text" is very important. If not checked, the text is saved as "MTEXT" which is a dxf entity that is not supported by AvCAM due to inconsistent implementations by various CAD manufacturers.

AvCAM – Settings – file load – suppress mtext warning controls AvCAM's response.

If it is checked, mtext is simply ignored and will not be displayed by AvCAM.

If it is not checked every time an mtext is encountered, a message box will appear.

Line spacing factor is grayed out when simple text is checked.

Angle is normally 0 degrees (3 o'clock). AvCAM will cut the angle indicated.

Alignment is very important. There may be minor width differences from QCAD to AvCAM. In the case of switch legends, we recommend a center justification (alignment). Top, middle or base which the vertical alignment is at the base of a non descending letter such as "M".

The lower row of selections is bottom which aligns to the descending part of the letter such as the lower case g.
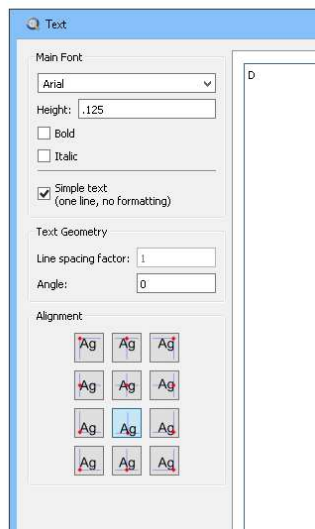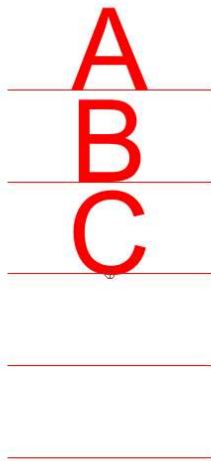
If you are drawing a multi line placard then a bottom left alignment could be used.

Enter the text in the large text box on the right side of the dialog.

If you need multiple lines of text, we recommend that you uncheck the simple text check box, enter your multiple lines, save them to your drawing.

After your multiple lines are are placed, explode the mtext. This leaves the alignment intact, but breaks the mtext into multiple lines of simple text.

A technique for vertical text is to place each letter on construction lines. In the example shown, construction lines were drawn .175 apart and each letter snapped from its insertion point (base center) to the mid point of the line.

In AvCAM, load the file and select the layer the text is on. Select the engrave or laser cutting mode.

Open move settings and enter the cutter tip width.

Hit the keyboard "s" to simulate or open the cut dialog and click the simulate button. Observe the simulation for overcuts or gaps or dramatic errors that indicate that a smaller cutter or larger/fatter font could be used.

To Edit existing text in QCAD. Simply highlight it and change the desired property such as layer in the property editor.

For N Numbers, consider using a decorative font such as times new roman on the online layer in about .3 or .375 text height. This will of course cut on the outline but the effect is pleasing. An alternative would be to place this on a separate layer to be cut with a larger cutter tip width.

Another technique is to use the hatch layer which fills the inside with horizontal lines. This is primarily intended for the laser to fill large text with the .007 spot size, but it works for engraver also.