TOOL LENGTH OFFSET

Chapter 19

Review

- G codes
  - *Format*
    - G00 X1 Y-1 Z1 M03
  - *Modal / NonModal*
    - Group 00 = NonModal
    - NonModal are forgotten in next block
  - *Conflicting codes use the last code*
- M codes
  - *Type A (start) and B (end)*

Objective

- Gain working knowledge of tool length offsets

- Understand different types of offsets

- Get a general understanding of when to use specific types of offsets

Tool Length Offset

- Common abbreviation - TLO

- Value that compensates the difference between a programmed length of the tool and its actual length
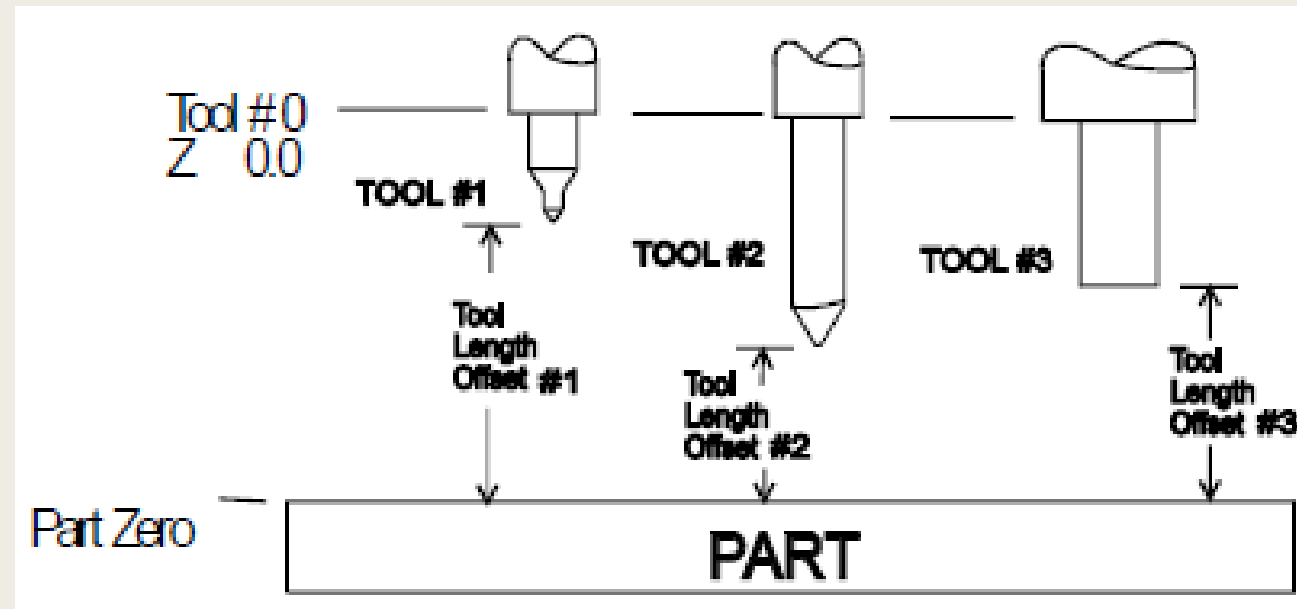
Tool Length Offset

■ Allows programing of code without any knowledge of actual tool length

■ Program is made using a Z axis height reference which the machine, WHEN TOLD TO DO SO, will compensate for using stored height values

TLO Common Terminology

- Gauge Line – reference line used for Gauging – typically spindle base

- Table Top – built-in machine table on which the fixtures, vice, parts, etc. are mounted

- These two parts of the machine are parallel planes that make the Z axis

TLO Use

- Must be used / updated when
  - *Using more than one tool*
  - *When tools are changed or sharpened*

- Must be programed in G90 absolute mode

- Can be updated with wear offsets

TOOL OFFSET (LENGTH)		
No.	GEOMETRY	WEAR
001	-6.7430	0.0000
002	-8.8970	0.0000
003	-7.4700	0.0000
004	0.0000	0.0000
005	0.0000	0.0000
006	0.0000	0.0000

TLO Commands

- G43 – Positive TLO

- G44 – Negative TLO

- H## - TLO number (tool)

- G49 – TLO cancel

- H00 – TLO cancel

- T00 – TLO cancel

Setup Options

- **On-Machine**
  - *Touch the tool to the part*
  - *Uses a tool touch-off probe*
- **Off-Machine**
  - *Uses a pre-setter tool to measure or set a height*
  - *Can be made "in-house" or purchased*

Other Input

- Can be set in some machines in code
  - *M06 D250 S1500 Z1220 T3*
- Or
  - *M06 T06*
  - *G43 H06 Z1*
- Or
  - *T0606 M06*
- Or
  - *CAM Programmer can set*

Offset Cancel

- G49
- H00
- T00

Homework

- Programming examples on FlashCut

- Complete in lab on computers

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