

Spindle Positioning

Spindle positioning system specifications -*Option on all OmniTurns.*

Spindle power:	5HP
Voltage:	200 - 230V 3 phase or single phase (contact the factory for wiring)
Resolution:	.02
Max Speed:	4000 rpm standard, 5000 optional
Min Speed:	.004 rpm

M19 programmed by itself causes the spindle to position via the shortest route to 0°. After the command is executed the spindle is locked in position. To release the spindle use **M05**. This is a one shot command, is modal.

CI(-)nnn.nn This makes the spindle move an incremental amount of degrees.

CA(-)nnn.nn This makes the spindle move to an absolute location of degrees.

Snnn.nn The “S” number if programmed along with a M19 indicates the spindle speed in RPM. With no sign the spindle will rotate in the M03 direction. The “-” sign will cause the spindle to rotate in the M04 direction.

G35/G36 - (see notes in G33 section on use and formats) *Extra course long-lead ipr feeds.* The G35 allows long lead ipr feeds. G35 sets Max feed rates to 1 ipr. G36 cancels G35. When G35 is active the system resolution drops to .00025”. G35 may be activated any time. There is also a G35F2 mode for 2”/rev feeds. Please refer to the threading section for details on format and use.

After G35 and G36 there must be a G92 command

NOTE: Both axes must be returned to the position they were in when the G35 was invoked before G36 is programmed. G35 must be canceled before a tool change!

Notes on use:

- Before a spindle positioning in absolute command can be executed there must be a M19 command to orient the spindle.
- Be sure that you calculate the amount of C needed for a coordinated C and Z move. In the following example there is not enough C given to complete the Z move, the slide will then hang up. A solution would be to increase C to 432 to complete the Z move.

Formula to find number of degrees needed = the distance travel ÷ IPR x 360

Z0
G35
G92X0Z0
G95F.25

Spindle Positioning

C360Z-.3S5

G94F50Z0

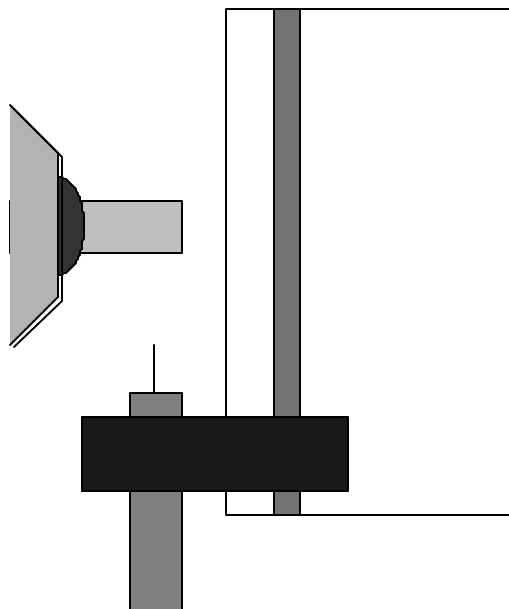
G36

G92X0Z0

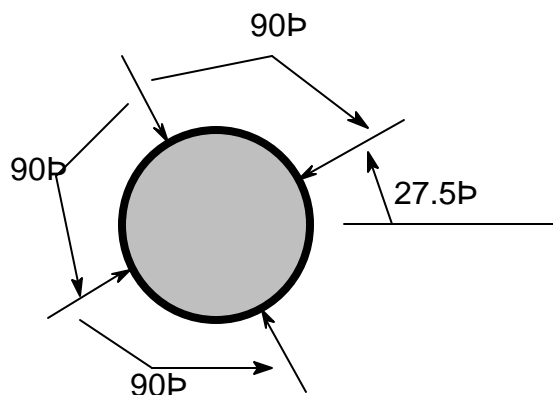
- Currently there is no feedback from the spindle drive that a move to a location has been completed. When you rotate the spindle into position you will have to put a dwell after a rotation command to allow it time to complete the move.

Example showing positioning and cross drilling

In the following example we show a drill mounted on the slide.



The slide will be used to drill the holes. We will drill (4) holes 90 apart, the first hole is located at 27.5 from a reference 0 .



G90G94F300G73

T5(LIVE DRILL FROM THE SIDE)

X.75Z1

Z-.3

Spindle Positioning

M15(TURN DRILL ON)

M19

CA27.5

LS4

G94F1X.5

X.75F300

CI90

G04F1

LF

Z3

M30

ORIENT THE SPINDLE TO 0

GOES TO 27.5 ABSOLUTE

START OF LOOP

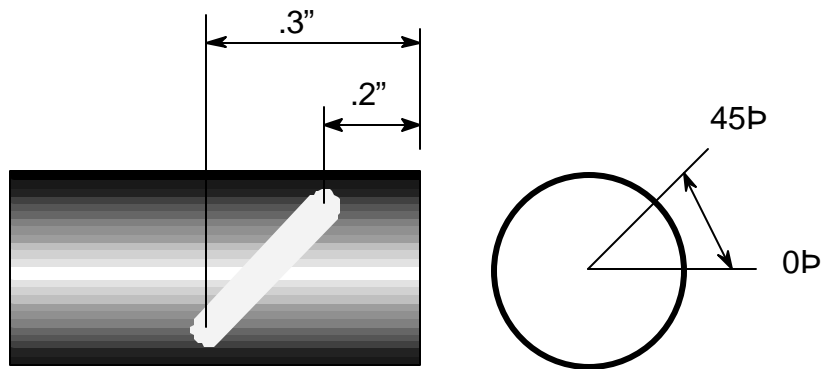
DRILL A HOLE

ROTATE 90 INCREMENTALLY

DWELL TO ALLOW SPINDLE TO ROTATE

END OF LOOP

An example showing rotational milling



Here the cutter will go into the material and then make a combined C and Z move to create a slot.

G90G94F300G73

T5(LIVE DRILL FROM THE SIDE)

X.75Z1

Z-.2

G35

G92X.75Z-.2

M15(TURN DRILL ON)

M19

X.5F1

G95F.8

CA-45Z-.3S3.5

X.75F300

M16

Z-.2

G36

G92X.75Z-.2

G00Z2

M30

COARSE RESOLUTION MODE ON

USER DEFINED M TO START LIVE TOOL

ORIENT THE SPINDLE TO 0

MILL WHILE MOVE 45 ROTATION AND .1" IN Z

USER DEFINED M TO STOP LIVE TOOL

NOTE THAT THIS WAS THE STARTING LOCATION

