

Tangential knife (Oscillating knife) control in myCNC

NOTE: This article is superseded by the newer manual on tangential cutting control: [Tangential Cutting Setup](#)

myCNC software has built-in features for tangential knife control.

What is Tangential control in myCNC

Tangential knife control activated if the value of "1" is written into Global variable #7005.

In this case, input g-code file is modified automatically to support tangential knife:

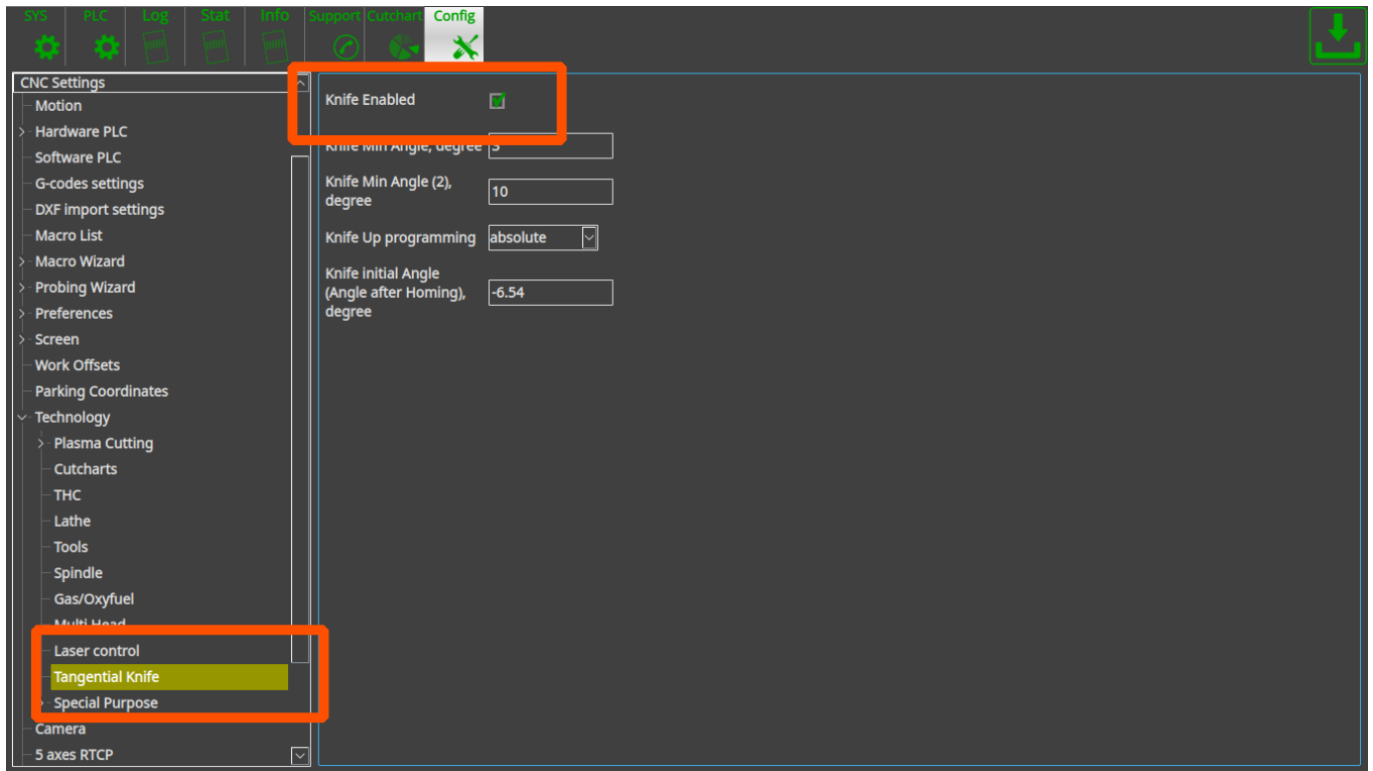
1. Positioning blocks (G0-code) is modified. CNC Control software looks at the next motion code, calculates motion direction angle and add C-axis rotation into the G0 code to follow the next motion.
2. For Arc interpolation codes (G2, G3) - CNC control add C-axis rotation to follow motion direction
3. For Linear interpolation (G1 code) - CNC control calculates an angle between two line segments and
 1. If the angle less than **Knife Min Angle**, then C-axis rotation built-in into the G1 line to follow motion direction on smooth curves.
 2. else If the angle less than **Knife Min Angle (2)** , then C-axis rotation is added between the lines and made in the material
 3. else Lift up, C-axis rotation and Move Down is added between the lines to handle sharp corners.

All this control is performed automatically if global variable #7005 is set to "1".

There are many possible ways to set the variable and have tangential control enabled permanently or switched on-off on-the-fly (for example if switching between Spindle, Marker and tangential nife in G-code program)

How to enable Tangential Control permanently

It's possible to set the variable #7005 by checking a "Knife Enabled" checkbox in "Tangential Knife" configuration widget.



The #7005 variable can be set in Software PLC, "HANDLER_INIT.plc".

Software PLC procedure HANDLER_INIT is running at the start of myCNC control software right after a complete configuration sent to the controller.

It's very easy to add a line to set the variable 7005 -

```
gvarset(7005,1);
```

For example

[_HANDLER_INIT.plc](#)

```
main()
{
    gvarset(60000,1); //run Servo ON procedure
    gvarset(7005,1);  //Enable Tangential Knife control
    exit(99);
};
```

The screenshot displays the myCNC configuration interface. On the left, the 'CNC Settings' menu is open, with 'Software PLC' highlighted. The 'PLC Sources' list on the right includes '_BV17', '_HANDLER_EXIT', '_HANDLER_GCODE_START', '_HANDLER_GCODE_STOP', and '_HANDLER_INIT', with '_HANDLER_INIT' selected. The main area shows the configuration for '_HANDLER_INIT' with the following code:

```
main()
{
    gvarset(60000,1); //run Servo ON procedure
    gvarset(7005,1); //Enable Tangential Knife control
    exit(99);
};
```

Below the code, the 'PLC Includes' section lists 'func.h'. At the bottom, a status bar shows the following variables as OK: BV17: OK, HANDLER_EXIT: OK, HANDLER_GCODE_START: OK, HANDLER_GCODE_STOP: OK, and HANDLER_INIT: OK.



Video

From:

<http://docs.pv-automation.com/> - **myCNC Online Documentation**

Permanent link:

http://docs.pv-automation.com/mycnc/tangential_knife_support

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