Constant Surface feet spindle speeds - G96, G97, G77, G76

To use the following codes the OmniTurn must be equipped with a spindle control package. There are two types of spindle speed control modes that the OmniTurn control can use:

Spindle speed in RPM - (G97). In this mode the S value will set the spindle speed in turns per minute, "RPM". The speed will stay at this value until it is changed. If the spindle is turned off and then back on in the program the speed will still be the previously set value.

This mode is good for drilling and fixed spindle speed operations.

Constant Surface Feet - G96. In this mode the S value will set the amount of surface feet the tool will see. The speed of the material passing the tool will stay constant, no mater what the tool's distance from center is. As the tool gets closer to center the speed of the spindle will increase. Many tool and material suppliers give suggested feeds and speeds in terms of surface feet. This mode is good for turning and facing operations. (**See notes on use below**)

Minimum spindle speed - G76: Sets the minimum spindle speed, G76Sn.

Maximum spinale speed - G//:	Sets the Maximum spindle speed, G//Sn

Notes:

G97

- •The default spindle speed mode is G97, RPM mode.
- •M03, M04, and M05 operate the same for both modes of spindle control

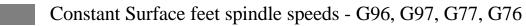
Important Note

Notes on use:

The constant surface speed control is *not intended* to be turned on at the beginning of the program and then left on. If you do this the spindle speeds will vary greatly every time the machine moves! This will create excessive ware on the spindle motor and drive. Turn the constant surface feet mode on just after the tool has been positioned for the cut. Estimate the spindle speed that the CSF mode will start at and have the spindle turned on before you make the positioning moves. After the cut has been finished turn the constant surface feet mode off. Then use RPM commands. DO NOT LEAVE THE G96 ACTIVE FOR TOOL CHANGES.

Simple formulas to convert these va $SFM = (\underbrace{RPM)(2)(3.14)(dis}_{12}$			SFM x 12 ance from center)	-
Sai	nple program show	ing constant sur	face feet:	
G90G94F300	1 1 0	C		
M03S1500	Turn spindl	Turn spindle speed on		
T1(LH TURN TOOL .008 RADIUS)	•	•		
X.25Z.2				
G96S250	Set spindle t	Set spindle to SFM mode @250sfm		
G76S500	Establish mi	Establish minimum spindle speed at 500 rpm		
G77S2500		aximum spindle sp		
Z0			•	
G95F.002X0				
G94F300Z2				

Switch to RPM mode



Set spindle speed at 2000 rpm

S2000 T2(DRILL) X0Z.2 G95F.003Z-.5 G94F300Z2 M30