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WIRE EDM POST VARIABLES

Introduction

This topic contains all of the Wire EDM post variables used for post scripting or customizing posts processors.

Post Variables for Wire EDM Machines

Commands	Description
oldvars	use old position (previous move) variables and misc. variables.
newvars	use new position (current move) variables and misc. variables.
force_x	force the X value to be output next time even if modal.
force_y	force the Y value to be output next time even if modal.
force_z	force the Z value to be output next time even if modal.
force_xl	force the X value of lower contour of 4 Axis part to be output next time even if modal.
force_yl	force the Y value of lower contour of 4 Axis part to be output next time even if modal.
force_xu	force the X value of upper contour of 4 Axis part to be output next time even if modal.
force_yu	force the Y value of upper contour of 4Axis part to be output next time even if modal.
force_u	force the U value of upper contour of 4Axis part to be output next time even if modal.
force_v	force the V value of upper contour of 4Axis part to be output next time even if modal.
memo_xmove	Memorize the current X movement for use later.
memo_ymove	Memorize the current Y movement for use later.
memo_umove	Memorize the current U movement for use later.
memo_vmove	Memorize the current V movement for use later.
memorize_rethread_point	Output code to memorize current location for auto rethread (Sodick).
memorize_line_number	Memorize sequence number for use later.
memorized_line_number	Use memorize sequence number.
debug_on	Turns on automatic debug comments in post output.
debug_off	Turns off automatic debug comments in post output.
exit_if_glue_stop	Ignore the rest of the current contour if on glue stop. Used for Agie.
start_add_block_delete	Add block delete to all lines until stop_add_block_delete is used

`stop_add_block_delete`	Stop adding block delete that started from using start_add_block_delete
`force_no_add_spaces`	Force no spaces even when default is set to add spaces.
`default_add_spaces`	Set add spaces back to condition before force_no_add_spaces was called.
`out_ctc_variables`	Output cutting conditions variables. Usually at the beginning of the program.
`pass_specific`	Output start of pass block (Rough block for rough cut, 1st skim block for 1st skim etc).

Variables
Part Setup

`absolute_coord`	Output code to set coordinates to absolute mode (G90). Code defined in "G Codes/Absolute Coord:".
`incremental_coord`	Output code to set coordinates to incremental mode (G91). Code defined in "G Codes/Incremental Coord:".
`absolute_coord_no_code`	Set output mode to absolute, do not output G Code.
`incremental_coord_no_code`	Set output mode to incremental do no output G Code.
`work_coord`	Output work coordinates when it changing work pieces. (G54 etc) Code defined in "G Codes/Work offsets".
`pattern_work_coord`	Output work coordinates for pattern contours. (G54 etc) Code defined in "G Codes/Work offsets".
`zero_set_xp_yp`	Output code to set current work coordinate to programmed zero (G92X___Y___). Code defined in "G Codes/Coord zero set:".
`zero_set_xr_yr`	Output code to set current work coordinate to current cycle start point (G92X___Y___). Code defined in "G Codes/Coord zero set:".
`zero_set`	Output set zero command with out XY values (G92). Code defined in "G Codes/Coord zero set:".
`metric_mode`	Set output mode to metric.
`inch_mode`	Set output mode to inch.
`metric_mode_no_code`	Set output mode to metric without G code.
`inch_mode_no_code`	Set output mode to inch without G code.
`ref_plane`	Output reference plane value with prefix (Charmille). Prefix defined in "Pre-fixes/Reference plane".
`part_height`	Output workpiece height with prefix. Prefix defined in "Prefixes/Part height".
`machining_mode`	Output code for machining mode (no taper, taper, 4axis)
`work_plane_height`	Output work plane height. Determined by feature settings (Primary shape or Stock height, and use of land and taper).
`incr_taper_height`	Output incremental taper height from land, or primary feature shape.
`taper_height`	Output taper height.
`two_axis_with_taper_start`	Output code for two axis taper start.
`two_axis_with_taper_end`	Output code for two axis taper end.

Positioning	
`xr`	Output rapid position x with prefix (X1.25) (X prefix hard coded).
`yr`	Output rapid position y with prefix (Y1.25) (Y prefix hard coded).
`x_ur`	Output upper guide rapid position x with prefix from post question 606.
`y_ur`	Output upper guide rapid position x with prefix from post question 607.
`xr_no_output`	X rapid value to previous move without outputing code.
`yr_no_output`	Y rapid value to previous move without outputing code.
`xr_upper`	Output rapid position x upper guide with prefix (X1.25) (X prefix hard coded).
`yr_upper`	Output rapid position y upper guide with prefix (Y1.25) (Y prefix hard coded).
`zr_upper`	Output rapid position z upper guide with prefix (Z1.25) (Z prefix hard coded).
`xr_lower`	Output rapid position x lower guide with prefix (X1.25) (X prefix hard coded).
`yr_lower`	Output rapid position y lower guide with prefix (Y1.25) (Y prefix hard coded).
`zr_lower`	Output rapid position z lower guide with prefix (Z1.25) (Z prefix hard coded).
`xh`	Output home position x with prefix (X1.25) (X prefix hard coded).
`yh`	Output home position y with prefix (Y1.25) (Y prefix hard coded).
`xp`	Output programmed zero x (X___). (X prefix hard coded).
`yp`	Output programmed zero y (Y___). (Y prefix hard coded).
`prev_x`	Output previous x (X___). (X prefix hard coded).
`prev_y`	Output previous y (Y___). (X prefix hard coded).
`z_position_up`	Output code for programmable z position up.
`z_position_down`	Output code for programmable z position down.
`x_f`	Output code for x feed value with prefix. (X prefix hard coded).
`y_f`	Output code for y feed value with prefix. (Y prefix hard coded).
`u_f`	Output code for u feed value with prefix. (U prefix hard coded).
`v_f`	Output code for v feed value with prefix. (V prefix hard coded).
`u_f_incremental`	Output code for incremental u feed value with prefix. (U prefix hard coded).
`v_f_incremental`	Output code for incremental v feed value with prefix. (U prefix hard coded).
`u_f_incr_change`	Output code for change in incremental u feed value with prefix. (U prefix hard coded).
`v_f_incr_change`	Output code for change in incremental v feed value with prefix. (V prefix hard coded).
`u_f_angle_perpend`	Output code for change in angle perpendicular to xy move (Pos angle to right)
`v_f_angle_parallel`	Output code for change in angle parallel to xy move (Pos angle forward)
`x_lf`	Output x value with prefix for lower shape in 4 Axis entity to entity programming.
`y_lf`	Output y value with prefix for lower shape in 4 Axis entity to entity programming.
`x_uf`	Output x value with prefix for upper shape in 4 Axis entity to entity programming.

`y-uf`	Output y value with prefix for upper shape in 4 Axis entity to entity programming.
`thread_point_x`	Output x value with prefix for thread point.
`thread_point_y`	Output y value with prefix for thread point.
`x_start_hole_rapid`	Output x value with prefix for rapid feed to edge of start hole.
`y_start_hole_rapid`	Output y value with prefix for rapid feed to edge of start hole.
`first_rapid_x`	Output x value with prefix memorized first rapid point.
`first_rapid_y`	Output y value with prefix memorized first rapid point.
`first_rapid_z`	Output z value with prefix memorized first rapid point.
`x_first_cut`	Output x value with prefix for entrance cut when special cutting conditions are used to enter contour.
`y_first_cut`	Output y value with prefix for entrance cut when special cutting conditions are used to enter contour.
`skip_next_move`	Skip next movement in order to output later. Used for line swapping in Agie.
`output_xmemo`	Output the x value that was memorized with memo_xmove.
`output_ymemo`	Output the y value that was memorized with memo_ymove.
`output_umemo`	Output the u value that was memorized with memo_xmove.
`output_vmemo`	Output the v value that was memorized with memo_xmove.
`u0_on_no_taper`	Output U0.0 on 2axis part when no taper is used.
`v0_on_no_taper`	Output V0.0 on 2axis part when no taper is used.
`return_to_thread_point`	Output block to return to thread point. Used at the end of a program.

Arcs

`xcenter`	Output x center of arc with prefix ("Format/Arc center type"). Prefix define "Prefixes/Arc x center:".
`ycenter`	Output y center of arc with prefix ("Format/Arc center type"). Prefix define "Prefixes/Arc y center:".
`rcenter`	Output Radius value of arc with prefix ("Format/Arc center type"). Prefix define "Prefixes/Radius value:".
`arc_center`	Output x, and y center of arc with prefixs ("Format/Arc center type"). Prefix define "Prefixes/Arc x center:" & "Prefixes/Arc x center:".
`xcenter_lf`	Output x arc center value with prefix for lower shape in 4 Axis entity to entity programming.
`ycenter_lf`	Output y arc center value with prefix for lower shape in 4 Axis entity to entity programming.
`xcenter_uf`	Output x arc center value with prefix for upper shape in 4 Axis entity to entity programming.
`ycenter_uf`	Output y arc center value with prefix for upper shape in 4 Axis entity to entity programming.
`iso_radius`	Output code setting an Iso radius value with prefix. Code define in "G

	Codes/Iso radius:".

Line Numbers

`n`	Output next sequence number with prefix. Prefix hard coded to (N).
`n_forced`	Force output of next sequence number with prefix (N). Sequence number for set in "Format/sequence numbers:".
`agie_100_n`	Used to set the first line number prefix to : for agie 100.
`seq_numbers_start`	Set the current N sequence number to the sequence number start value.

Sub Programs

`sub_call`	Output subprogram call. Prefix defined in "Prefixes/Arc x center:".
`sub_return`	Output subprogram return. Prefix defined in "Prefixes/Arc y center:".
`sub_num`	Output subprogram number without prefix.
`sub_num_no_prefix`	Output subprogram number without prefix.
`sub_num_with_prefix`	Output subprogram number with prefix. Prefix defined in "Prefixes/Subprogram:".
`pattern_contour_sub_start`	Output pattern contour code for subprogram start.

Comments

`comment_start`	Output comment start. Code defined in "Misc parameters/Comment start:".
`comment_end`	Output comment end. Code defined in "Misc parameters/Comment end:".
`system_comment`	Output the automatic comment "FEATURE 1 CNT2X ROUGH CUT FORWARD"
`feature_name_comment`	Output Feature Name comment "2 AXIS CONTOUR1-RECTANGULAR DIE3"
`pass_name_comment`	Output pass name comment "ROUGH 1"
`feature_pass_names_comment`	Output Feature and pass names "2 AXIS CONTOUR1-RECTANGULAR DIE3 ROUGH1"
`sub_comment`	Output subprogram description comment.
`output_date`	Output the date in the form "Tue. 03/05/2002"
`output_time`	Output the current time in the form "11:35AM"
`prog_n`	Output program number without prefix (O0001). Hard code prefix ("O",prog_n)
`prog_name`	Output program name (file name of saved program on disk)
`machine_make`	Output machine manufacturers name as string.
`machine_model`	Output machine model name as string.
`pass_name`	Output pass name. (Used in comment)
`feature_name`	Output feature name. (Used in comment)
`workpiece_name`	Output workpiece name. (Used in comment)
`user_defined_operation_pass_comment`	Output the user defined comment for the pass defined in the User Comment tab of the operation dialog.

user_comment_1	Output the comment entered in part settings comment 1
user_comment_2	Output the comment entered in part settings comment 2
user_comment_3	Output the comment entered in part settings comment 3
user_comment_4	Output the comment entered in part settings comment 4
user_comment_5	Output the comment entered in part settings comment 5
user_comment_6	Output the comment entered in part settings comment 6
user_comment_7	Output the comment entered in part settings comment 7
user_comment_8	Output the comment entered in part settings comment 8
user_comment_9	Output the comment entered in part settings comment 9
user_comment_10	Output the comment entered in part settings comment 10
user_comment_11	Output the comment entered in part settings comment 11
user_comment_12	Output the comment entered in part settings comment 12
user_comment_13	Output the comment entered in part settings comment13
user_comment_14	Output the comment entered in part settings comment 14
user_comment_15	Output the comment entered in part settings comment 15
user_comment_16	Output the comment entered in part settings comment 16

G Codes

feed_move	Set movement to feed and output feed move command (G01). Value defined in "G Codes/Feed move:".
rapid_move	Set movement to rapid and output rapid move command (G00). Value defined in "G Codes/Rapid move:".
cc	Output code for Cutter compensation. Codes defined in "G Codes".
measurement	Output measurement mode (inch/metric). Inch defined in "G Codes/Inch mode:" & "G Codes/Metric mode:".
g_taper	Output Code for taper cutting on. (At present hard coded to G51,G52 will add questions).
g_arc_move	Output G code for arc moves. G02, G03 hard coded.
g_lower	Output G code for lower shape in 4 Axis entity to entity programming (G01, G02, G03).
g_upper	Output G code for upper shape in 4 Axis entity to entity programming (G01, G02, G03).
four_axis_xyuv_start	Output code to start 4 axis xyuv cutting. Code defined in "G Codes/4axis start".
four_axis_xyuv_end	Output code to end 4 axis xyuv cutting. Code defined in "G Codes/4axis end".

M Codes

end_of_file	Output end of file code (M02). Code define in "M Codes/End of file:".
stop	Output stop code (M00). Code define in "M Codes/Stop:".

optional_stop	Output code for Optional Stop (M01). Code define in "M Codes/Optional stop:".
stop_on_rough	Allow a stop to output if on rough cut and no glue stop
stop_tab_no_submerged	Output stop code if contour is tab cut when not in submerged machining.
stop_no_submerged	Output stop code if in submerged machining.
stop_no_autothread	Output stop code if no autothreading.
stop_for_tab_forced	Force the output of stop code on tab cut.
optional_stop_last_skim	Allow a optional stop to output on last skim pass
stop_for_tab	Output stop code for tab cut.
optional_stop_for_tab	Output optional stop for tab cut.
stop_die_on_rough_no_tab	Output Stop code at the end of the rough cut on a Die when no tap cut is used.
stop_on_rough_no_coreless	Output Stop code at the end of the rough cut except for the rough cut of a coreless cut.
optional_stop_die_on_rough_no_tab	Output Optional Stop code at the end of the rough cut on a Die when no tap cut is used.
optional_stop_on_rough_no_coreless	Output Optional Stop code at the end of the rough cut except for the rough cut of a coreless cut.
optional_stop_on_rough	Output Optional Stop code at the end of all rough cuts.
stop_last_skim	Output Stop code at the end of the last skim cut.
optional_stop_for_tab_forced	Output Stop code on tab cut, and force the output even if machine is stoped.
optional_stop_on_first_glue_stop	Output Stop code on first glue stop.
optional_stop_no_autothread	Output Stop code when not auto threading is used.
optional_stop_no_submerged	Output Stop code when not using submerged machining.
stop_for_tab_with_leadout_forced	Output Stop code on tab cut with leadout forced.
optional_stop_for_tab_with_leadout_forced	Output Optional Stop code on tab cut with leadout forced.
stop_on_first_glue_stop	Output Stop code on first glue stop.
stop_no_output	Set the internal stop code varialbe to Stop, but do not output code.
high_pressure_pump_on	Output code to turn high pressure pump on. Code define in "M Codes/High pressure on:".
high_pressure_pump_off	Output code to turn high pressure pump off. Code define in "M Codes/High pressure off:".
cut_wire	Output code to cut wire. Code define in "M Codes/Wire cut:".
thread_wire	Output code to thread wire. Code define in "M Codes/Wire thread:".

Cutting Parameters

submerged	Output code to fill tank if submerged machining is available and active.
wire_speed	Output code for wire speed if #522 is y. Prefix defined in question 611.

`wire_tension`	Output code for wire tension if #522 is y. Prefix defined in question 612.
`generator_reg_num`	Generator register number for Agie.
`offset_reg_num`	Offset register number.
`flushing_reg_num`	Flushing register number for agie.
`angle_reg_num`	Angle register number for agie.
`wire_offset_force`	Force the output of the "wire_offset" variable.
`wire_offset_taper`	Force the output of the "offset_taper" variable.
`wire_offset_zero`	Force the output of the "offset_zero" varaible
`ctc_register`	Output the code for the current Cutting Conditions Register.
`ctc_value`	Output the Cutting Coditions value without prefix.
`rapid_feed_rate`	Output the feed rate using the rapid feed rate value.

Cutting Conditions

`cutting_cond_first_cut`	Output code for cutting condition for entrance cut (power setting). Prefix define in "Prefixes/Cutting cond:".
`cutting_cond`	Output code for setting cutting conditions (power setting). Prefix define in "Prefixes/Cutting cond:".

Feed Rate

`feed_rate`	Output code for feed rate.
`start_hole_feed_rate`	Output code for rapid feed rate to edge of start hole.
`feed_rate_first_cut`	Output code for entrance cut feed rate.
`feed_rate_force`	Force the output of the "feed_rate" variable.

Offset

`out_offset_variables`	Output offsets register variables. (Used only if set to use variables for offset "Misc parameters/Taper-offset".
`wire_offset`	Output code to set wire offset. Codes defined in "G Codes/Offset left:", & "G Codes/Offset right:".
`cancel_offset`	Output cancel wire offset in 2Axis. Code defined in "G Codes/Cancel offset:".
`cancel_offset_4axis`	Output cancel wire offset in 4Axis. Code defined in "G Codes/Cancel 4axis offset:".
`agie_wire_offset`	Output code to set wire offset for agie machines. Prefix defined in "Prefixes/Wire offset:".
`set_offset_register`	Output code calling an offset register to set wire offset.
`offset_register`	Output code for the current offset register.
`offset_value`	Output offset amount.

Taper

`out_taper_varaibles`	Output taper angles as register variables. (Used only if set to use variables for taper "Misc parameters/Taper-offset".
`cancel_taper`	Output code for cancel taper. Code defined in "G Codes/Cancel taper:".
`taper_angle`	Output code to set taper angle. See taper format setting in "Misc parameters/Taper-offset".
`taper_zero`	Output taper zero degrees. Used to initialize taper to zero at the beginning of program.
`taper_register`	Output taper register number when taper is output using registers.
`taper_value`	Output taper angle.
`taper_mode`	Output taper mode (Left, Right, Off).
`taper_angle_no_prefix`	Output taper angle without prefix.
`force_taper_zero_on_taper`	Force the output of a taper of 0.0, When the set taper value is not 0.0.

Start Hole (Start Hole Drilling)

`drill_sub_calls`	Output drill subroutine call for making start hole.
`drill_end_of_file`	Output drill end of file for making start holes.
`drill_subprogram`	Output drill sub program with hole positions.
`drill_program`	Output drill positions without sub programs.
`z_drill`	Output Z value for drilled hole.
`z_clearance`	Output Z clearance for positioning between drilled holes.

Script File (Agie 123 with Jobs)

`agie_123_job_xr`	Output X rapid block for agie 123 with jobs.
`agie_123_job_yr`	Output Y rapid block for agie 123 with jobs.
`iso_file_path`	Output the NC sub folder for the ISO file if user has selected NC files to create sub folder.
`tech_file_name`	Output the Technology file name.
`tech_file_path`	Output the Technology file path.
`contour_direction`	Output the contour chain direction (CCW or CW).
`rough_pass_direction`	Output the Rough pass contour direction (CCW or CW).
`agie_123_pass_direction`	Output the contour direction (CCW or CW) using logic based on which pass is being cut.

Script File (AgieVision)

`file_path`	File path for all files when using script format.
`open_script_file`	Open the script file.
`close_script_file`	Close the script file.

`open_iso_file`	Open Iso file.
`close_iso_file`	Close Iso file.
`iso_file_name`	Iso file name.
`set_to_nc_file`	Set all writing functions to the nc file.
`set_to_iso_file`	Set all writing functions to the iso file.
`set_to_script_file`	Set all writing functions to the script file.
`set_to_sbr_file`	Set all writing functions to the sbr file.
`iso_file`	Iso file name.
`script_file`	Script file name.
`material_name`	Material name.
`wire_name`	Wire name
`punch_die_open`	Output feature type (punch, die, open contour) for Agie Vision.
`entry_mode`	Output leadin/leadout mode for Agie Vision.
`exit_mode`	Output exit mode for Agie Vision.
`stp_number`	Start point number.
`number_of_skims`	Output number of skim passes.
`tab_width`	Output tab width.
`reverse_tabs`	Output setting for reverse tab cuts.
`output_sub_calls`	Output subprogram call line (" camw1");
`output_sub_def`	Output subprogram define line ("sub camw1");
`output_sub_number`	Output the subprogram number ("1").
`zero_position_x`	Work piece zero X value (ID_POSX).
`zero_position_y`	Work piece zero Y value (ID_POSY).
`zero_position_z`	Work piece zero Z value.
`return_plane_distance`	Work piece machining return Plane (ID_VALRETP).
`security_plane_distance`	Work piece machining security Plane (ID_VALSECP).
`part_length`	Work piece length (ID_DIML).
`part_width`	Work piece length (ID_DIMB).
`priority_number`	Machining order priority number (ID_PRIORITY).
`quality_name1`	Output quality name for Normal cut and land cut for agie vision.
`quality_name2`	Output quality name for Taper cut of land and taper for agie vision.
`work_condition1`	Output work condition for Normal cut and land cut for agie vision.
`work_condition2`	Output work condition for Taper cut of land and taper for agie vision.
`ra_value1`	Output Ra value for Normal cut and land cut for agie vision.
`ra_value2`	Output Ra value for Taper cut of land and taper for agie vision.
`te_value1`	Output Te value for Normal cut and land cut for agie vision.
`te_value2`	Output Te value for Taper cut of land and taper for agie vision.
`tkm_value1`	Output Tkm value for Normal cut and land cut for agie vision.

`tkm_value2`	Output Tkm value for Taper cut of land and taper for agie vision.
`high_speed1`	Output high speed machining for Normal cut and land cut for agie vision.
`high_speed2`	Output high speed machining for Taper cut of land and taper for agie vision.
`smooth_finish1`	Output smooth finish setting for Normal cut and land cut for agie vision.
`smooth_finish2`	Output smooth finish setting for Taper cut of land and taper for agie vision.
`commutation_entry_distance`	(ID_COMMPOINTENTRY)
`commutation_exit_distance`	(ID_COMMPOINTEXIT)
`four_axis_z_lower`	Four axis cutting z lower section value (ID_POSZ).
`start_hole_diameter`	Start hole diameter value (ID_DIAMETER)
`set_collar_cutting_land`	Output the collar setting for land.
`set_collar_cutting_taper`	Output the collar setting for taper.
`collar_position`	Z value for collar/land (ID_POSZ).
`collar_taper_angle`	Taper value for collar/land & taper (ID_TAPER).
`collar_taper_height`	Output the collar taper height.
`collar_group_name`	Output the collar group name.
`end_point_x`	End point X (ID_POSX).
`end_point_y`	End point Y (ID_POSY).
`taper_collar_type`	Collar/Land type (on top, on bottom).
`die_clearance`	Die clearance (ID_CLEARANCE).
`prev_iso_file_name`	Previous Iso file name.
`collar_type`	Output collar type for land and taper.
`collar_land_height`	Land height.
`agie_work_name`	Work piece name for taper in land and taper (LC1,LC2,LC3).
`agie_group_name`	Group name.
`output_agie_taper_z`	Output the taper Z value.
`punch_die`	Output the PUN / HOL value for punches and dies.
`output_quality_one`	Output that quality one is either quality is user defined or predefined.
`output_quality_two`	Output that quality two is either quality is user defined or predefined.
`output_quality_one_coreless`	Output that quality one for coreless is either quality is user defined or pre-defined.
`output_quality_one_land_and_taper`	Output that quality one for land and taper is either quality is user defined or pre-defined.
`output_quality_two_land_and_taper`	Output that quality two for land and taper is either quality is user defined or pre-defined.
`output_die_clearance`	Output die clearance in Agievision.
`output_agie_taper`	Output lines for taper in Agievision.
`output_agie_leadout`	Output lines for leadout in Agievision.

Agie

`cc_coreless_agie`	Output the appropriate offset (G40,G41) of coreless cut depending on if it is the 1st, 2nd, of 3rd entity.
`agie_start_of_file`	Output the agie start of file block if it has not been output yet.
`last_move_direction_coreless`	Output the X,Y of the vector of the last movement of the coreless cut.
`last_move_direction`	Output the X,Y of the vector of the last movement of contour cut.
`first_move_direction`	Output the X,Y of the vector of the first movement of contour cut.
`first_move_split_arc`	Output the first move of the contour if it is an arc. Split the arc and output it as two arc moves.
`x_f_distance_from_end`	Output the X move of a line moving to a point a distance back from the actual end point.
`y_f_distance_from_end`	Output the Y move of a line moving to a point a distance back from the actual end point.
`x_f_arc_distance_from_end`	Output the X move of a arc moving to a point a distance back along the arc from the actual end point.
`y_f_arc_distance_from_end`	Output the Y move of a arc moving to a point a distance back along the arc from the actual end point.
`arc_center_distance_from_end`	Output the new arc center when arc cut distance from arc end is used.
`prev_v_to_zero`	Set the prev V movement value to 0.0.

Sodick

`sodick_taper_height`	Output taper height as stock height, or land height depending on current settings, Use in header for TP value.
`sodick_taper_opposite_height`	Output taper opposite height as stock height, or land height depending on current settings, Use in header for TN value.
`memorize_rethread_on_stop`	Output the code for memorizing the rethread point when the wire breaks.

Charmille

`g27_on_no_taper`	Output a G27 code when no taper is used on 2Axis contour.
`taper_zero_blum`	Output taper 0.0. Custom variable for Blum.

Ona

`technology_file_name`	Output the technology file name that was entered on the ONA posting page.
`xcenterup_minus_xcenterlow`	Output X center value for upper section arc of 4 axis part incremental from X Center of lower section arc.
`ycenterup_minus_ycenterlow`	Output Y center value for upper section arc of 4 axis part incremental from Y Center of lower section arc.

Wire Guides

`metric_upper_guide_pos`	Output upper wire guide position in metric regardless of inch/metric mode
`upper_guide_pos`	Output upper wire guide position.
`lower_guide_pos`	Output lower wire guide position.
`guide_span`	Output the distance between upper guide, and lower guide.

Misc Characters

`cr_lf`	Output carriage return line feed characters.
`single_quote`	Output single quote character.
`quote`	Output double quote character.
`n_spaces`	Output spaces for the number of characters in the previous sequence numbers
`four_axis_delimeter`	Output delimeter character between upper and lower. Delimeter value define in "Misc parameters/4axis contour delimeter:".
`null`	Output a ascii charater 0 or NULL.

Misc Variables

`on_error_jump`	Output code for on error jump. Code defined in "M Codes/On error:".
`incr_upper_plane`	Output incremental value from program plane to upper plane.