

G81 Spot Drilling

N3 G81 G99 R0+.I Z-1.2 F10. M45

Drill in one complete motion at a feed rate of 10.0 IPM.

G82 Counter Boring, Spot Facing

N3 G82 G99 R0+.I Z-1.2 F10. P23 M45

Bore to depth, dwell for 23 milliseconds then retract the Z axis at high speed. Dwell time for three revolutions: $180000/\text{RPM} = \text{P word value}$. P1000 = 1.0 Second

G83 Deep Hole Drilling Using Q

N3 G83 G99 R0+.I Z-1.2 F10. Q.1 P.02 M45

Drill .1 each step, returning in rapid after each step to the R plane, then down in rapid to .02 (P.02) above the last step until the final Z depth is accomplished. The Q word can be calculated by dividing the distance from the R plane to the final Z by the number of desired steps. Example: $1.2+.1=1.3$ for total distance then $1.3 (\text{distance}) / 13 (\text{steps})=.1$ for the Q value.

G83 Deep Hole Drilling Using I, J, K

N3 G83 G99 R0+.I Z-1.2 F10.1.4 J.09 K.01 M45

Drill using varying step sizes, returning after each increment to the R plane then down until final depth is accomplished. (See Deep Hole Programming Using G73 and G83 I, J, and K in this section for details.)

G84.1 Right Hand Rigid Tapping

N2 G84.2 (Needed before rigid tap)

N3 G84.1 G99 R0+.I Z-1.2 F2000.2 Q.05 M45 (Format 1)

Tap at 2000 RPM in the high range at a feed rate calculated by the CNC, the spindle stops and reverses, retracting the Z axis to the R plane. (See Tapping cycles in this section for details.)

G85 Bore In, Bore Out

N3 G85 G99 R0+.I Z-1.2 F10. M45

G86 Bore In, Spindle Off, Orient, Rapid Out "Reaming"

N3 G86 G99 R0+.I Z-1.2 F10. M45

G87 Bore In, Bore Out

N3 G87 G99 R0+.I Z-1.2 F10. M45

G88 Bore In, Dwell, Bore Out

N3 G88 G99 R0+.I Z-1.2 F10. P23 M45

Bore in at a feed rate of 10 IPM. Dwell for 23 milliseconds, then bore out. Dwell time for three revolutions: $180000/\text{RPM} = \text{P word value}$

G89 Bore In, Dwell, Bore Out

N3 G89 G99 R0+.I Z-1.2 F10. P23 M45