The Emco 5PC/5CNC Lathes
and the
WELturn Controller

NC Code created with AlphaCAM

The PC keyboard is used to control the lathe.

These brief notes supplement the documents supplied with WELturn and the information given in WELturn – Help – Machining with WELturn. Machining with WELturn is your primary resource. It is suggested you keep the documents supplied with WELturn in this folder.

Using AlphaCAM
As need arises:
1. refer to the AlphaCAM Tutorials supplied with your copy of AlphaCAM (books in the AlphaCAM box). If you do not have the tutorials, download them, in Adobe Acrobat format, from www.licom.com
2. refer to the Help file in AlphaCAM
3. refer to my "An Introduction to AlphaCAM": a comb-bound book with an orange cover.
4. Some upgrading of AlphaCAM direct from www.licom.com is possible.
5. Note the add-in options available in Utils – Add-ins, particularly Convert Raster to Vector (ie convert bit maps, such as .bmp files, to vector graphics). This add-in is available free to Master – Student version users.

Configuring various things
1) **The AlphaCAM Post Processor:** the one required is supplied with WELturn and can be found in C:\WELturn\WELturn Allsorts\AlphaCAM-WELturn Post Processor.

To install the Post Processor, start AlphaEDIT. Click on FILE – Open Post – Turning.
Locate and open the Post Processor file in C:\WELturn\WELturn Allsorts\AlphaCAM-WELturn Post Processor. The file appears on screen.
Now click on FILE – Save as Post – Turning and go into Drive C.
Open the folder Licomdat and, within that, open the folder Tposts.alp
This is where you save the post processor as WELturn.

All other Post Processor files in Tposts.alp can be deleted. If you do not delete these files or if you have several different Post Processors for different machines, you can choose which one is the default. Start AlphaEDIT. Click on FILE – Set Default Post – Turning and then make your choice of default file.

2) **Portadisk** is a utility which transfers NC code from AlphaCAM to C:\WELturn\Turndata where WELturn can pick it up. Portadisk must be correctly configured. Full instructions are given in WELturn – Help – Machining with WELturn - AlphaCAM, AlphaEDIT and Portadisk.

TOOLING
Tools must be defined in AlphaCAM and match the tools available on the lathe. The process of defining tools is fully illustrated in WELturn – Help - Machining with WELturn - Defining Tools in AlphaCAM

All tool tips must be set at centre height.

MILESTONES ON the Route Through AlphaCAM ON A *MASTER* STATION

Before doing anything else, please ensure that everything is configured as described in **Configuring various things**, that you are familiar with sources of help as listed in **Using AlphaCAM** and that you have the read the documentation supplied with WELturn and, in particular, have studied WELturn – Help – Machining with WELturn.

1) Draw the half profile of the part starting from X=0, Z=0 and continuing in the –Z direction. Remember that X values are *diameters*.
2) Draw the half profile of the billet round the part. Start from X=0, Z=1. The diameter of the billet should match your stock material and should go further in the –Z direction than the part, say 10mm.
3) Select tools and create tool paths. (Tools must have been previously defined: see MACHINE – Define Tools. Tool numbers in AlphaCAM MUST match tool numbers in WELturn.)

4) **MOST IMPORTANT: when all tool paths have been created, move the part, the billet and the tool paths so that the centre of the end of the billet is now at X=0 Z=0 and not X=0 Z=1.**

5) Use FILE – Save to save the geometry and toolpaths with a file name, eg Chess Piece.
6) If the WELturn Post Processor is not the default Post Processor, use FILE – Select Post to select it.
7) Use FILE – Output NC to save the NC code with a file name. Use the same file name as for the geometry and tool paths, eg Chess Piece. Exit the AlphaCAM lathe program and start AlphaEDIT.
8) Use FILE – Open NC/Text to open the NC code file just saved in AlphaCAM.
9) Click on COMMS – Output To Portadisk. In the window which appears, if there is more than one Portadisk option, click WELturn. Click Start.
10) In the window which appears, you are asked for a File Name. Give a name. **Please note that you can use only a single word with up to 8 letters as a name.**
11) Start WELturn and either let the Wizard guide you or use Expert Mode.
12) Machine safely.
13) Enjoy the end product!

MILESTONES ON THE ROUTE THROUGH ALPHACAM ON A *STUDENT* STATION

It is essential that the Master and Student Stations have identical tool definitions.

1) You can only do items 1 to 5 above. To continue, you must transfer to a Master Station and use FILE – Open to bring your geometry and tool path file on to the screen.
2) Continue from item 6 above.