



TOOL LENGTH OFFSET

Chapter 19



Review

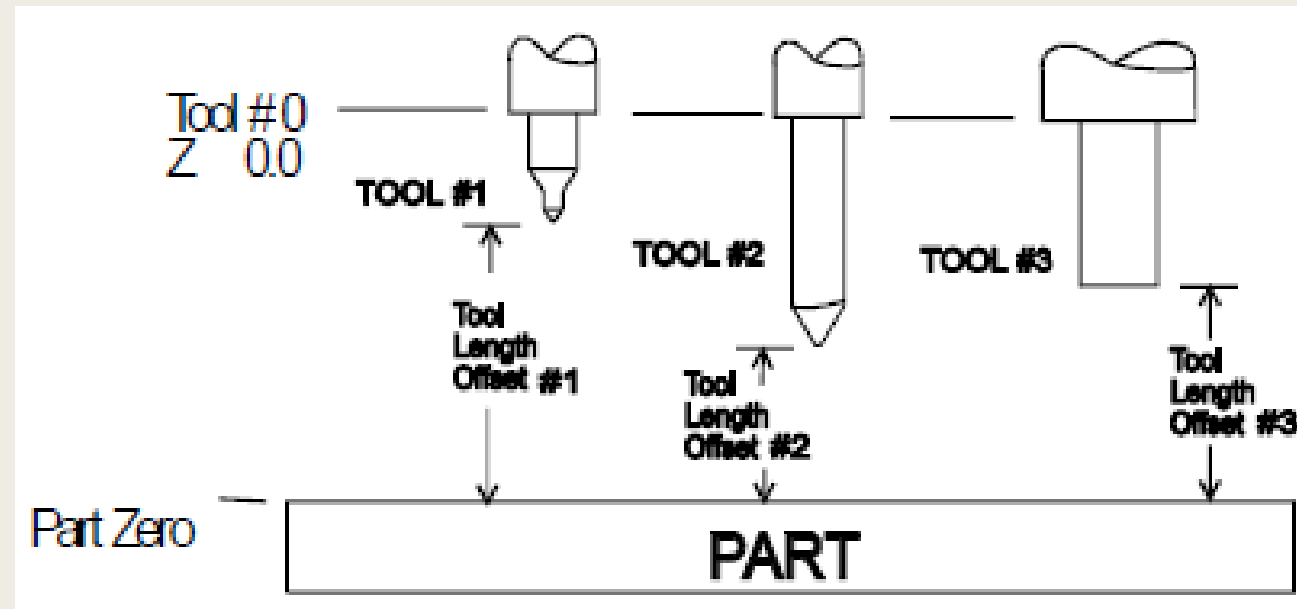
- G codes
 - *Format*
 - G00 X1 Y-1 Z1 M03
 - *Modal / NonModal*
 - Group 00 = NonModal
 - NonModal are forgotten in next block
 - *Conflicting codes use the last code*
- M codes
 - *Type A (start) and B (end)*

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 programming 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 programmed 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

Alpena Community College TAACCCT Grant

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