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PREPARATORY FUNCTIONS

PREPARATORY FUNCTIONS, also known as 'G' codes, set various machining modes within the control. There are two basic types of preparatory functions, MODAL and ONE-SHOT.

MODAL PREPARATORY FUNCTIONS

Modal Preparatory Functions establish a machine mode which stays in effect until canceled by another Preparatory Function belonging to the same group. Once a Modal 'G' code is programmed, it need not be repeated in successive program blocks.

VALID PREPARATORY FUNCTIONS (G CODES)

- G00 Rapid Traverse Mode (Default)
- G01 Linear Interpolation Mode
- G02 Clockwise Circular and Helical Interpolation Mode
- G03 Counter Clockwise Circular and Helical Interpolation Mode
- G04 Dwell (One-Shot; Affects Fixed Cycles)
- G09 Precision Cornering (One-Shot)
- G17 XY Plane Selection
- G19 XZ Plane Selection
- G40 Cutter Compensation OFF(Default)
- G41 Cutter Compensation Left
- G42 Cutter Compensation Right
- G61 Precision Cornering Mode ON
- G64 Precision Cornering Mode OFF(Default)
- G70 English Units of Measure*
- G71 Metric Units of Measure*
- G80 Fixed Cycle Cancel(Default)
- G81 Drill Cycle
- G82 Drill with Dwell Cycle
- G83 Deep Hole Drilling Cycle
- G84 Tapping Cycle
- G85 Boring Cycle
- G90 Absolute Machining Mode(Default)
- G91 Incremental Machining Mode

MISCELLANEOUS FUNCTIONS

Miscellaneous Functions, or 'M' codes, cause machine-related action(i.e. coolant control, tool changes, etc.). Each Miscellaneous Function is explained below.

VALID MISCELLANEOUS FUNCTIONS (M CODES)

M00 Program Stop
M01 Planned Stop
M02 End of Program
M03 Start Spindle Clockwise
M04 Start Spindle Counterclockwise
M05 Spindle OFF (Default)
M06 Change Tool
M07 Mist Coolant ON
M08 Flood Coolant ON
M09 Coolant OFF
M25 Z-Retract

NC FORMAT DESCRIPTION

DEFAULT VALUES

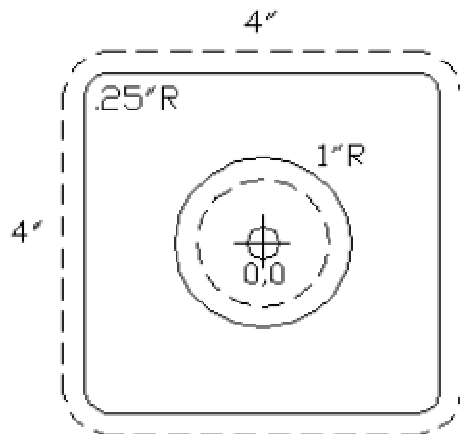
Upon power up or reset of the control, the system presets the internal mode registers to default Modal Preparatory and Miscellaneous Functions. Default Modal Preparatory Functions are:

G00 Rapid Traverse Mode
G17 XY Plane Selection
G40 Cutter Compensation OFF
G64 Precision Cornering OFF
G75 Multi-Quadrant Circular Interpolation Mode
G80 Fixed Cycle Cancel
G90 Absolute Machining Mode

Default Miscellaneous Functions are:

M05 Spindle OFF
M09 Coolant OFF

SAMPLE PROGRAM



%
N2G00
N4G90
N6G70
N8M25
N10T1M06
N12M25
N14X0.625Y0.
N16S1000M03
N18M08
N20Z0.02
N22G01Z-0.1533F5.
N24G03X0.75Y0.I0.6875J0.F25.
N26X0.75Y0.I0.J0.
N28X0.7441Y0.0935I0.J0.
N30X0.6201Y0.0779I0.6821J0.0857
N32M25
N34G00
N36M09
N38X0.625Y0.
N40M08
N42Z-0.1033
N44G01Z-0.3267F5.
N46G03X0.75Y0.I0.6875J0.F25.
N48X0.75Y0.I0.J0.
N50X0.7441Y0.0935I0.J0.
N52X0.6201Y0.0779I0.6821J0.0857
N54M25
N56G00
N58M09
N60X0.625Y0.
N62M08
N64Z-0.2767
N66G01Z-0.5F5.
N68G03X0.75Y0.I0.6875J0.F25.
N70X0.75Y0.I0.J0.
N72X0.7441Y0.0935I0.J0.
N74X0.6201Y0.0779I0.6821J0.0857
N76M25
N78G00
N80M09
N82X0.Y-2.375
N84M08
N86Z0.02
N88G01Z-0.5F5.
N90G03X0.Y-2.25I0.J-2.3125F25.
N92G01X-1.75
N94G02X-2.25Y-1.75I-1.75J-1.75
N96G01Y1.75
N98G02X-1.75Y2.25I-1.75J1.75
N100G01X1.75
N102G02X2.25Y1.75I1.75J1.75

N104G01Y-1.75
N106G02X1.75Y-2.25I1.75J-1.75
N108G01X-0.125
N110G03X-0.125Y-2.375I-0.125J-2.3125
N112M25
N114G00
N116M09
N118M25
N120M05
N122M02
E

Communicating with HURCO Milling machines.

RS232 connections on AMTS BX-MPU Brd.:

9-Pin to 9-Pin	9-Pin to 25-Pin
2 ----- 3	2 ----- 2
3 ----- 2	3 ----- 3
5 ----- 5	5 ----- 7

NOTE: For cables over 25 ft., connect shield to one end of the cable, either on Pin 5 of the 9-Pin or Pin 1 of the 25-Pin.

Connect cable to Com2 on right and make sure you have selected a proper baud rate on the board.(The longer the cable, the slower the baud rate selection should be.) Make sure the computer is set for the same baud rate as well as 7 data bits, 2 stop bits, even parity and xon/xoff protocol.

To download G-code to Hurco you must have the buffer empty. To do this you must press 'CHECK' then "ENTER" then '1' (program edit) then press "MASTER CLEAR".

Once the buffer is empty press '3'(load program) then '3' (remote) then "NEXT BLOCK". The screen should read 'Reading Leader'.

You can now send your program to the Hurco machine. When the buffer fills it will automatically DNC. Keep the computer link running and start the machine running, as it uses up the program lines it will ask the computer to send more. This will continue until it reaches an end of program command.

NOTE: The buffer is approximately 20,000 characters.