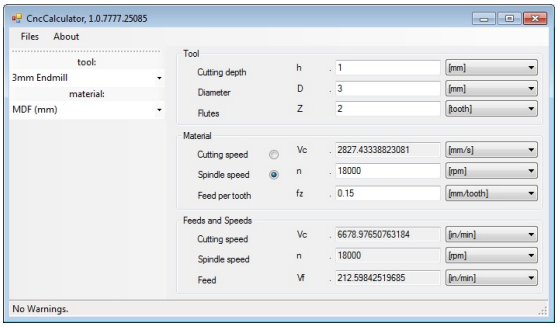

This is your CncCalculator.

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Abstract

Getting access to a CNC machine has become more easy over the years. Using such machines optimal requires some a propper configuration, a choice of the right tools and to do some calculations. The questions behind the most bacic calculations are 'How fast should my spindle turn?' and 'How fast can I move through the material?'

The calculations involved are quite simple, with the correct information just multiply and divide a few values. It becomes a bit more ticky when some of the values involved are given in the metric sysem and others are in the imperial system. Conversion between the unit systems is an area where a mistake is made easily but often spotted too late.

CncCalculator will do all the calculations if provided with the right information and will do unit conversion 'on the fly' as required. In this document the calculations used are explained as wel as the method of conversion between the unit systems.

CncCalculator being what it is, a tool that helps the user, will provide you with a calculated result. It is still up to you to make an estimate if this is a reasonable result. For this it helps to have at least a look at the calulations and also on the internet for similar applications of tools and material to get a feeling of what a reasonale result is. In this practice is the teacher for good results and no tool can help you with that.

This document assumes that you have some basic knowledge on what is involved in the physical process of cutting a part from some stock and know how to look up thinks in your machine documentation or on the internet. The actual process of cutting material is explained in short but not in full details. This is not a introduction on cutting done by a CNC machine but an explanation on how CncCalculator works.

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Introduction

CncCalculator is a tool to quickly calculate feeds and speeds born out of necesity. Too often I made a mistake in the calculations (or conversion) involved. ON the internet (or in the store for your smart phone) more than one tool can be found for doing the calculations but I never found one I was happy with. I decided to make one so I don't have to look for it anymore, can change it to whatever I want it to be, use for free and without any spam involved.

CncCalculator has some strong point and weak points if you comare it whith the other ones available. A few of the points are listed below. You can classify it as a strong or weak point for yourself.

- All source code is available andis available under a permissive licence form.
- Selection of units, e.g.: [in] or [mm].
- Conversion of units, e.g.: from [in/min] to [mm/sec].
- Includes a list of materials with preset values.
- Includes a list of tools with preset values.
- Can import any FreeCAD tools library (both v0.18 or before and v0.19 or better)
- Where you put it on the screen there it will be the next time you start it.
- Easy and intuitive to use.

1.1 Quick start

Assuming that you know what 'Feeds' and 'Speeds' are this is a quick run trough for CncCalculator.

When you start CncCalculator for the first time it comes up on a default location and using default settings.

You can drag the form to any location and when you close the application it wil reopen on exact the location where you closed it. This is handy when you arrange your (CNC related) tools on fixed positions on the screen.

By default, on the top you find a menu bar with entries like 'file' and 'about', below that is an tools bar. You can drag this tools bar to any side of the application, top, left, right or bottom. The tools bar contains two selection buttons, one for a tool and another for a material. Selecting one will fill in the 'Tool' or 'Material' section with values from the selected item. You do not have to select any tool or material, it is possible to use CncCalculator by filling in all required information by typing data in the 'Tool' and 'Material' section. (see below)

There are two sections for input, 'tool' and 'material', and one for result. Working with wood it is common to use a recomended spinle speed, working with other materials a more accurate specification of the tool cutting speed is required. Selecting between the two methods is done by selecting the round selection button after 'Cutting speed' or 'Spindle speed' in the material section. The one not selected will be calculated from the other and a given tool diameter.

Input fields are coloured white[1] and calculated fields are gray. Next to the field with the value is a button with a list of units. For edit fields you can select the appropriate units for your value. No 'on the fly' conversion is done, assuming that the value is the right value for the units you select. For calculated fields an 'on the fly' conversion is done and the value is changed to the correct value for the units you selected.

You can select any value calculated or any value in an edit field and use 'copy/paste' shortcuts to get the values to/from the clip board. Or you could just read and type it from/into your final application.

[1] Depending on system settings.

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bla bla bla

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