

Hamilton-Senior lab-off-site learning packet day 8

Instructor Mark Hamilton

Date _____

Program/Class AEM SR

Instructional Objective(s):

Materials:

White board

Method of Instruction:

Research

Activities:

Read through handouts, watch videos and do activities

Answer the questions provided

Closure:

Answer questions on the last page

Assessment:

Answer sheets will be collected and graded.

Objectives:

1. **Students will list steps of turning cutter comp on and off with 80% accuracy**

When you are going to use a code or function on the CNC machine you usually need to turn that function on and when you are done you will turn it back off.

It is kind of like your car, when you are going to use your car you turn it on and then when you have reached your destination you usually shut the car off.

Well cutter comp is no different, except you don't drive cutter comp to work or to the store it is only for CNC machining.

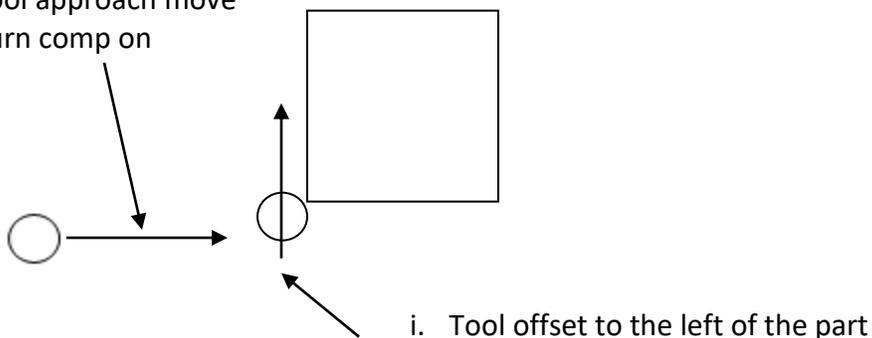
There are 3 codes used in cutter comp.

G41, G42 & G40

Objective 1: Students will list steps of turning cutter comp on and off with 80% accuracy

- The cutter comp commands are cutter comp left (G41) cutter comp right (G42) and cutter comp cancel (G40)
1. The G41 cutter comp left command must be turned on while the cutter is starting to approach the part.
 - a. Since you will be turning comp on as you approach the part then that means that you must start the cutter some safe distance away from the part.
 - b. This will be done in the beginning of the program after you have called up the M06 and T1 command.
 - c. To safely do this you must know 2 things.
 - i. One is the exact size of you stock
 - ii. Two the size of the cutter
 2. After the cutter has reach the Z depth that you want to cut your cutter comp line will look like the example.
 - a. G01 G41 D01 X_____ ;

3. Tool approach move
Turn comp on

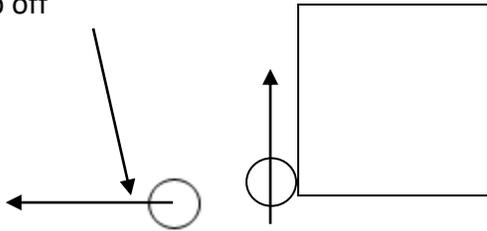


4. The reason you turn comp on while moving towards the part is so the machine has time to compensate for the tool diameter and not over cut the part.
 - a. Now as the cutter moves around the part the machine automatically adjust for the size of the tool and cuts the part to the proper size.

- b. There are 2 very big advantages to using cutter comp.
 - i. The first is the programmer has less calculations to make while programming the part, you can simply type in the numbers from the print and the machine adjusts for the tool diameter.
 - ii. The second is once the part is programmed you can use a different size cutter and simply change the diameter setting in the tool library.

- 5. Once the part has been cut all the way around you must shut cutter comp off by using the G40.
 - a. This should be done as the cutter move a safe distance away from the part, this again insures that no overcutting will occur.

Tool exit move
Turn comp off



Example exit line: G01 G40 X-2.0;

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Senior lesson

Name_____

1. List the 3 cutter comp commands available.
2. What is G41?
3. When should cutter comp be turned on?
4. Where should you start a cutter before turning comp on?
5. What information do you use to determine a safe distance from the part with the cutter?
6. Why do you need to turn comp on as the cutter approaches the part?
7. What are two advantages of using cutter comp?
8. When should cutter comp be turned off?