

HAAS C.N.C. MILL PREPARATORY FUNCTIONS

MODAL
NON-MODAL
DEFAULT *
OPTIONAL **

G00* RAPID POSITIONING MOTION (X,Y,Z,A,B) (SETTING 10, 56, 101)	G71 BOLT HOLE ARC with a CANNED CYCLE (I,J,K,L)
G01 LINEAR INTERPOLATION MOTION (X,Y,Z,A,B,F) (SETTING 85)	G72 BOLT HOLES ALONG AN ANGLE with a CANNED CYCLE (I,J,L)
G02 CIRCULAR INTERPOLATION MOTION CW (X,Y,Z,A,I,J,K,R,F)	G73 HIGH SPEED PECK DRILL CANNED CYCLE (X,Y,A,B,Z,I,J,K,Q,P,R,L,F) (SETTING 22, 52)
G03 CIRCULAR INTERPOLATION MOTION CCW (X,Y,Z,A,I,J,K,R,F)	G74 REVERSE TAPPING CANNED CYCLE (X,Y,A,B,Z,J,R,L,F) (SETTING 130)
G04 DWELL (P) (P=seconds", "milliseconds)	G76 FINE BORING CANNED CYCLE (X,Y,A,B,Z,I,J,P,Q,R,L,F) (SETTING 27)
G09 EXACT STOP, NON-MODAL	G77 BACK BORE CANNED CYCLE (X,Y,A,B,Z,I,J,Q,R,L,F) (SETTING 27)
G10 PROGRAMMABLE OFFSET SETTING (X,Y,Z,A,L,P,R)	G80* CANCEL CANNED CYCLE (SETTING 56)
G12 CW CIRCULAR POCKET MILLING (Z,I,K,Q,D,L,F)	G81 DRILL CANNED CYCLE (X,Y,A,B,Z,R,L,F)
G13 CCW CIRCULAR POCKET MILLING (Z,I,K,Q,D,L,F)	G82 SPOT DRILL / COUNTERBORE CANNED CYCLE (X,Y,A,B,Z,P,R,L,F)
G17* CIRCULAR MOTION XY PLANE SELECTION (G02 or G03) (SETTING 56)	G83 PECK DRILL CANNED CYCLE (X,Y,A,B,Z,I,J,K,Q,P,R,L,F) (SETTING 22, 52)
G18 CIRCULAR MOTION ZX PLANE SELECTION (G02 or G03)	G84 TAPPING CANNED CYCLE (X,Y,A,B,Z,J,R,L,F) (SETTING 130)
G19 CIRCULAR MOTION YZ PLANE SELECTION (G02 or G03)	G85 BORE IN, BORE OUT CANNED CYCLE (X,Y,A,B,Z,R,L,F)
G20* VERIFY INCH COORDINATE POSITIONING (SETTING 9, set to INCH)	G86 BORE IN, STOP, RAPID OUT CANNED CYCLE (X,Y,A,B,Z,R,L,F)
G21 VERIFY METRIC COORDINATE POSITIONING (SETTING 9 set to METRIC)	G87 BORE IN AND MANUAL RETRACT CANNED CYCLE (X,Y,A,B,Z,R,L,F)
G28 MACHINE ZERO RETURN THRU REF. POINT (X,Y,Z,A,B) (SETTING 108)	G88 BORE IN, DWELL, MANUAL RETRACT CANNED CYCLE (X,Y,A,B,Z,P,R,L,F)
G29 MOVE TO LOCATION THROUGH G28 REF. POINT (X,Y,Z,A,B)	G89 BORE IN, DWELL, BORE OUT (X,Y,A,B,Z,P,R,L,F)
G31** FEED UNTIL SKIP FUNCTION (X,Y,Z,A,B,F)	G90* ABSOLUTE POSITIONING COMMAND
G35** AUTOMATIC TOOL DIAMETER MEASUREMENT (D,H,Z,F)	G91 INCREMENTAL POSITIONING COMMAND (SETTING 29)
G36** AUTOMATIC WORK OFFSET MEASUREMENT (X,Y,Z,A,B,I,J,K,F)	G92 GLOBAL WORK COORDINATE SYSTEM SHIFT (FANUC) (HAAS) (SETTING 33)
G37** AUTOMATIC TOOL LENGTH MEASUREMENT (D,H,Z,F)	G92 SET WORK COORDINATE VALUE (YASNAC) (SETTING 33)
G40* CUTTER COMP CANCEL G41/G42/G141 (X,Y)	G93 INVERSE TIME FEED MODE ON
G41 2D CUTTER COMPENSATION, LEFT (X,Y,D) (SETTING 40, 43, 44, 58)	G94* INVERSE TIME FEED MODE OFF / FEED PER MINUTE ON (SETTING 56)
G42 2D CUTTER COMPENSATION, RIGHT (X,Y,D) (SETTING 40, 43, 44, 58)	G98* CANNED CYCLE INITIAL POINT RETURN (SETTING 56)
G43 TOOL LENGTH COMPENSATION+ (H,Z) (SETTING 15)	G99 CANNED CYCLE "R" PLANE RETURN
G44 TOOL LENGTH COMPENSATION- (H,Z) (SETTING 15)	G100 MIRROR IMAGE G101 CANCEL (X,Y,Z,A,B)
G47 TEXT ENGRAVING (X,Y,Z,R,I,J,P,E,F) (Macro Variable 599 Change Serial #)	G101 MIRROR IMAGE (X,Y,Z,A,B) (SETTING 45, 46, 47, 48, 80)
G49* TOOL LENGTH COMPENSATION CANCEL G43/G44/G143 (SETTING 56)	G102 PROGRAMMABLE OUTPUT TO RS-232 (X,Y,Z,A,B)
G50* SCALING G51 CANCEL (SETTING 56)	G103 LIMIT BLOCK LOOKAHEAD (P0-P15 for number control looks ahead)
G51** SCALING (X,Y,Z,P) (SETTING 71)	G107 CYLINDRICAL MAPPING (X,Y,Z,A,Q,R)
G52 WORK OFFSET COORDINATE POSITIONING (YASNAC) (SETTING 33)	G110-G129 WORK OFFSET COORDINATE POSITIONING #7-26
G52 GLOBAL WORK COORDINATE OFFSET SHIFT (FANUC) (SETTING 33)	G136** AUTOMATIC WORK OFFSET CENTER MEASUREMENT
G52 GLOBAL WORK COORDINATE OFFSET SHIFT (HAAS) (SETTING 33)	G141 3D+ CUTTER COMPENSATION (X,Y,Z,I,J,K,D,F)
G53 MACHINE COORDINATE POSITIONING, NON-MODAL (X,Y,Z,A,B)	G143** 5-AXIS TOOL LENGTH COMPENSATION+ (X,Y,Z,A,B,H) (SETTING 15, 117)
G54* WORK OFFSET COORDINATE POSITIONING #1 (SETTING 56)	G150 GENERAL PURPOSE POCKET MILLING (X,Y,P,Z,I,J,K,Q,D,R,L,S,F)
G55 WORK OFFSET COORDINATE POSITIONING #2	G153** 5-AXIS HIGH SPEED PECK DRILL CANNED CYCLE (X,Y,A,B,Z,I,J,K,Q,P,E,L,F) (SETTING 22)
G56 WORK OFFSET COORDINATE POSITIONING #3	G154** 5-AXIS REVERSE TAPPING CANNED CYCLE (X,Y,A,B,Z,J,E,L,F)
G57 WORK OFFSET COORDINATE POSITIONING #4	G161** 5-AXIS DRILL CANNED CYCLE (X,Y,A,B,Z,E,L,F)
G58 WORK OFFSET COORDINATE POSITIONING #5	G162** 5-AXIS SPOT DRILL / COUNTERBORE CANNED CYCLE (X,Y,A,B,Z,P,E,L,F)
G59 WORK OFFSET COORDINATE POSITIONING #6	G163** 5-AXIS PECK DRILL CANNED CYCLE (X,Y,A,B,Z,I,J,K,Q,P,E,L,F) (SETTING 22)
G60 UNI-DIRECTIONAL POSITIONING (X,Y,Z,A,B) (SETTING 35)	G164** 5-AXIS TAPPING CANNED CYCLE (X,Y,A,B,Z,J,E,L,F)
G61 EXACT STOP, MODAL (X,Y,Z,A,B)	G165** 5-AXIS BORE IN, BORE OUT CANNED CYCLE (X,Y,A,B,Z,E,L,F)
G64* EXACT STOP G61 MODE CANCEL (SETTING 56)	G166** 5-AXIS BORE IN, STOP, RAPID OUT CANNED CYCLE (X,Y,A,B,Z,E,L,F)
G65** MACRO SUB-ROUTINE CALL	G169** 5-AXIS BORE IN, DWELL, BORE OUT (X,Y,A,B,Z,P,E,L,F)
G68** ROTATION (G17,G18,G19,X,Y,Z,R) (OPTION) (SETTING 72, 73)	G174 SPECIAL PURPOSE NON-VERTICAL RIGID TAPPING CCW (X,Y,Z,F)
G69* ROTATION G68 CANCEL (SETTING 56)	G184 SPECIAL PURPOSE NON-VERTICAL RIGID TAPPING CW (X,Y,Z,F)
G70 BOLT HOLE CIRCLE with a CANNED CYCLE (I,J,L)	G187 ACCURACY CONTROL FOR HIGH SPEED MACHINING (E) (SETTING 85)

Note: These G and M codes are useful reference information, on a desk, or at the machine. They're great to have laminated with G codes on one side and M codes on the other. As a suggestion; get some white 90lb. cardstock and print G-codes on one side and M-codes on the other. Cut out the square section and go to Kinko's copies or local printer to get them laminated.

HAAS C.N.C. MILL MISCELLANEOUS FUNCTIONS

OPTION**

M00	PROGRAM STOP (SETTING 42)	M51-M58	OPTIONAL USER M CODE SET
M01	OPTIONAL PROGRAM STOP (SETTING 17)	M59	OUTPUT RELAY SET (N)
M02	PROGRAM END	M61-M68	OPTIONAL USER M CODE CLEAR
M03	SPINDLE ON CLOCKWISE (S) (SETTING 144)	M69	OUTPUT RELAY CLEAR (N)
M04	SPINDLE ON COUNTERCLOCKWISE (S) (SETTING 144)	M75	SET G35 OR G136 REFERENCE POINT
M05	SPINDLE STOP	M76	CONTROL DISPLAY INACTIVE
M06	TOOL CHANGE (T) (SETTING 42, 87)	M77	CONTROL DISPLAY ACTIVE
M08	COOLANT ON (SETTING 32)	M78	ALARM IF SKIP SIGNAL FOUND
M09	COOLANT OFF	M79	ALARM IF SKIP SIGNAL NOT FOUND
M10**	4th AXIS BRAKE ON	M80**	AUTOMATIC DOOR OPEN (SETTING 131)
M11**	4th AXIS BRAKE RELEASE	M81**	AUTOMATIC DOOR CLOSE (SETTING 131)
M12**	5th AXIS BRAKE ON	M82	TOOL UNCLAMP
M13**	5th AXIS BRAKE RELEASE	M83**	AUTO AIR JET ON
M19**	ORIENT SPINDLE (P,R)	M84**	AUTO AIR JET OFF
M21-M28	OPTIONAL USER M CODE INTERFACE WITH M-FIN SIGNAL	M86	TOOL CLAMP
M30	PROGRAM END AND RESET (SETTING 2, 39, 56, 83)	M88**	COOLANT THROUGH SPINDLE ON (SETTING 32)
M31	CHIP AUGER FORWARD (SETTING 114, 115)	M89**	COOLANT THROUGH SPINDLE OFF
M32	CHIP AUGER REVERSE (SETTING 114, 115)	M93	AXIS POS CAPTURE START (P,Q)
M33	CHIP AUGER STOP	M94	AXIS POS CAPTURE STOP
M34	COOLANT SPIGOT POSITION DOWN, INCREMENT	M95	SLEEP MODE
M35	COOLANT SPIGOT POSITION UP, DECREMENT	M96	JUMP IF NO SIGNAL (P,Q)
M36**	PALLET PART READY	M97	LOCAL SUB-PROGRAM CALL (P,L)
M39	ROTATE TOOL TURRET (T) (SETTING 86)	M98	SUB-PROGRAM CALL (P,L)
M41	SPINDLE LOW GEAR OVERRIDE	M99	SUB-PROGRAM/ROUTINE RETURN OR LOOP (SETTING 118)
M42	SPINDLE HIGH GEAR OVERRIDE	M109**	INTERACTIVE USER INPUT (P)
M50**	EXECUTE PALLET CHANGE (SETTING 121 thru 129)		

All M codes are effective or cause an action at the end of the block and only one M code is allowed in each block.



Haas Automation Inc.

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