

2.9.1 LIST OF G CODES AND GROUPS (CONT'D)

Table 2.21 List of G codes

| G code | Group | Function | B: Basic O: Optional | G code | Group | Function | B: Basic O: Optional |
|--------|-------|---|-------------------------|--------|-------|---|-------------------------|
| G00 | 01 | Positioning | B | G54 | 12 | Shift to work coordinate system 1 | O |
| G01 | | Linear interpolation | B | G55 | | Shift to work coordinate system 2 | O |
| G02 | | Circular interpolation CW, Helical interpolation CW | B, O | G56 | | Shift to work coordinate system 3 | O |
| G03 | | Circular interpolation CCW, Helical interpolation CCW | B, O | G57 | | Shift to work coordinate system 4 | O |
| G04 | * | Dwell | B | G58 | | Shift to work coordinate system 5 | O |
| G06 | | Positioning in error detect off mode | B | G59 | | Shift to work coordinate system 6 | O |
| G09 | | Exact stop | B | G60 | 01 | Unidirectional approach | O |
| G10 | | Tool offset value and work coordinate, Shift-value modification | B, O | G61 | 13 | Exact stop mode | B |
| G12 | 02 | Circle cutting CW | O | G64 | | Exact stop mode cancel | B |
| G13 | | Circle cutting CCW | O | G65 | * | Non-modal call of user macro | O |
| G17 | | XY plane designation | B | G66 | 14 | Modal call of user macro | O |
| G18 | | ZX plane designation | B | G67 | | Modal call of user macro cancel | O |
| G19 | 06 | YZ plane designation | B | G70 | * | Bolt hole circle | O |
| G20 | | Inch input designation | O | G71 | | Arc | O |
| G21 | 04 | Metric input designation | O | G72 | | Line-at-angle | O |
| G22 | | Stored stroke limit ON | O | G73 | | Canned cycle 10 | O |
| G23 | | Stored stroke limit OFF | O | G74 | 09 | Canned cycle 11 | O |
| G27 | | Reference point check | O | G76 | | Canned cycle 12 | O |
| G28 | * | Automatic return to reference point | O | G77 | | Canned cycle 13 | O |
| G29 | | Return from reference point | O | G80 | | Canned cycle cancel | O |
| G30 | | Return to 2nd, 3rd, 4th reference point | O | G81 | | Canned cycle 1, Output for external motion | O |
| G31 | | Skip function | O | G82 | | Canned cycle 2 | O |
| G33 | 01 | Thread cutting | O | G83 | | Canned cycle 3 | O |
| G36 | * | Automatic centering | O | G84 | | Canned cycle 4 | O |
| G37 | | Automatic centering | O | G85 | 09 | Canned cycle 5 | O |
| G38 | | Z-axis reference surface offset | O | G86 | | Canned cycle 6 | O |
| G40 | 07 | Tool radius compensation cancel | O | G87 | | Canned cycle 7 | O |
| G41 | | Tool radius compensation, left | O | G88 | | Canned cycle 8 | O |
| G42 | | Tool radius compensation, right | O | G89 | | Canned cycle 9 | O |
| G43 | 08 | Tool length compensation, plus direction | B | G90 | 03 | Absolute command designation | B |
| G44 | | Tool length compensation, minus direction | B | G91 | | Incremental command designation | B |
| G49 | | Tool length compensation, cancel | B | G92 | * | Programming of absolute zero point | B |
| G45 | * | Tool position offset, extension | B | G94 | 05 | Feed per minute (mm/min) designation | O |
| G46 | | Tool position offset, retraction | B | G95 | | Feed per revolution (mm/rev.) designation | O |
| G47 | | Tool position offset, double extension | B | G98 | 10 | Return to initial point for canned cycles | O |
| G48 | | Tool position offset, double retraction | B | G99 | | Return to point R for canned cycles | O |
| G50 | 15 | Scaling OFF | O | G100 | 16 | High-speed cutting cancel | O |
| G51 | | Scaling ON | O | G101 | | High-speed cutting in sequential processing mode ON | O |
| G52 | 12 | Return to base coordinate system | O | G102 | | High-speed cutting in processing mode ON | O |
| G53 | * | Temporary shift to machine coordinate system | O | | | | |

Notes:

1. The G codes in the * group are non-modal, and are effective only for the block in which they are commanded. They cannot be programmed twice or more in a block. They must be programmed only once in a block of its own.

2. The codes marked with ◀ is automatically selected at power on or reset.