

MET 237 COMPUTER NUMERICAL CONTROL

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Programming Hole Operations [Milling]

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▪ Deep Drill or Peck Drill Cycle (G83).

Deep Drill or Peck Drill Cycle

A G83 cycle causes the machine to ① rapid the tool from the $Z_{initial}$ position to the R_{plane} , ② drill into the hole a specific peck distance Q_n at feedrate F_n , ③ rapid to either the R_{plane} or the $Z_{initial}$ position, ④ drill again at feedrate to a depth of $2Q_n$, ⑤ rapid back to either the R_{plane} or the $Z_{initial}$ position. The process is repeatedly executed with uniform increases in the peck depth until the total hole depth is reached at ⑥, upon reaching the total hole depth a final rapid move ⑦ is made back to either the R_{plane} or the $Z_{initial}$ position. A rapid move ⑧ is made to the center next hole if the $X_n Y_n$ coordinates of that hole are programmed in the next block.

G83 Xn Yn Zn Qn Rn Fn

G83	Specifies a peck drill cycle.
Xn Yn	Numeric values of n specify the absolute X and Y coordinates of the hole center. Coordinates can be absolute (G90) or incremental (G91).
Zn	Numeric value of n specifies the depth of the drill in absolute (G90) or the distance below the R_{plane} to the hole bottom in incremental (G91) code.
Qn	Numeric value of n specifies the first peck distance below the R_{plane} . This value is added successively to the last total for each pass until the final hole depth is reached.
Rn	Numeric value of n specifies the distance to the R_{plane} in absolute (G90) or the distance below the initial tool position to the R_{plane} in incremental (G91) code. If not programmed, the last active R_{plane} is used, and if none is specified the tool returns to the $Z_{initial}$ position.
Fn	Numeric value of n specifies the feedrate of the tool [(in/min) or (mm/min)] into the hole. If not programmed, the system will use the last programmed feedrate.

Figure 6-2 Deep Drill or Peck Drill Cycle.

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- Example of Deep Drill Cycle (G83).

Deep drill cycle in absolute mode and feedrate of 6 ipm

N01 G90

N02 G83 X2.5 Y3 Z-2 R.1 Q.6 F6

Deep drill cycle in incremental mode and feedrate of 6 ipm

N01 G91

N02 G83 X.75 Y-.5 Z-2.1 R-.1 Q.6 F6

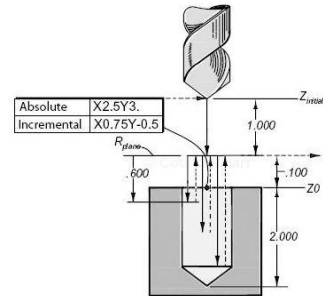


Figure 6-3 Deep drill cycle.