

Tangential knife (Oscillating knife) control in myCNC

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:

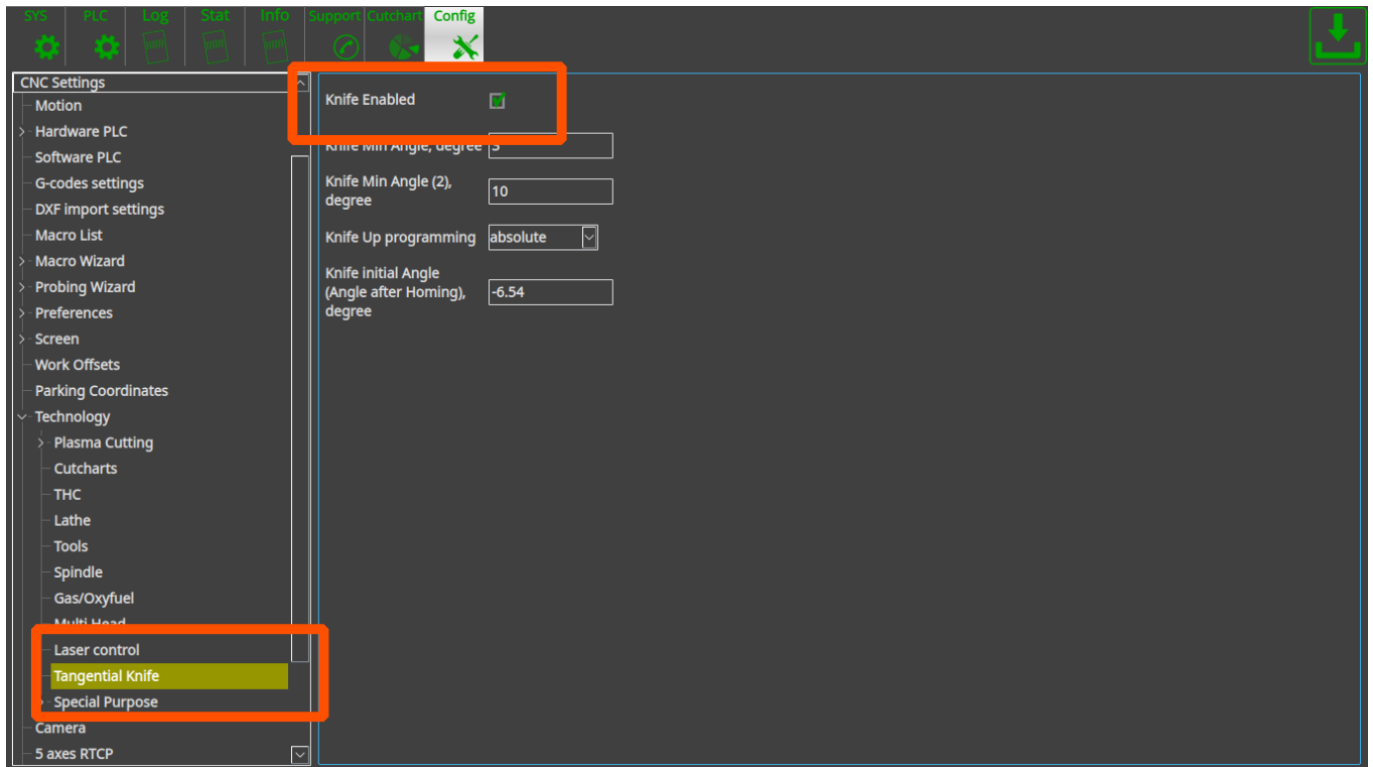
1. Positioning blocks (G0-code) is modified. CNC Control software looks at the next motion code, calculates motion direction angle and add C-axis rotation into the G0 code to follow the next motion.
2. For Arc interpolation codes (G2, G3) - CNC control add C-axis rotation to follow motion direction
3. 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 `C HANDLER_INIT.plc` `main() {`

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

```
};
```

```
</code>
```

PLC

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Tangential Knife

Special Purpose

Camera

5 axes RTCP

PLC Sources

_BV17

_HANDLER_EXIT

_HANDLER_GCODE_START

_HANDLER_GCODE_STOP

_HANDLER_INIT

PLC Includes

func.h

Name:

_HANDLER_INIT

 Aliases:

main()

{

gvarset(60000,1); //run Servo ON procedure

gvarset(7005,1); //Enable Tangential Knife control

exit(99);

};

}

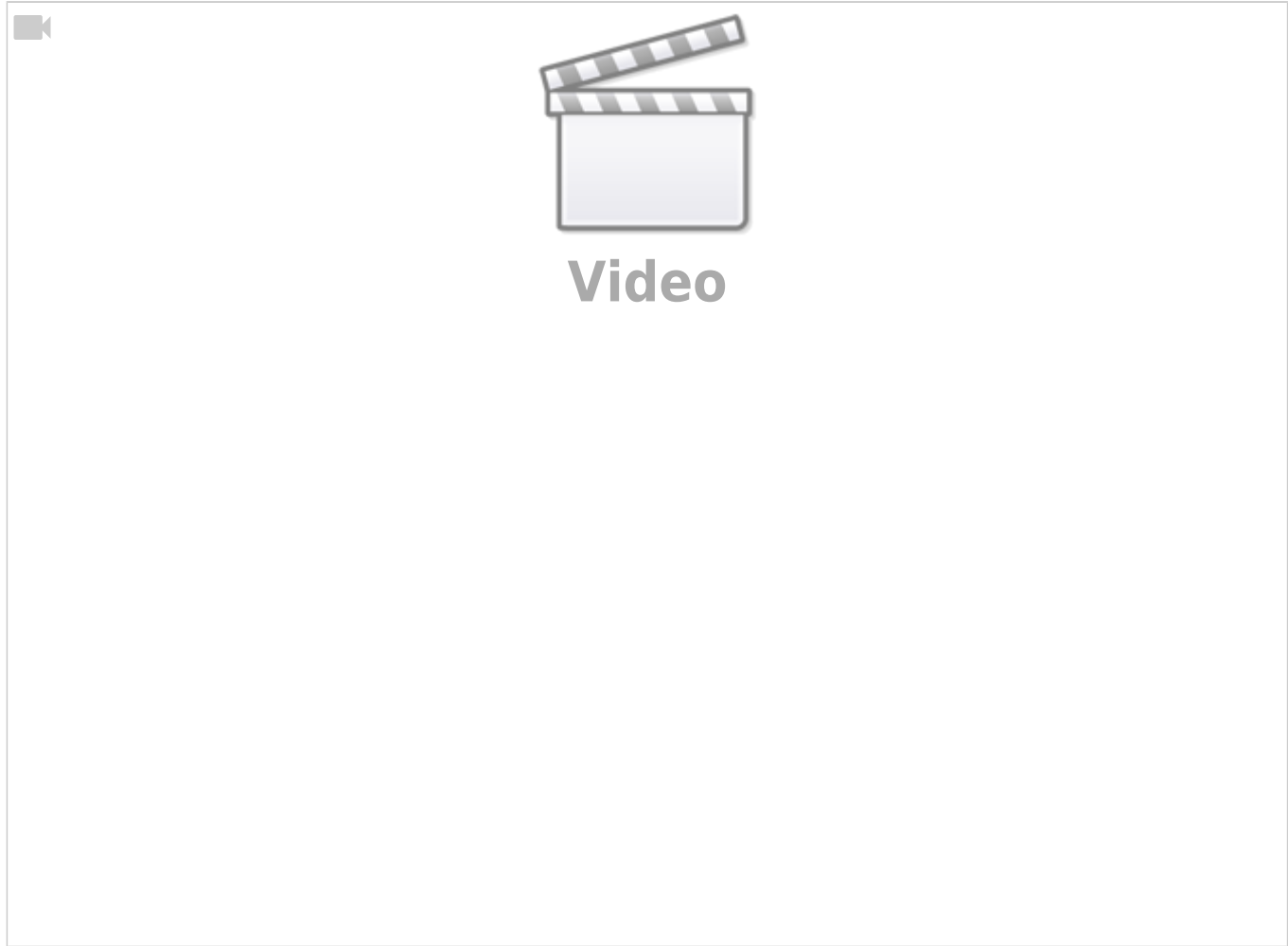
BV17: OK

HANDLER_EXIT: OK

HANDLER_GCODE_START: OK

HANDLER_GCODE_STOP: OK

HANDLER_INIT: OK



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