Notes:

- Selection of metric system or inch system is made by setting (#6001D0).
- Selection of x 1 or x 10 is made by parameter setting (#6006D5).

Tool offset value must always be written in 0.001 mm (or 0.0001 inch, or 0.001 deg†.), and offset is possible in these units.

In 0.01 mm increment system, the following operation must be made in the unit of 0.01 mm.

- Programming for operation in TAPE mode.
- Write operation in MDI mode.
- Programming for operation in MEMORY mode†.
- Program editing operation in EDT mode†.

NOTES:

- If NC tape programmed by 0.001 mm is fed into or stored in an equipment set by 0.01 mm increment, the machine will move ten times the intended dimensions.
- If the increment system is switched when the contents of NC tape are stored in memory, the machine will move by ten times or one tenth of the commanded dimensions.
- When the stored program is punched out on the tape†, the stored figures are punched out "as stored" regardless of switching of the increment system.

2.3.5.2 LEAST OUTPUT INCREMENT

Least output increment is the minimum unit of tool motion. Selection of metric or inch output is made by parameter (#6007D3) setting.

Table 2.11 Least output Increment

	Linear axis	Rotary axis†
Metric output	0.001 mm	0.001 deg
Inch output	0.0001 in.	0.001 deg

2.3.6 MAXIMUM PROGRAMMABLE DIMENSIONS

Maximum programmable dimensions of move command are shown below.

Table 2.12 Maximum Programmable Dimensions

		Linear axis	Rotary axis†
Metric output	Metric input	±8388.607 mm	±8388.607 deg
	Inch input	±330.2601 in.	±8388.607 deg
Inch output	Metric input	±21307.062 mm	±8388.607 deg
	Inch input	±838.8607 in.	±8388.607 deg

In incremental programming, input values must not exceed the maximum programmable value.

In absolute programming, move amount of each axis must not exceed the maximum programmable value.

Note: The machine may not function properly if a move command over the maximum programmable value is given. The above maximum programmable values also apply to distance command addresses I, J, K, R, Q in addition to move command addresses X, Y, Z, α.

The accumulative value must not exceed the maximum accumulative values shown below.

Table 2.13 Maximum Accumlative Values

	Linear axis	Rotary axis†
Metric input	± 99999.999 mm	± 99999.999 deg
Inch input	± 9999.9999 in.	± 99999.999 deg

Listed input values do not depend on metric/inch output system.

2.4 TRAVERSE AND FEED FUNCTIONS

2.4.1 RAPID TRAVERSE RATE

2.4.1.1 RAPID TRAVERSE RATE

The rapid traverse motion is used for the motion for the Positioning (G00) and for the motion for the Manual Rapid Traverse (RAPID). The traverse rates differ among the axes since they are dependent on the machine specification and are determined by the machine tool builders. The rapid traverse rates determined by the machine are set by parameters in advance for individual axes. When the tool is moved in rapid traverse in two or three axial directions simultaneously, motions in these axial directions are independent each other, and the end points are reached at different times among these motions. Therefore, motion pathes are normally not straight.

For override rapid traverse rates, Fo, 25%, 50% and 100% of the basic rapid traverse rates, are available. Fo is a constant feed rate set by a parameter (#6231).

2.4.1.2 SETTING RANGE OF RAPID TRAVERSE RATE

For each axis, rapid traverse rates can be set at some suitable multiple of 7.5 mm/min (or deg/min).

The maximum programmable rapid traverse rate is 24,000 mm/min. However, respective machine tools have their own optimum rapid traverse rates. Refer to the manual provided by the machine tool builder.